INTERNATIONAL CIVIL AVIATION ORGANISATION
WESTERN AND CENTRAL AFRICAN OFFICE

Tenth Meeting of the Meteorology Sub-Group (MET/SG/10)
Dakar, Senegal, 29 June to 01 July 2011

Appendix A -List of Participants

N°	State/ Organisation	Name/ Title	Address/	E-mail	Tel/ Fax
1	**France**	**Patrick Simon** Aviation Data Météo France	Météo – France 42, Avenue Gaspard Coriolis - 31057 Toulouse Cedex	patrick.simon@meteo.fr	+33 5 61 07 81 5 or + 33 6 98 05 33 47 +33 5 61 07 81 09
2	**Gambia**	**Seedy Jobe** Aviation Meteorological Coordinator	The Gambia Civil Aviation Authority Banjul Int Airport, The Gambia	sidmariejob@yahoo.co.uk	+220 99 88 419 +220 44 72190
3	**Kenya**	**Gicheru Winstone Njuguna** Chief Aeromet Inspector	Kenya Civil Aviation Authority P.O Box 30163 00100 GPO Nairobi Kenya	wgicheru@kcaa.or.ke	+25420827470 +25420829102
4	**Madagascar**	**RAKOTOARIMANANA Nirison** Inspecteur ATS/MET et DNA	Aviation Civile Madagascar 13, rue Fernand Kasanja BP 4414 Tsimbazaza Antanarivo 101 Madagascar	nira@acm.mg acm@acm.mg	+261202222438 +261202224726
5	**Maroc**	**Abderrahim MOUHTADI** Chef du Service de la Météorologie Aéronautique	Direction de la Météologie Nationale BP 8106 Casa-OASIS Maroc	abderrahim.mouhtadi@gmail.com	+212 522654910 +212522913698
6	**Niger**	**El. Mahaman Issa Salifou** Ingénieur des Etudes et Exploitation de la Météorologie, Chef Bureau Météo aux Activités Aéronautiques Nationales du Niger (AANN)	ASECNA/AANN BP 1096 Niamey – Niger	salifelma@yahoo.fr	+227 90685090

7		**Hassane Abdou** Chargé des Services MTO		abdoucvm@yahoo.fr	+22794852126
8	**Nigeria**	**Mary Ottu ISO** MET Manager	Nigeria Meteorological Agency Murtala Muhammed Int'l Airport Lagos POBOX 4734 MMIA Ikeja, LAGOS STATE	maryottuiso@yahoo.com	+2348023005890
9		**Ignatius Iroh. Nwoko** Deputy Gen Manager	Nigeria/NIMET ENUGU Airport Nigeria	ignatiusiroh@yahoo.com	+234 8050871756
10		**Raimi Adewara** Aviation Safety Inspector	Nigeria Civil Aviation Authority Department of Aerodrome Airspace Standards, Aviation House, Lagos Nigeria	r_adewara@yahoo.com	+243 80 55099607
11	**Senegal**	**Saïdou Dieme** Dakar RODB Manager	ANACS SENEGAL DAKAR Yoff	saidoudieme@yahoo.fr	+221 77 652 53 87
12		**Abdoul Aziz Diop** Conseiller Technique ANAMS	ANAMS Aéroport L. Sedar Senghor BP 8257 Dakar- Yoff	diawa5305@yahoo.fr	+221338200851 +221 33 820 1327
13	**South Africa**	**Albert Chuene Moloto** Compliance Officer	South African Weather Service	albert.moloto@weathersa .co.za	+27113909333 +27113909322
14		**Gaborekwe Esther Khambule** Senior Manager Aviation MET	South African Weather Service P.O Box 11 94 ORTAMBO International Airport Kempton Park 1627	gaborekwe.khambule@weathersa.co.za	+27113909333
15	**SPAIN**	**Angel Sainz-Pardo** Head of the Lanzarote Airport MET Office	(Canary Island) Oficina Meteorologica del Aeropuerto de Lanzarote, Terminal TL-35508 Playa Honda LAS PALMAS (SPAIN)	asainzpardop@aemet.es	+34 928 82 18 97 +34 686 93 84 03 +34 928 82 18 89
16	**United Kingdom (RU)**	**Christopher Tyson SADIS** Manager International Aviation Analyst-Met Office	SADIS Manager Fitzroy RD, Exeter Devon EX1 3PB United Kingdom	chris.tyson@metoffice.gov.uk	+44 1392 88 4892
17	**ASECNA**	**Ngouaka Dieudonné** Chargé d'activités Prévisions MET (Point Focal)	ASECNA BP 3144 Av. Jean Jaurès Dakar (Sénégal)	dngouaka@yahoo.fr ngouakadie@asecna.org	+221 33 869 57 14
18		**Wele Oumar Abdallah** Chargé d'activités Réseaux au Département Météo	ASECNA BP 3144 Av. Jean Jaurès Dakar (Sénégal)	oawele@yahoo.com weleoum@asecna.org	+221 77 4448236

19		**Sougue Bissa** Chargé d'Activités Gestion et Exploitation des Télécommunications fixes et de la Navigation	ASECNA BP 3144 Av. Jean Jaurès Dakar (Sénégal)	souguebis@asecna.org sougue@voila.fr	+221 33 8695732 +221 33 820 75 38
20		**Madani Keita** Représentation Service Technique	ASECNA BP 8163 Direction de l'Exploitation Technique	keita-madani@hotmail.com keitamad@asecna.org	+221 77 544 9826
21		**Ngamini Jean Blaise** Ingénieur ASECNA	ASECNA 32-38 Jean Jaurès BP 4133 Dakar	ngaminijea@asecna.org	
22		**Mbolidi Joseph** Responsable Réseaux Météo	ASECNA BP 3144 Dakar	mbolidi200@yahoo.fr	+221 33 869 27 13
23		**Ilboudo Goama** Chef Bureau CELICA MET	ASECNA 32-38 Jean Jaurès BP 4133 Dakar	ilboudogoa@asecna.org	+221 33 869 57 05 + 221 33 820 75 28
24	**WMO**	**Sillayo Scylla Marko** Scientific Officer AEMET	WMO Secretariat Case Postale 2300 Genève	ssillayo@wmo.int	+41 227308408
25	**ICAO**	**Vitalis Ahago** Regional Officer MET	ESAF /ICAO Nairobi	vitalis.ahago@icao.unon.org	
26		**Aoa Okossi** Expert MET	WACAF/ OACI Aéroport International Léopold Sedar Senghor P.O Box 2356 Dakar-Sénégal	aokossi@dakar.icao.int	+221 33 839 93 72 +221 33 823 69 26
27		**Ndeye Coumba S. Diagne** Assistant AT/TC/MET	WACAF/ OACI Aéroport International Léopold Sedar Senghor P.O Box 2356 Dakar-Sénégal	nsiby@dakar.icao.int	+221 33 839 93 75 +221 33 823 69 26
28		**Babacar Malick Koné** Assistant IT/AIM	WACAF/ OACI Aéroport International Léopold Sedar Senghor P.O Box 2356 Dakar-Sénégal	bkone@dakar.icao.int	+221 33 839 93 79 +221 33 823 69 26
29		**Moussa Sylla** Cleaner /Messenger	WACAF/ OACI Aéroport International Léopold Sedar Senghor P.O Box 2356 Dakar-Sénégal	msylla@dakar.icao .int	+221 33 839 93 93 +221 33 823 69 26
30		**Ndiagua Seck Sarr** Assistant/ADM	WACAF/ OACI Aéroport International Léopold Sedar Senghor P.O Box 2356 Dakar-Sénégal	nseck@dakar.icao.int	+221 33 839 9376 +221 33 823 69 26

Appendix B : STATUS OF IMPLEMENTATION OF APIRG CONCLUSIONS AND DECISIONS

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
1) AFMAG Con. 1/6 APIRG Con. 8/43	AMBEX procedures	that: a) States participating in the AMBEX scheme strictly follow AMBEX procedures as contained in the AMBEX handbook. b) the ICAO regional offices concerned, with a view to assisting states where major deficiencies are identified, conduct a second series of seminars on AMBEX procedures. c) ICAO regional offices monitor the operation and effectiveness of the AMBEX scheme through periodic TAF availability surveys.	AMBEX procedures amended through AMBEX Handbook 7th edition (APIRG/17 Con. 75, 76, 77 and 78). New procedures initiated by AFI RODBs and Secretariat	Secretariat	Completed
2) AFMAG Con. 3/2 APIRG Con.10/31	Reception of the SADIS	that: a) AFI States, as a matter of urgency, make the required arrangements to acquire the necessary equipment for reception of the WAFS SADIS products at their met centre(s). b) the cost of provision of such service may be recovered through air navigation charges	Acquire the necessary equipment for reception of WAFS through SADIS.	States	91% (40/44) of AFI States are provided with SADIS broadcast or FTP services (Sierra Leone, Sao Tome and Principe, Eritrea and Burundi are not using SADIS)
3) AFMAG Con. 3/4 APIRG	Brazzaville TCC	That authorities at Brazzaville TCC be urged to take the required measures to improve TAF reception and exchange at	To take the required measures to improve	Brazzaville TCC	Not Completed

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
Con.10/33		their TCC, namely the establishment of reliable telecommunications links with Kinshasa and Luanda.	TAF reception and exchange at their TCC.		
4) MET/SG Con. 4/4 APIRG Con.12/34	Feedback on SIGWX charts to London WAFC	That states receiving SIGWX from WAFC LONDON provide feedback on a timely manner to the WAFC on their findings on the accuracy of the SIGWX test charts received.	Provision of feedback on SIGWX	Sates	Continuous basis: The WAFC Provider State
5) MET/SG Con.4/10 APIRG Con. 12/40	Training in the preparation and issuance of volcanic ash advisories and SIGMETs	That, states concerned should conduct regular exercises in cooperation with their VAAC at their meteorological watch offices (MWOS) on the preparation and issuance of volcanic ash advisories and SIGMETS in order to keep their aeronautical meteorological forecasters current with the procedures.	Conduct regular exercises at meteorological watch offices (MWOs) on the preparation and issuance of volcanic ash advisories and SIGMETs	MWO Provider States	Continuous: yearly tests conducted
6) APIRG Con. 13/68	Better communications for volcano observatories	That states concerned make efforts to establish reliable communications links between their volcano observatories and meteorological watch offices (MWOS) and area control centres (ACCS).	Establish reliable communications links between volcano observatories and MWOs and area control centres (ACCS).	MWO Provider States	Continuous
7) MET/SG Con. 6/2 APIRG Con.	Need for latest version of workstation software	That states in the AFI region be encouraged to acquire the latest version of workstation software from their respective workstation suppliers for the use of GRIB and BUFR codes	acquire the latest version of workstation software	States	On going

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
14/32					
8). MET/SG Con. 6/8 APIRG Con. 14/37	Cost recovery of aeronautical meteorological services	That, when establishing a cost recovery system for aeronautical meteorological services, states in the AFI region use relevant ICAO and WMO documents and cooperate with airports, air navigation services and other aeronautical partners, including users.	Recovering aeronautic meteorological service costs	States	Action on-going
9) APIRG Con. 14/38	Seminars on cost recovery of aeronautical meteorological services	that WMO in co-ordination with ICAO organize seminars on cost recovery of aeronautical meteorological services	organize seminars on cost recovery of aeronautical meteorological services	WMO/ Secretariat	Action on-going
10) MET/SG Con. 6/9 APIRG Con. 14/39	Autonomous entities and meteorological service for air navigation	That states in the AFI region when considering the establishment of autonomous entities to manage their air navigation services, take due account of the provision of meteorological service to air navigation.	Take due account of the provision of meteorological service to air navigation when establishing a CAA	States	On going
11) MET/SG Con. 6/10 APIRG Con. 14/40	Quality management	That states in the AFI region give priority to implementation of a quality management system (ISO 9000 series of standards) in order to improve meteorological service for international air navigation.	Implement a quality management system to improve meteorological services	States	On going: APIRG Conclusion 16/59
12) APIRG Con. 14/41	Study of training available for aeronautical meteorological	that as a follow-up action on recommendation 10/26 of Lim AFI (com/met/RAC) 1988 and recommendation 14/17 of AFI /7, 1997, regional offices Dakar and Nairobi carry out the study of training available for aeronautical meteorological	Carry out a study of training available for aeronautical meteorological	Secretariat	Action underway: a survey completed in WACAF States in 2009

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
	personnel in the AFI region	personnel in the AFI region.	personnel in the AFI region.		
13) APIRG Con. 14/42	Seminars on ATS/MET/PILOT coordination	that ICAO, in co-ordination with WMO, organize seminars on ATS/MET/PILOT co-ordination for the AFI region.	Organize seminars on ATS/MET/PILOT co-ordination for the afi region.	Secretariat/ WMO	Action on going: 2 seminars completed in 2010 (ESAF/WACAF)
14) APIRG Con. 15/81	training for the use of GRIB and BUFR codes	That the united kingdom, in coordination with ICAO and WMO, be invited to consider providing training for the use of GRIB and BUFR codes to those AFI states which have not benefited from previous training seminars.	Provide training for the use of GRIB and BUFR codes to AFI States	UK, WMO and Secretariat	Action cancelled due to lack of funding.
15) APIRG Con. 15/82	Procurement of the necessary SADIS 2G hardware	That SADIS users in the AFI region be invited to procure the necessary SADIS 2g hardware well ahead of the termination of the 1g service on 31 December 2008,	Procure the necessary SADIS 2G hardware	States	Completed: all Sates equipped with SADIS VSAT Station have updated to SADIS 2G hardware.
16) APIRG Con.16/48	Response by states to ICAO AFI regional offices state letters	That states respond promptly to ICAO AFI regional offices state letters that solicit information on the status of implementation of the relevant decisions of the MET/SG and the met-related conclusions and decisions of APIRG.	Respond promptly to ICAO AFI regional offices state letters	States	On going: responses have been slightly improved
17) APIRG Con. 16/49	Training seminar on the use of icing, turbulence and convective clouds forecasts in grib2 code form	That the WAFC London provider state be invited, in coordination with ICAO and WMO to provide training seminars on the use of icing, turbulence and convective clouds forecasts in GRIB code form to states	Provide training seminars on the use of icing, turbulence and convective clouds forecasts in GRIB 2 code form	UK, WMO, Secretariat	Differed for 2012 due to delay in developing icing, turbulence and convective clouds forecasts in GRIB code form

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
18) APIRG Con. 16/51	SADIS FTP accounts	that approved SADIS users in the AFI region who have internet capabilities and do not have an active SADIS ftp account write to the SADIS provider state to have an access account	Provide a SADIS FTP access accounts	SADIS Provider State	Action on-going. several States have applied and accorded access account by the SADIS Provider State
19) APIRG Con. 16/59	Support to states implement quality management systems (QMS)	that: WMO in coordination with ICAO continue to assist states in implementing QMS in the form of: a) seminars on QMS for the chief executives of meteorological authorities (CEOs) as a priority and request them (CEOs) to report on status of implementation on QMS in their services on a regular basis; b) support for more detailed training for personnel who would act as a core group in the region (training of trainers); c) attachments of staff from the region to states that have already adopted QMS through VCP or otherwise; and d) financial resources for engaging consultancy services during the initial stages of implementation.	Provide support to States for the implementation of QMS	WMO, ICAO	Completed: WMO provided 2 seminars and ICAO provided 2 course sessions
20) APIRG Dec. 16/64	Coordination between WMO regional association 1 (Africa) and APRIG on aeronautical meteorology	That, the chairperson of the meteorology sub-group liaise with the WMO Rapporteur for aeronautical meteorology programme for regional association1(Africa) on matters of common interest when required.	Coordination between WMO regional Association 1 (Africa) and APRIG on aeronautical meteorology	ICAO/ WMO	Completed: coordination started and on continuous manner

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
21) APIRG Con16/58	Legal framework for aeronautical meteorological services	That states in implementing cost recovery for aeronautical meteorological services in accordance with APIRG conclusions 14/37 and 14/38 put in place a national legal framework for aeronautical meteorological services which include cost recovery arrangements.	Put in place a national legal framework for aeronautical meteorological services which include cost recovery arrangements.	States	On going
22) SP RAN(2008) Rec. 6/15	Foster the implementation of SIGMET and QMS in the AFI region	that APIRG adopt the met performance objective: foster the implementation of SIGMET and quality management system(QMS) in the AFI region as contained in the performance framework form at appendix f to the report on agenda item 6	Foster the implementation of SIGMET and QMS in the AFI region	APIRG	On going: 2 SIGMET workshops and 2 QMS in 2010. Further actions by APIRG/17 Concl. 17/81 and 17/82
23) SP RAN(2008) Rec. 6/16	Technical and financial support for the implementation of quality management systems in the AFI region	that ICAO identify potential sources of technical and financial support for states for the implementation of quality management systems(QMS) in meteorology	Identify potential sources of technical and financial support for States for the implementation of QMS in meteorology	ICAO/ ACIP	Not implemented: further actions recommended by Concl. 17/102 of APIRG/17
24) SP RAN(2008) Rec. 6/17	Implementation of terminal area warnings and forecasts, provision of WAFS forecasts and optimization of OPMET data exchanges and training for aeronautical	That APIRG adopt the Performance Objective: Foster the implementation of terminal area warnings and forecasts, provision of world area forecast system (WAFS) forecasts and optimization of OPMET data exchanges as contained in Appendix G to the report on Agenda Item 6.	Foster the implementation of terminal area warnings and forecasts, provision of world area forecast system (WAFS) forecasts and optimization of	APIRG	Start implementation during State mission

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
	meteorological staff		OPMET data exchanges		
25) APIRG/17 Concl. 17/72	SADIS strategic assessment tables	That, the AFI SADIS strategic assessment tables, as given in Appendix 3.5A to this report be adopted and forwarded to the SADISOPSG for planning the future SADIS bandwidth requirements.	Adopt and forward the AFI SADIS strategic assessment tables to the SADISOPSG for planning the future SADIS bandwidth requirements.	Secretariat	Completed
26) APIRG/17 Concl. 17/73:	Alternative SADIS 2G hardware	That, States review available new options for the SADIS 2G systems in order to benefit from such options by contacting vendors directly.	review available new options for the SADIS 2G systems in order to benefit from such options by contacting vendors directly.	States	Completed by the majority of States
27) APIRG/17 Concl. 17/74:	SADIS workstations evaluations	That, States ensure that their current workstations fulfill the software requirements outlined on the WAFSOPSG website and take corrective action, as necessary, with their workstation providers.	ensure that their current workstations fulfill the software requirements	States	Completed by the majority of States
28) APIRG/17 Concl. 17/75	OPMET exchange requirements and inter-regional OPMET gateway (IROG)	That: a) The OPMET data type, OPMET bulletins and types of OPMET exchange at Appendix 3.5C, be implemented by Dakar and Pretoria Regional OPMET data banks	Implement AFI OPMET exchange requirements and inter-regional gateway	NOC, BCC and RODB Provider Sates	On going

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
	functions	(RODBs), AMBEX bulletin compiling centres (BCCs) and National OPMET Centres (NOCs) as the OPMET requirements in the AFI Region; and b) The IROG functions and the requirements for the exchange of OPMET between the AFI Region and adjacent Regions in Appendices 3.5D and 3.5E to this report be implemented by Dakar and Pretoria RODBs as the requirements for the interregional OPMET exchange in the AFI Region.	functions		
29) APIRG/17 Concl. 17/76	Revision of OPMET data requirements	That, information related to the requirements of OPMET data from AOP Aerodromes as given in Appendix 3.5F to this report be included in the AFI FASID MET Table 1A after the normal amendment of the FASID Table.	include the information related to the requirements of OPMET data from AOP Aerodromes in AFI FASID MET Table 1A	Secretariat	Completed
30) APIRG/17 Concl. 17/77	OPMET exchange monitoring and management procedures at BCCS and RODBs	That, the OPMET management and monitoring procedures given in appendices 3.5I and 3.5J to this report be implemented by the RODBS and the BCCS as the requirements for OPMET exchange monitoring and management procedures in the AFI region.	Implement OPMET exchange monitoring and management procedures at BCCS and RODBs	BCC and RODB Provider States	On going (see reports from RODB Managers)
31) APIRG/17 Concl. 17/78	Interface control document (ICD) for AFI OPMET database access procedures	That: a) The procedures given in Appendix 3.5I to this report be implemented as the Regional Interface Control Document (ICD) access procedures for AFI OPMET	Implement AFI Interface control document (ICD) for AFI OPMET database	States	On going

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
		database; and b) The ICD be published by the ICAO Regional Office(s).	access procedures		
32) APIRG/17 Dec.. 17/79	Future work programme and composition of the task force	That, the work programme and the composition of the AFI OPMET Management Task Force (MTF) be updated as shown in Appendix 3.5L to this report.	Update the work programme and the composition of the AFI OPMET Management Task Force	APIRG	Completed
33) APIRG/17 Dec.. 17/80	Frequency of meetings of the AFI OPMET MTF	That, the Task Force meets once a year to plan and assess progress on its work programme. The yearly meetings will be held alternatively between RODBs Dakar and Pretoria. *Note: Provision of SIGMET, Tropical Cyclones and Volcanic Ash Advisories for the AFI Region*	Establish the frequency of meetings of the AFI OPMET MTF	APIRG	Completed
34) APIRG/17 Concl. 17/81	Improving the dissemination of SIGMET	That: a) Dakar ROBD provider State and ASECNA take the required measures to file automatically the SIGMET test results using the appropriate procedures in the SIGMET guide; and b) Upon receipt of a VAA Message, the MWOs in the AFI Region act promptly to issue a corresponding SIGMET within ten (10) minutes.	Improve the dissemination of SIGMETs	Dakar RODB and MWOs	- Dakar RODB updated with regard to automatic fling - Most MWOs issue SIGMETs within ten (10) minutes
35) APIRG/17 Concl. 17/82	Measures to improve the issuance and	That: a) The ICAO Regional Offices of Dakar and Nairobi evaluate the provision of SIGMET information in all AFI MWOs through the RODB and State missions;	Take the required measures to improve the issuance and	a) ICAO ROs	a) On going

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
	dissemination of SIGMET	b) ICAO Regional Offices encourage States to establish arrangements between adjacent MWOs for the provision of SIGMET information in MWOs where telecommunications or organizational issues are still inadequate; c) WMO in coordination with ICAO, be invited to provide additional training in the issuance of VA and TC SIGMETs to some MWOs not able to issue the required SIGMETs; d) The ICAO Regional Offices of Dakar and Nairobi update the AFI SIGMET guide for additional details of VA and TC test procedures; and e) The MWOs provider States endeavor to address the identified deficiencies in the issuance and dissemination of SIGMET.	dissemination of SIGMET	b) ICAO Regional Office c) WMO/ ICAO d) ICAO Regional Office e) MWO Provider States	b) As necessary c) To be scheduled d) Completed e) MWO Provider States
36) APIRG/17 Concl. 17/83	Improving availability of non-regular OPMET information	That, AFI States be invited to organize coordination meetings between ATM, MET and Pilots on regular basis, to improve the availability of non-regular OPMET information in the AFI Region.	Improve availability of non-regular OPMET information	States	As necessary
37) APIRG/17 Dec. 17/84	Decision 17/84: establishment of core team of experts for the global ATM global operational concepts	That, a core team of experts be established consisting of members from ASECNA, Kenya, Morocco, South Africa and the United Kingdom to collect and study information on the impact of the global Air Traffic Management operational concept on the provision of Aeronautical Meteorological Services at a Regional level (AFI Region). *Note 1: The team of experts will consist of specialists in*	Establish of core team of experts for the global ATM global operational concepts	APIRG	Completed

Conc/Dec No.	Title of Conclusion/ Decision	Text of Conclusion/Decision	Follow-up Action	To be initiated by	Status/Action Taken
		ATM, CNS and MET.			
38) APIRG/17 Dec. 17/85	Future work programme of the MET/SG	That, the work programme of the MET/SG be updated as shown in Appendix 3.5L to this report.	Update the MET/SG future work programme	APIRG	Completed
39) APIRG/17 Concl. 17/102	Training of meteorological offices personnel for the implementation of quality management system (QMS) and issuance of SIGMETs under ACIP.	That, the following programmes be accorded high priority in ACIP; a) Selected aeronautical MET personnel be trained as trainers in Quality Management System (QMS); and b) Meteorological Watch Offices (MWOs) personnel be provided with additional training in the preparation and issuance of SIGMETs. *Note: Report on Tactical Action Group (TAG) Activities*	Train meteorological offices personnel for the implementation of quality management system (QMS) and issuance of SIGMETs under ACIP.	ACIP	Deferred for 2012

INTERNATIONAL CIVIL AVIATION ORGANIZATION

AFI MET BULLETINS EXCHANGE (AMBEX) HANDBOOK

Seventh Edition – Amendment 2

July - 2011

Prepared by the ICAO ESAF & WACAF Offices
And published under the authority of the Secretary General

Record of amendments

Inscription des amendements

AMBEX HANDBOOK - 7TH EDITION -

MANUEL AMBEX - 7EME EDITION -

Amendment No. Amendement No.	Dated En date du	Date entered Date d'inscription	Entered by Inscrit par
1	15/03/2010	01/04/2010	RO/MET
2	01/07/2011	15/08/2011	MET/SG Secretariat

TABLE OF CONTENTS

Page

ABBREVIATIONS AND ACCRONYMES 6

1. INTRODUCTION 7

2. AMBEX SCHEME - GENERAL 8
2.1 Objective 8
2.2 Structure 8
2.3 Products 8
2.4 Communications -General 8
2.4.1 Use of AFS Components 8
2.4.2 Use of the AFTN 9
2.4.3 Use of the Satellite Distribution System for aeronautical information (SADIS-operated by the UK) 9
2.5 Use of the Internet 9
2.6 Management 9
2.7 Documentation 10

3. DEFINITIONS AND SYMBOLS 11

4. OPMET INFORMATION AND OPMET EXCHANGES 12
4.1 OPMET Data Type 12
4.2 OPMET bulletins 12
4.3 Types of OPMET exchange 12
4.3.1 Regional exchange – AMBEX scheme 12
4.3.2 Inter-regional OPMET exchange 13
4.3.3 Exchange of OPMET information through the satellite segment of the AFS 13
4.3.4 Other OPMET exchanges 13

5 COMPOSITION OF AMBEX 14
5.1 Components of the AMBEX 14
5.2 Originating Station 14
5.3 National OPMET Center (NOC). 14
5.4 AMBEX Bulletin Compiling Centre (AMBEX BCC or, in brief, AMBEX centre). 14
5.5 Regional OPMET Data Banks (RODB) 15
5.6 Inter-regional OPMET Gateways (IROG). 15

6. TAF EXCHANGE 17
6.1 General 17
6.2 Responsibilities and procedures to be followed by originating aerodrome meteorological offices (AMOs) and NOCs 18
6.3 Responsibilities and procedures to be followed the AMBEX Centres (BCCs) 19
6.4 Format and content of TAF bulletins 21

7. SPECIAL AIREP EXCHANGE 23

8. METAR/SPECI EXCHANGE 24
8.1 General 24
8.2 Responsibilities of originating stations and NOCs 24
8.3 Responsibilities of AMBEX Centres 25
8.4 Format and content of METAR Bulletins 26
8.5 Format and content of SPECI Bulletins 26

9. EXCHANGE OF SIGMET AND ADVISORIES 27

10. REGIONAL OPMET DATA BANKS (RODB) 28

11. INTER-REGIONAL OPMET EXCHANGE - IROG FUNCTIONS 29

12. MANAGEMENT OF OPMET EXCHANGE UNDER THE AMBEX SCHEME 29
12.1 OPMET Bulletins Update Procedure 29
12.2 Quality Management of OPMET Exchange under the AMBEX Scheme 30
12.2.1 Objectives and Scope 30
12.2.2 Quality Control – General Requirements 30
12.2.3 Quality Control Procedures 31
12.3 OPMET Monitoring 31
12.3.1 Monitoring of Scheduled OPMET Data 31
12.3.2 Monitoring of Non-Scheduled OPMET data 31
12.4 AMBEX Focal Points 31

APPENDIX A 32

APPENDIX B 36

APPENDIX C 40

APPENDIX D 44

APPENDIX E 45

APPENDIX F 50

APPENDIX G 58

ABBREVIATIONS AND ACCRONYMES

ADMIN	Administrative
AFI	Africa and Indian Ocean region of ICAO
AFMAG	AFI MET Advisory Group
AFS	Aerodrome flight information service
AFTN	Aeronautical fixed telecommunication network
AIREP	Air-report
AMBEX	AFI MET Bulletins Exchange (System)
AMD	Amend/Amended
ANP	Air Navigation Plan
APIRG	AFI Planing and Implementation regional Group
ASIA/PAC	Asia and Pacific Region of ICAO
BCC	Bulletin Compilation Centre
BRDO	Banque Régionale des Données OPMET
COM	Communications
ESAF	East and South African (Office)
EUR	Europe region of ICAO
FASID	Facilities and Services Implementation Document
ICAO	International Civil Aviation Organization
ICD	Interface Control Document
IROG	Inter-regional OPMET gateway
ISCS	International Satellite Communication System
MET	Meteorology
MET/SG	MET Sub-group
METAR	Aerodrome routine meteorological report
MID	Middle East region of ICAO
NAM	North American region of ICAO
NOC	National OPMET Centre
ODREP	OPMET Data Regional Exchange Points
OMM	Organisation Météorologique Mondiale
OPMET	Operational meteorological *(information)*
RODB	Regional OPMET Data Bank
SADIS	Satellite Distribution of Aeronautical Information
SAM	South African (Office)
SARP	Standards and Recommended Practices [ICAO]
SIGMET	Information concerning en-route weather phenomena which may affect the safety of aircraft operation
SPECI	Aerodrome special meteorological report *(in meteorological code)*
TAF	Aerodrome forecast
TCA	Tropical Cyuclone Advisory
TCAC	TCA Centre
VAA	Volcanic Ash Advisory
VAAC	VAA Centre
WACAF	Western and Central African (Office) of ICAO
WMO	World Meteorological organization

1. INTRODUCTION

1.1 The Africa- Indian (AFI) Meteorological Bulletin Exchange (AMBEX) scheme was established by the **AF**I Planning and Implementation Regional Group (APIRG) in 1986. The scheme became operational in 1986 and has since then been successfully serving the ICAO AFI Region in the exchange of the required OPMET information.

Note: AFI Meteorological Advisory Group (AFMAG) was created by the LIM AFI (COM/MET/RAC) RAN Meeting in Lome April 1988 and established by APIRG/6 Meeting in November 1989.AFMAG was replaced by AFI Meteorology Sub Group (MET/SG) at APIRG/11 Nairobi 1998. AMBEX was implemented starting on 29 August 1986.

1.2 AMBEX scheme was intended initially only for TAF exchanges. AIREPs and METAR were added to the scheme at a later stage and SIGMET, Volcanic Ash Advisory (VAA) and tropical Cyclone (TCA) has been added in this edition. The operation of the AMBEX scheme included exchange of OPMET bulletins between the originating tributary offices and the bulletin compiling centres, which, according to their functions and responsibilities, were classified as METAR Collection Centres, TAF Collection Centres and AIREP Collection Centre. The operational exchange has been carried out according to agreed transmission schedules; the bulletin contents were specified in the AMBEX Handbook.

1.3 The procedures described hereunder are based to a significant degree on corresponding procedures in use in the Regional OPMET Bulletin Exchange (AMBEX) Scheme (AFI). Although uniformity is desired, the AMBEX Scheme is not intended as a rigid scheme for the AFI Region where variations or adaptation of the basic principles appear more efficient. AMBEX centre authorities are strongly requested to suggest to the Secretary of the MET/SG any local changes that are considered desirable for the enhancement of the efficiency of the scheme.

1.4 Based on communications (COM) facilities of very limited capacity in the early seventies, the AMBEX scheme was strictly planned to accommodate only those OPMET exchanges considered vital for the flight operations. Over the years, the COM facilities have been improving considerably and the AMBEX scheme has been developed accordingly.

1.5 Recently, it has been identified that significant changes in the scheme were needed in order to make it compatible with the existing COM environment and satisfy the evolving user requirements. In view of this, APIRG adopted conclusions that called for further development of the AMBEX scheme according to the new operational requirements.

1.6 The AMBEX Handbook is the main guidance material providing detail on the procedures for OPMET exchange under the AMBEX scheme. The Handbook defines the responsibilities of the AMBEX centres and the procedures to be followed. It defines also the content and format of the AMBEX bulletins.

1.7 The AMBEX Handbook is published and kept up-to-date by the ICAO ESAF and WACAF Offices.

2. AMBEX SCHEME - GENERAL

2.1 Objective

2.1.1 The main purpose of the AFI Meteorological Bulletins Exchange (AMBEX) Scheme is to:

- ensure the most efficient and economical exchange of operational meteorological (OPMET) information within the AFI Region as well as with the other ICAO regions to meet the requirements of users of OPMET information, and
- ensure the implementation of the OPMET-related SARPs in Annex 3 and Annex 10, and the relevant provisions of the ICAO Air Navigation Plan (ANP) for the AFI Region in a highly efficient and standardized way.

2.2 Structure

2.2.1 The above objective is achieved by implementing a number of AMBEX collecting and disseminating centres (AMBEX centres), Regional OPMET data banks (RODBs)*, and inter-regional OPMET gateways (IROGs). All these operational units form the **AMBEX scheme.** In order to ensure seamless global exchange of the required OPMET information, the AMBEX Scheme should be developed in compliance with similar structures in the other ICAO regions, as well as with the aeronautical fixed system (AFS) satellite distribution systems used to disseminate OPMET data.

** Note: The AFI OPMET Regional Data BANKS are currently located in Dakar, Senegal and Pretoria, South Africa.*

2.3 Products

2.3.1 The AMBEX scheme prepares and delivers to the aviation users the required OPMET information in the form of **bulletins.** The scheme should handle all types of OPMET information in alphanumeric bulletin form and should provide facilities and services for scheduled and non-scheduled delivery of OPMET information to users.

2.4 Communications -General

2.4.1 Use of AFS Components

According to Annex 3, 11.2," telecommunications facilities used for the exchange of operational meteorological information should be the aeronautical fixed service". The use the AFS for the OPMET exchange encompass two components:

- Use of terrestrial AFTN circuits; and
- Use of satellite distribution systems-SADIS .

2.4.2 Use of the AFTN

2.4.2.1 In the AMBEX scheme AFTN circuits are used for collection of the OPMET messages by the AMBEX centres and for regional and inter-regional exchanges of OPMET bulletins. The access to the regional OPMET data banks (request-reply service provided by the RODBs) is also provided through the AFTN.

2.4.2.2 OPMET bulletins transmitted via the AFTN shall be in encapsulated in the text part of the AFTN message format (Annex 3, Appendix 10, 2.1.4).

2.4.2.3 Transit times of the AFTN messages and bulletins containing OPMET information are specified in Annex 3, Appendix 10, 1.1

2.4.2.4 OPMET bulletins via AFTN should use the following **priority indicators:**

- **FF: SIGMET, AIREP SPECIAL, VAA,TCA and TAF amend (** cf. Annex 10 Vol II, 4.4.1.1.3)
- **GG: TAF, METAR and SPECI (cf. Annex 10 VolI, 4.4.1.1.4)**

2.4.2.5 **Filing times** of the bulletins should be according to Annex 3, Appendix 10, 2.1.2

2.4.3 Use of the Satellite Distribution System for aeronautical information (SADIS-operated by the UK)

2.4.3.1 SADIS satellite broadcast is used by the authorized users in the States for receiving global OPMET DATA.

2.4.3.2 FASID Table MET 7 of the AFI regional plans contains a list of authorized users for the SADIS broadcast.

2.5 Use of the Internet

2.5.1 Internet may be used to the dedicated internationally agreed circuits for exchange of meteorological data. An internet based FTP service to SADIS has been operational since 2002.

2.5.2 In future, it is intended that RODBs should also provide internet based facilities for retrieval of OPMET information. RODB Dakar is already using the Internet to provide METARs and TAFs.

2.6 Management

2.6.1 Monitoring of the OPMET exchange under the AMBEX Scheme, planning for improvements and preparation of proposals for any changes that may be necessary, are carried by the APIRG. In order to achieve these tasks, the AMBEX implementation status and planning is part of the agenda of the AFI MET Sub-group MET/SG.

Note: When necessary, contributory bodies may be established by APIRG or the MET Sub-group to deal with OPMET specific issues. The AFI OPMET Management Task Force, established by APIRG/16 is currently tasked to deal with all OPMET related issues in the AFI Region

2.6.2 Any proposals for amendments to the AMBEX Scheme , which States or international

organizations concerned consider it necessary, due to changes in operational requirements for OPMET data or to developments of the AFS , should be forwarded for consideration by the ICAO Regional Offices of Dakar, Senegal and Nairobi, Kenya as the case my be.

2.7 Documentation

2.7.1 The AMBEX Handbook is the main guidance material related to the AMBEX Scheme. It should be kept up-to-date by the ICAO Regional offices referred to above coordinated by the Secretary of the OPMET Task Force in close coordination with the Secretary of the MET Sub-group.

2.7.2 The AFI OPMET Data Banks Interface Control Document(ICD) is a supplementary document which provides users with guidance on the interrogation procedures and the content of the RODBs.

3. DEFINITIONS AND SYMBOLS

3.1 Within the AMBEX Scheme, the following definitions and symbols are used:

i) AMBEX: AFI MET Bulletins Exchange (Scheme);

ii) AMBEX Bulletin: A collection of AMBEX messages originating from MET offices within a collection area, always containing the same type of OPMET data and identified by an appropriate identifier. Bulletins should not exceed 1800 characters in length;

iii) ***National OPMET center (NOC).*** Normally, a NOC is associated with the State's national AFTN centre/switch. The role of the NOC is to collect all OPMET messages generated by the originating stations in the State and to send them to the responsible AMBEX bulletin compiling center (AMBEX BCC). Some NOCs serve also as AMBEX BCCs. National regulations should be developed to ensure that NOCs disseminate the international OPMET data within their own State, as necessary.

iv AMBEX Bulletin Compiling Centre (BCC): AMBEX centres (former TCC, MCC or ACC, etc..) are responsible for collection of OPMET messages from the originating stations or NOCs in their area of responsibility and for compiling these messages into AMBEX bulletins. FASID Tables MET 4A and MET 4B determine the areas of responsibility (or, collection areas) of the AMBEX centres for METAR/SPECI, and TAF, respectively.

v) OPMET Inter-regional Gateway (IROG) A designated centre charged with the responsibility of exchanging OPMET data between stations within the AFI Region and in adjacent regions, as prescribed in this Handbook. The plan of OPMET data exchange between regions through an IROG is based on pre-determined distributions responsibilities, and/or on a request/reply basis;

vi) YPYX: Fifth, sixth, seventh and eighth letter of an addressee indicator to be used:

a) with the normal four-letter location indicators, to designate BCCs

b) with indicators for pre-determined distribution within a BCC collection area.

vii) Regional OPMET Data Bank (RODB): A centre charged with task to collect OPMET bulletins from AMBEX centres, handle all types of OPMET bulletins, provide facilities for "request-reply" service to authorized users, maintain a catalogue of bulletins, quality control the incoming bulletins and inform AMBEX centres on any deficiencies, monitor the OPMET traffic and report to the ICAO Regional Office on the results

Note: The designated RODB and their responsibilities are described in ***Appendix E***

4. OPMET INFORMATION AND OPMET EXCHANGES

4.1 OPMET Data Type

4.1.1 The following OPMET data types should be handled by the AMBEX scheme:

Data type	Abbreviated name	WMO data type designator
Aerodrome reports	METAR SPECI	SA SP
Aerodrome forecasts	TAF: 24 and 30 hour	FT
SIGMET information	SIGMET SIGMET for TC SIGMET for VA	WS WC WV
Volcanic ash and tropical cyclone advisories	Volcanic Ash Advisory Tropical Cyclone Advisory	FV FK
Air-reports	AIREP SPECIAL (ARS)	UA
Administrative	ADMIN	NO

4.2 OPMET bulletins

4.2.1 The exchange of OPMET data is carried out through bulletins containing one or more meteorological messages (METAR, SPECI, TAF or other OPMET information). An OPMET bulletin contains messages of the same type.

4.2.2 The format of OPMET bulletins is determined by:

- *ICAO Annex 10, Aeronautical telecommunications*, as regards the AFTN envelope of the bulletin;
- WMO-No.386, *WMO Manual on the Global telecommunication System*, as regards the WMO abbreviated heading of the bulletin;
- *ICAO Annex 3* and WMO-No.306, *Manual on Codes*, as regards the format and coding of the information included in the bulletin.

4.3 Types of OPMET exchange

4.3.1 Regional exchange – AMBEX scheme

4.3.1.1 The AMBEX scheme covers the exchange of OPMET information in the AFI region. It includes several types of exchanges as described below.

4.3.1.1.1 *Regular Exchange under AMBEX*. This is a scheduled exchange that encompasses collection of messages from the originating stations, compiling of bulletins and their dissemination according to predetermined distribution schemes. The collection and distribution is carried out at fixed times and the bulletin content is defined in the current Handbook.

4.3.1.1.2 *Non-regular exchange.* This includes:

a) *Exchange on request (request-reply service)*. The RODBs store OPMET data and make them available on request.

b) *Exchange of non-routine reports:* SPECI; TAF AMD; SIGMET; TCA and VAA; ADMIN messages.;

4.3.2 Inter-regional OPMET exchange

4.3.2.1 Exchange of OPMET data between the AFI and the other ICAO Regions is carried out via designated centres, which serve as Inter-regional OPMET Gateways (IROG). An IROG is set up for sending/receiving specified OPMET data between AFI and every other ICAO region for which AFI OPMET data are required.

Note: The former name of these centres is ODREP.

4.3.2.2 Inter-regional OPMET exchange via IROGs is carried out through the ground segment of the AFS (currently, through the AFTN).

4.3.3 Exchange of OPMET information through the satellite segment of the AFS

4.3.3.1 The three satellite broadcasts provided by the United Kingdom (Satellite Distribution System for Aeronautical Information Relating to Air Navigation - SADIS) and the United States (International Satellite Communication System – ISCS/1 and ISCS/2), form another type of OPMET exchange, which is global in nature and is intended to cover the emerging requirement for global access to all available OPMET data.

4.3.3.2 All AFI data handled by the AMBEX scheme should be relayed to the SADIS for global broadcast.

4.3.4 Other OPMET exchanges

4.3.4.1 Where OPMET exchanges described in the above paragraphs are not sufficient, direct AFTN addressing should be utilized by the originating centres.

5 COMPOSITION OF AMBEX

5.1 Components of the AMBEX

5.1.1 AMBEX scheme involves a number of aeronautical meteorological stations, aeronautical telecommunication stations, aerodrome meteorological offices and other operational units. The following operational units should be considered as components of the AMBEX scheme:

- Originating station
- National OPMET center (NOC)
- AMBEX bulletin compiling centre (BCC)-AMBEX Centre
- Regional OPMET Data Banks (RODBs)
- Interregional OPMET gateway (IROG) .

5.2 Originating Station

5.2.1 It is an aeronautical meteorological station or an aerodrome meteorological office, or a forecasting office, or a MWO, or a TCAC, or a VAAC. The duties and responsibilities of these originating stations should be defined by the State's meteorological authority.

5.3 National OPMET Center (NOC).

5.3.1 Normally, a NOC is associated with the State's national AFTN centre/switch. The role of the NOC is to collect all OPMET messages generated by the originating stations in the State and to send them to the responsible AMBEX bulletin compiling center (AMBEX BCC). Some NOCs serve also as AMBEX BCCs. National regulations should be developed to ensure that NOCs disseminate the international OPMET data within their own State, as necessary.

5.4 AMBEX Bulletin Compiling Centre (AMBEX BCC or, in brief, AMBEX centre).

5.4.1 AMBEX centres are responsible for collection of OPMET messages from the originating stations or NOCs in their area of responsibility and for compiling these messages into AMBEX bulletins. FASID Tables MET 4A and MET 4B determine the areas of responsibility (or, collection areas) of the AMBEX centres for METAR/SPECI and AIREP SPECIAL, and TAF, respectively.

5.4.2 The AMBEX centres are responsible for the transmission of the bulletins compiled by them to:

- other AMBEX centres, according to predefined distribution lists, specific for each bulletin;
- AFI RODBs (Dakar and Pretoria);
- NOCs or other COM or MET offices in the States in their area of responsibilities, as agreed between the AMBEX centre and the States' authorities concerned.

Note: The former AMBEX scheme involved separate compiling centres for METAR and TAF (METAR Collection Centres, and TAF Collection Centres. In some cases, METAR from an aerodrome was compiled by one center, and the TAF from another center. The evolution of AMBEX should be towards unified AMBEX centers responsible for collecting/distributing of all OPMET data types within their area of responsibility.

5.5 Regional OPMET Data Banks (RODB)

5.5.1 Two centres have been designated by APIRG (APIRG/13 Conclusion 13/67, 2001), to serve as Regional OPMET Data Banks: Dakar and Pretoria. FASID Table MET 4C reflects the requirements for the operation of the AFI OPMET data banks to support the AMBEX Scheme.

5.5.2 The **main responsibilities** of the RODBs are defined, as follows:

- to support the AMBEX Scheme and to facilitate a regular exchange of OPMET information based on predetermined distribution within the AFI Region;
- to operate as Inter-regional OPMET Gateway (IROG) with responsibility of exchanging OPMET information between AFI Region and the adjacent Regions; and
- to provide facilities for request/response type of access to the stored OPMET data for users to obtain non-regular or occasional information.

Note. — The interrogation procedures applicable to the OPMET data banks and catalogues are provided in the "AFI Regional Interface Control Document (ICD) - OPMET Data Bank Access Procedures", *published and maintained by the ICAO Regional Offices in Dakar and Nairobi*

5.6 Inter-regional OPMET Gateways (IROG).

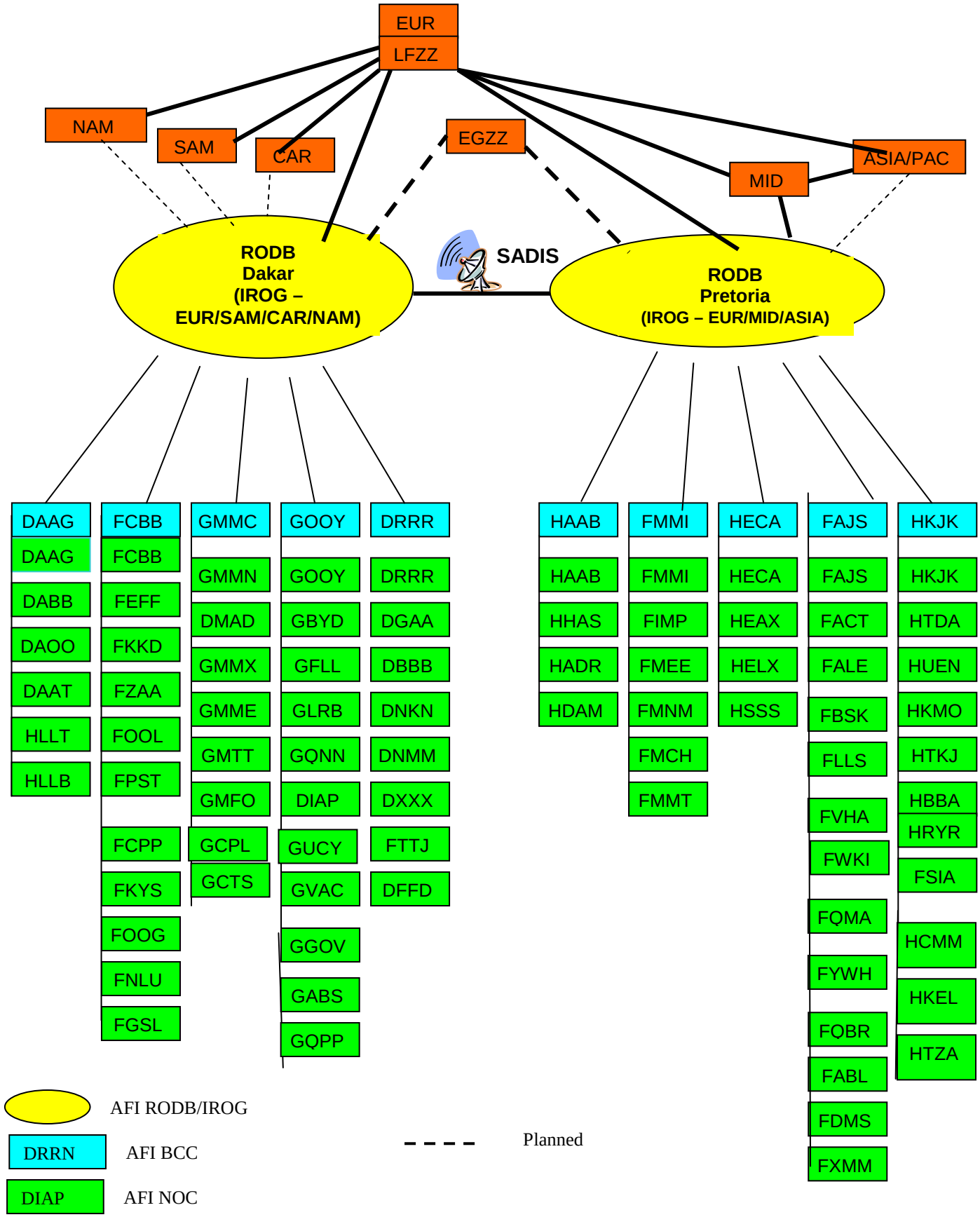
5.6.1 The Inter-regional OPMET Gateways in the AFI Region are the designated RODBs. Each RODB is assigned responsibility for exchange of OPMET information with other ICAO Regions. The responsibilities of the IROGs for AFI is shown in para. 11.1 of this Handbook.

5.6.2 ***Support to the SADIS broadcast.*** The RODBs and IROGs should facilitate the global exchange of OPMET data carried out through the SADIS satellite broadcast. In order to achieve this, close liaison should be maintained between the IROGs and the corresponding SADIS gateways. Availability of AFI data on SADIS should be monitored and any systematic shortfalls of data identified should be reported to the relevant ICAO regional office.

5.7 Structure of the AMBEX Scheme

5.7.1 The overall structure of the AMBEX scheme is presented in the following diagram

AMBEX SCHEME



6. TAF EXCHANGE

6.1 General

6.1.1 Aerodrome forecast (TAF) should be prepared by the aerodrome meteorological offices (AMOs) or other meteorological offices, designated for provision of TAF by the State's meteorological authority, for all international aerodromes, for which TAF is required according to FASID Table MET 1A of the AFI ANP.

6.1.2 All TAFs required should be included in the regular AMBEX exchange. In addition, TAFs from a number of other, including domestic aerodromes, required by the users, should also be included in the regular AMBEX exchange, if so agreed by the States concerned.

Notes: 1) The recent requirement by airlines is that TAF for all international aerodromes listed in AFI FASID Table MET 1A should be available through regular exchange and through the satellite distribution system SADIS..

2) SADIS User Guide (SUG) Annex 1 presents the requirements for OPMET data (METAR and TAF) by aviation users. When OPMET data from domestic airports (so called non-AOP airports) is required by users, the corresponding State is consulted on its agreement for providing this additional information. If the information is available and the State agrees to include it in the exchange, the additional airports are included in SUG Annex 1 and the State should provide the additional OPMET information on a continuous basis.

6.1.3 TAF exchanges not covered by the AMBEX Scheme, but required operationally, should be met by means of direct addressed AFTN messages.

6.1.4 The requirements for the exchange of 24 or 30-hour TAFs (so called "long" TAFs with WMO data designator – FT), are set in FASID Table MET 1A of the ANP. "Short" TAFs with 9- or 12-hour period of validity (WMO data designator - FC), are no longer issued by States in the AFI region

6.1.5 AMBEX messages and bulletins are normally sent via the AFTN. In exceptional circumstances, when the AFTN cannot give adequate support to AMBEX traffic, the temporary use of alternative existing communications systems should as far as possible be coordinated with the ICAO Regional Offices concerned.

6.1.6 Each AMBEX message and AMBEX bulletin should conform strictly to the Annex 10 message format.

6.1.7 Each AMBEX message and AMBEX bulletin should carry a WMO abbreviated heading (see **Appendix C)**.

6.1.8 Each AMBEX message or bulletin, should terminate with an equal (=) sign (signal no. 22 of International Telegraph Alphabet no.2 in the figure case).

6.1.9 The procedures described in this Handbook are intended for the manual preparation of AMBEX messages and bulletins. It is not intended, however, that the Handbook precludes the use of automated or semi-automated procedures. When required, the procedures described hereunder should be modified and applied in a manner which will fully exploit the capabilities of the equipment available. The AMBEX messages and bulletins produced by application of such modified procedures should be in a

format compatible with the format described in this Handbook.

6.2 Responsibilities and procedures to be followed by originating aerodrome meteorological offices (AMOs) and NOCs

6.2.1 Originating AMOs (or other designated forecasting offices) should prepare the required TAF messages for the periods of validity indicated in **Appendix B**. TAFs should be sent by the AMOs or NOCs and to the responsible AMBEX center before the cut-off time set up by this centre.

6.2.2 Aerodrome meteorological offices in preparing TAF should follow strictly the template for TAF in Annex 3, Appendix 5 and the WMO TAF code form (FM 51-XII TAF, WMO – No. 306, *Manual on Codes*, Volume I.1, Part A – *Alphanumeric Codes*).

6.2.3 TAFs should be monitored by the originating AMOs and amended TAF (TAF AMD) should be issued according to the established criteria. Amended TAFs should be sent by the originating station to the responsible AMBEX centre with no delay. The optional group BBB should be used in the WMO abbreviated heading to indicate amended TAF in accordance with **Appendix C**.

6.2.4 TAF messages should be quality controlled by the originating meteorological offices and, when necessary, a corrected TAF (TAF COR) should be sent immediately after an error in an already transmitted message had been identified.

6.2.5 Within five minutes of the time of preparation of the TAFs, an AMBEX message should be filed for transmission to the BCC concerned.

6.2.6 Not later than five minutes after being filed for transmission, the AMBEX messages should be sent to the BCCs. This means that BCCs should have available AMBEX messages from all stations in their area of responsibility (AOR) within ten minutes of the times shown in column 6 of **Appendix B.**

6.2.7 The following is an outline of the procedures to be applied in preparing an AMBEX message at an office other than a BCC:

Parts of Message		Resulting Page Copy
a)	Priority Indicator and Address	GG DRRNYPYX
b)	Date and Time of Filing and Originator	281010 DGAAYMYX
c)	WMO Abbreviated Heading (see **Appendix C)**	FTGH31 DGAA 281000
d)	TAF	TAF DGAA 281030Z 2812/2912 13010KT 9000 BKN020 TEMPO 2816/2820 3000 DZ BKN005 OVC05 FM290430 17010KT 9999 BKN015 BKN100 =
e)	Normal Ending.	

6.2.8 If an amendment to a TAF previously issued becomes necessary, a new AMBEX message should be prepared and sent to the BCC concerned. The WMO abbreviated heading for this message should be the same as for the AMBEX message containing the original TAF, with the addition of the optional groups AAA, AAB, AAC etc. (to indicate the first, second, third etc. amendment to the original TAF). Optional groups are also used for sending delayed TAFs, RRA, RRB, RRC, etc and corrected TAFs CCA, CCB, CCC, etc in accordance with **Appendix C**.

6.2.9 TAFs for individual aerodromes in the AMBEX Scheme should not be addressed to aerodromes in those cases where the AMBEX Scheme already caters reliably for their dissemination.

6.2.10 Requests for missing bulletins should be sent to the BCC responsible for compiling the bulletins and should be in the following format:

Parts of Message		Resulting Page Copy
a)	Priority Indicator and Address of the BCC concerned	GG HKJKYPYX
b)	Date and Time of filing and Originator	051305 FMMIYMYX
c)	**Text**	**RQM/SAYSSY, YBBN, YMML=**
d)	Normal ending	NNNN.

Note: Certain BCCs may require AFTN addresses other than those of the BCCs themselves to be used for request messages. A list of such addresses will be compiled and included in the AMBEX Handbook.

6.2.11 Provisions concerning request messages to the AFI RODBs are given in the ICD of the Dakar and Pretoria RODBs.

6.3 Responsibilities and procedures to be followed the AMBEX Centres (BCCs)

6.3.1 AMBEX centres should collect TAFs from the AMOs and/or NOCs in their area of responsibility and compile TAF Bulletins according to **Appendix B**. The areas of responsibility, as far as practicable, should group together aerodromes and their alternates. AMBEX centres should ensure that TAFs within their area of responsibility have common periods of validity.

6.3.2 AMBEX centres should establish a cut-off time for reception of TAFs from AMOs and/or NOCs in their area of responsibility, e.g., 15 minutes before the filing/transmission times specified in **Appendix B**. At the cut-of time AMBEX centres should compile TAF bulletin(s) containing all prescribed aerodromes, without indicating any missing TAF with “NIL”.

6.3.3 The filing time for 24- and 30-hour TAF bulletins should be **two hours** before the start of the validity period.

6.3.4 AMBEX centres should transmit the compiled TAF bulletins to other AMBEX centres and the RODBs according to the distribution lists as specified for each TAF bulletin in **Appendix B**.

6.3.5 AMBEX centres should transmit the TAF bulletins compiled by them, as well as TAF bulletins received from other AMBEX centres, as necessary, to the NOCs and/or other offices in the States in their area of responsibility, as agreed between the AMBEX centre and the meteorological authorities of the States concerned.

6.3.6 A TAF message received by a AMBEX centre after the scheduled transmission of the corresponding bulletin is a delayed TAF. The AMBEX centre should then prepare an AMBEX bulletin of all TAFs received. If a TAF is not available, for any reason, at the cut-off time, the latest **still valid** TAF for the missing station may be included instead.

6.3.7 Amended TAF (TAF AMD) received from an AMO or NOC should be distributed with no delay as an amended TAF bulletin to all recipients in the distribution list for the TAF bulletin, to which the originating aerodrome belongs. The optional BBB group should be used in the WMO bulletin heading accordingly.

6.3.8 Each BCC should establish a cut-off time for the reception of AMBEX messages from stations within its AOR. The cut-off time should be about **twenty minutes** after the times of preparation of TAFs shown in column 6 of **Appendix B.**

6.3.9 A new tape, containing the address, origin and WMO abbreviated heading of the bulletin, is prepared. The bulletin is then assembled by combining this new tape with the text portions of the AMBEX messages received and adding a normal ending. Details of the WMO abbreviated headings that should be used by BCCs in their bulletins are given in **Appendix C**.

6.3.10 AMBEX centres should disseminate their own bulletins to the stations listed in column 9 of **Appendix B**. This dissemination should take place some **thirty minutes** after the time for preparation of the TAFs shown in column 6 of **Appendix B**.

6.3.11 No addresses other than those listed in column 10 of **Appendix B** should be used except in response to request messages.

6.3.12 The following is an outline of the procedures to be followed by AMBEX centres in the preparation of AMBEX bulletins.

Parts of Bulletin	Resulting Page Copy
a) Priority Indicator and Address	GG DAZZYPYX FAJSYMYX FCZZXLBX GOOZZSNGX HAZZYPYX HEZZYPYX HKZZYPBX
b) Date and Time of Filing and Originator	281030 DRRNYPYX
c) WMO Abbreviated Heading (see **Appendix B**)	FTA033 DRRN 281000
d) TAFs received from the stations in the AOR, in order shown in column 2 of **Appendix B**	TAF DRRN 281010Z 2812/2912 24003KT 8000 BKN020 BECMG 2813/2815 SCT018CB BKN020 TEMPO 2817/2820 VRB03 TSRA SCT015CB BKN020 FM290600 16008KT 9999 BKN020 BKN120 =

TAF DGAA 281020Z 2812/2912 13010KT 9000 BKN020 TEMPO 2816/2820 3000 DZ BKN005 OVC050 FM290400 17010KT 9999 BKN015 BNK100 =

TAF DBBB 281030Z 2812/2912 26008KT 9000 BKN020 PROB30 TEMPO 2815/2818 3000 TSRA BKN005 SCT020CB FM290000 24006KT 9000 BKN010 =

TAF DNKN 281030Z 2812/2912 VRB03KT 9999 BKN015 PROB30 TEMPO 2813/2816 2000 FG BKN003 BKN010 FM282000 24006KT 9000 BKN020 =

TAF DNMM 281028Z 2812/2912 24006KT 9000 BKN020 PROB30 TEMPO 2814/2816 3000 DZ BKN005 BKN010=

TAF DXXX 281030Z 2812/2912 26008KT 9999 BKN015 BECMG 2815/2817 SCT015CB BKN020 TEMPO 2818/2820 22020G35KT 2000 TSRA SCT010CB BKN020 FM282030 26006 9999 BKN020 BKN100 =

TAF FTTJ 281030Z 2812/2912 12006KT CAVOK TEMPO 2818/2820 SCT030 =

TAF DFFD 281030Z 2812/2912 20004KT 9999 BKN020 BECMG 2814/2816 SCT018CB BKN020 TEMPO 2816/2818 24010KT TSRA SCT015CB BKN020 FM290600 22008KT 9999 BKN020 BKN100 =

e) Normal Ending NNNN.

6.3.13 TAFs received by an AMBEX Centre after the cut-off time, and which have still at least 6-hour validity left, should be included in one or more bulletins of delayed TAFs. The WMO Abbreviated Heading for such bulletins should be the same as for the bulletin from which the TAFs are missing, with the addition of the optional groups RRA, RRB, RRC etc. (to indicate the first, second, third etc. bulletin of delayed TAFs), in accordance with **Appendix C,** paragraph 4.

6.3.14 When an AMBEX centre receives amended TAFs from originating stations or NOCs, it should prepare bulletins of amended TAFs. The WMO abbreviated heading for such bulletins should be the same as for the bulletin containing the original TAF, with the addition of the optional groups AAA, AAB, AAC etc. (to indicate the first, second, third etc. amendment to TAFs in the original bulletin), in accordance with **Appendix C**, paragraph 4.

6.3.15 "NIL" to indicate a missing TAF should not be used in AMBEX bulletins.

6.3.16 If an AMBEX centre finds it impossible to meet the specified filing times due to systematic late receipt of TAFs from originating stations or NOCs, it should reach an agreement with these stations on another filing time for their AMBEX messages and thereafter propose to the Secretary of the AFI MET/SG that this filing time be incorporated in the Handbook.

6.3.17 In addition to its own AMBEX bulletins, each BCC should distribute bulletins received from other BCCs to the MET offices within its originating stations or NOCs.

6.4 Format and content of TAF bulletins

6.4.1 Issuance and period of validity:

6.4.1.1 24- and 30-hour TAFs should be issued at intervals of six hours, with the period of validity beginning at one of the main synoptic hours (00, 06, 12, 18 UTC), as shown in the table below.

Synoptic hours (UTC)	24-hour TAF		30-hour TAF	
	Period of validity	Filing Time	Period of validity	Filing Time
00	00-24	22 (-1)*	00-06 (+1)	22 (-1)*
06	06-06	04	06-12 (+1)	04
12	12-12	10	12-18 (+1)	10
18	18-18	16	18-24 (+1)	16

**Note: "-1" indicates the previous day and "+1" indicates the next day*

6.4.1.2 All TAFs in a AMBEX TAF bulletin should have a common period of validity. It is not allowed to mix "long" and "short" TAFs in one bulletin.

6.4.2 Each TAF message in a TAF bulletin should start with the code word TAF followed by the ICAO location indicator (CCCC) of the aerodrome and the date/time group (YYGGggZ), indicating the official time of issuance. Corrected TAF messages, should start with TAF COR. Amended forecasts should start with TAF AMD.

6.4.3 The use of the BBB group in the WMO heading for delayed, corrected, or amended TAFs is described in **Appendix C**.

6.4.4 The following is an outline of the format to be applied by a AMBEX centre in preparing a TAF bulletin, containing "long" TAFs (24 or 30 hour):

Parts of Message	**AMBEX FT Bulletin**
AFTN header	
Priority Indicator and Address	GG YBBBYPYX
Date and Time of filing and Originator	271104 ZBBBYPYX
WMO Abbreviated Heading	FTCI31 ZBBB 271100
TAF messages	TAF ZBAA 271000Z 2712/2812..…= TAF ZBTJ 271000Z 2712/2818…….=
AFTN Normal Ending	NNNN…..

6.4.5 A missing TAF in a non TAF bulletin should be indicated with "NIL", as shown in the following example:

TAF VTBD 281000Z NIL=

6.4.6 A cancelled TAF in a TAF bulletin should be indicated with "CNL", as shown in the following example:

TAF VTBD 281000Z 2812/2912 CNL=

7. SPECIAL AIREP EXCHANGE

7.1 The meteorological watch offices (MWO) are responsible for collection through their associated ATS units of special air reports (AIREP SPECIAL) received from aircrafts within their FIR or CTA.

Note: – Routine air-reports received by data-link communications should be relayed directly to the WAFCS by the ATS unit.

7.2 MWOs should collect all special air-reports and prepare one-hour collectives in the form of a UA bulletin for transmission to the responsible AMBEX centre at the time specified by the AMBEX centre.

Notes:
1) The transmission of air-reports to the WAFCs as required by Annex 3 should be arranged by the meteorological authorities concerned.
2) MWOs should follow the special requirements for the dissemination of special air-reports as defined by Annex 3,

7.3 AFI FASID Table 2B describes the exchange of SIGMET and special AIREP reports procedures.

8. METAR/SPECI EXCHANGE

8.1 General

8.1.1 Hourly METAR reports should be prepared by all international aerodromes listed in FASID Table MET 1A. METAR should be issued **on an hour intervals** for those aerodromes, included in the HF VOLMET broadcasts (cf. FASID Table ATS 2 – HF Radiotelephony VOLMET Broadcasts), or D-VOLMET.

8.1.2 METAR from all international aerodromes listed in Table AOP 1 of the Basic ANP and , in FASID Table MET 1A, should be included in the regular AMBEX exchange. In addition, METAR from a number of domestic aerodromes, required by the users, should also be included in the regular AMBEX exchange in accordance with para. 12.1.3, if so agreed by the States concerned.

Note: SADIS User Guide (SUG) Annex 1 presents the requirements for OPMET data (METAR and TAF) by aviation users. When OPMET data from domestic airports (so called non-AOP airports) is required by users, the corresponding State is consulted on its agreement for providing this additional information. If the information is available and the State agrees to include it in the exchange, the additional airports are included in SUG Annex 1 and the State should provide the additional OPMET information on a continuous basis.

8.1.3 Description of the AFI METAR bulletins included in the regular AMBEX exchange, containing the responsible compiling AMBEX centre, WMO bulletin identification, and the list of aerodromes included in the bulletin, is given in **Appendix A**.

8.1.4 The official hour of observation to be included in the METAR bulletin heading is indicated in the table in **Appendix A**.

8.1.5 All METAR bulletins should be sent to both RODBs Dakar and Pretoria. AMBEX centres should exchange METAR bulletins according to the distribution lists given in **Appendix A**.

7.1.6 SPECI reports should be disseminated in the same way as the METAR reports originated by the same aerodrome.

8.1.7 Exchange of METAR/SPECI messages outside AMBEX scheme, if necessary should be carried out by direct AFTN addressed messages.

8.2 Responsibilities of originating stations and NOCs

8.2.1 The originating stations (aeronautical meteorological stations) and/or NOCs should prepare METAR messages for the observation times indicated in **Appendix A** and send them to their responsible AMBEX center.

8.2.2 SPECI should be prepared between the regular observation times, following the requirements set in Annex 3 and sent with no delay to the responsible AMBEX centre.

8.2.3 In preparing METAR and SPECI messages the originating stations should follow strictly the specifications for METAR and SPECI in Annex 3 (Chapter 4 and Appendix 3 including the template in Table A3-2) and the WMO METAR and SPECI code forms (FM 15-XII METAR and FM 16-XII SPECI, WMO – No. 306, *Manual on Codes*, Volume I.1, Part A – *Alphanumeric Codes*).

8.2.4 METAR messages should be sent to the responsible AMBEX centre before the cut-off time specified by the AMBEX centre, to allow for timely compilation of the METAR bulletin. If, for some reason, a METAR message has not been sent before the cut-off time, the originating station/NOC should send it as soon as possible after that, as a **delayed message**. The originating stations/NOCs should follow strictly the schedules specified for METAR messages and keep to a minimum the number of delayed messages.

8.2.5 METAR and SPECI messages should be quality controlled by the originating stations/NOCs and, when necessary, a corrected message should be sent immediately after an error in an already transmitted message had been identified.

*Note: Procedures applying to the corrected and delayed messages are given in **Appendix C**.*

8.3 Responsibilities of AMBEX Centres

8.3.1 AMBEX centres should collect METAR messages from the aerodromes in their area of responsibility and compile METAR bulletins, according to **Appendix A**. The content of bulletins and the order of stations in each bulletin should be kept fixed until a bulletin change is requested and coordinated according to the established procedure.

8.3.2 AMBEX centers should determine a cut-off time for the reception of METAR from the stations in their area of responsibility. At the cut-off time, the AMBEX centre should compile METAR bulletin(s) containing all prescribed aerodromes, indicating any missing METAR with “NIL”.

8.3.3 At scheduled transmission times AMBEX centres should transmit the compiled METAR bulletins to other AMBEX centres and RODBs according to the distribution lists specified for each METAR bulletin in **Appendix A**. METAR bulletins should be filed for transmission not later than 5 minutes after the observation time.

8.3.4 AMBEX centres should transmit the METAR bulletins compiled by them, as well as bulletins received from other AMBEX centres, as necessary, to the NOCs and/or other offices in the States in their area of responsibility, as agreed between the AMBEX centre and the meteorological authorities of the States concerned.

8.3.5 A SPECI when received by an AMBEX centre should be sent as a SPECI bulletin to the same addresses, to which METAR from the issuing aerodrome are sent. Normally, a SPECI bulletin should contain a single SPECI.

8.3.6 The WMO heading of a SPECI bulletin should be constructed in the same way as the WMO heading of the METAR bulletin, which contains the aerodrome, for which the SPECI is issued, by using SP data type designator instead of SA.

8.3.7 A METAR message received by the AMBEX centre after the scheduled transmission of the corresponding bulletin is a delayed METAR. The AMBEX centre should send a delayed bulletin as soon as one or more delayed messages are received or at specified times after the scheduled bulletin time (e.g., the first delayed bulletin (RRA) issued 10 minutes after the regular time; the second delayed bulletin (RRB) issued 20 minutes after the regular time, etc.).

8.3.8 As soon as a corrected METAR or SPECI message is received from a station the AMBEX centre should transmit it as a corrected bulletin to all recipients.

8.4 Format and content of METAR Bulletins

8.4.1 Each METAR message in a METAR bulletin should start with the code word METAR followed by the ICAO location indicator (CCCC) of the aerodrome and the date/time group (YYGGggZ), indicating the official time of observation. Corrected METAR messages, should start with METAR COR.

8.4.2 The following is an example of the format to be applied in preparing a METAR bulletin by the AMBEX centre:

Parts of Message	AMBEX SA Bulletin
AFTN header	
Priority Indicator and Address Date and Time of filing and Originator	GG VTBBYPYX 271304 ZBBBYPYX
WMO Abbreviated Heading	SACI31 ZBBB 271300
METAR messages	METAR ZBAA 271300Z ..…… = METAR ZBTJ 271300Z …….=
AFTN Normal Ending	NNNN

Note: The inclusion of the code name METAR in front of each message in the METAR bulletin is compulsory.

8.4.3 The rules related to the use of the BBB group in the WMO abbreviated heading, in regard to delayed or corrected bulletins, are given in **Appendix C**.

8.4.4 For METARs, which are not available at the time of compilation of the bulletin, the code word NIL should be inserted following the date/time group indicating the time of the observation.

Example: METAR ZBTJ 271200Z NIL=

8.5 Format and content of SPECI Bulletins

8.5.1 A SPECI message included in a SPECI bulletin should start with the code word SPECI followed by the ICAO location indicator (CCCC) of the aerodrome and a date/time group (YYGGggZ) indicating the time of the observation of the meteorological conditions for which the SPECI is issued. Corrected SPECI messages, should start with SPECI COR. The following is an example of the format to be applied in preparing a SPECI bulletin by the AMBEX centre:

Parts of Message	AMBEX SP Bulletin
AFTN header	
Priority Indicator and Address Date and Time of filing and Originator	GG VTBBYPYX 081647 ZBBBYPYX
WMO Abbreviated Heading	SPCI31 ZBBB 081645
SPECI message	SPECI ZBAA 081645Z ..…… =
AFTN Normal Ending	NNNN

9. EXCHANGE OF SIGMET AND ADVISORIES

9.*1* SIGMET should be prepared by the meteorological watch offices (MWO) designated by the State's meteorological authority. The MWOs and their areas of responsibility are given in the FASID Table MET 1B of AFI ANP.

9.2 SIGMET should be distributed to the two RODBs, either directly or through the responsible AMBEX centre. The RODBs should make SIGMET messages available on request. In order to facilitate that, the originating MWOs, should use fixed WMO headings for their SIGMET bulletins as given in **Appendix E**.

9.3 SIGMET messages should be distributed to other ICAO regions and made available for uplink through SADIS. This distribution should be carried out through the relevant Inter-regional OPMET Gateways (IROGs).

9.4 Detailed information on the format of the SIGMET messages is provided in the AFI Regional SIGMET Guide, 9th edition, Amendment 2, June 2011, at the Web page

http://www.icao.int/wacaf/edocs/WACAF_Regional_SIGMET_Guide_en.pdf

9.5 Tropical Cyclone Advisories (TCAs) and volcanic ash advisories (VAAs) should be issued by the designated tropical cyclone and volcanic ash advisory centres (TCAC and VAAC), as indicated in the FASID Table MET 3A and MET 3B.

9.6 The TCACs and VAACs should send the advisories to the RODBs. The RODBs should make TCAs and VAAs messages available as appropriate or on request. In order to facilitate that, the originating TCACs and VAACs should use fixed WMO headings for their TCA and VAA bulletins as given in **Appendix E**

9.7 VAA and TCA messages should be distributed to other ICAO regions and made available for uplink through SADIS. This distribution should be carried out either directly by the VAACs and TCACs or through the relevant Inter-regional OPMET Gateway (IROG) such as Toulouse, France.

10. REGIONAL OPMET DATA BANKS (RODB)

10.1 The AFI Regional OPMET Data Banks and the AFTN addresses to be used for direct access to the banks are shown below:

RODB	AFTN ADDRESS	AMBEX CENTRES AND AREA OF RESPONSIBILITY
Dakar	GOOYYZYZ	Alger/DAMM Brazzaville/FCBB Casablanca/GMMC Dakar/GOOO Niamey/DRNN
Pretoria	FAJSYMYX	Addis Ababa/HAAB Antananarivo/FMMI Cairo/HECA Johannesburg/FAJS Nairobi/HKNA

10.2 Responsibilities:

10.2.1 Collect OPMET bulletins from the AMBEX centres in the area of responsibility and store them in a data base.

10.2.2 Handle all type of OPMET bulletins, as described in p. 3.1.1.

10.2.3 Provide facilities for “request-reply” service to the authorized users.

10.2.4 Maintain a catalogue of bulletins and introduce changes to the bulletins when necessary according to the established procedures.

10.2.5 Quality control the incoming bulletins and inform the AMBEX centres of any discrepancies or shortfalls.

10.2.6 Monitor the OPMET traffic by carrying out regular tests on the availability and timeliness of the bulletins; report to the ICAO Regional Office on the results.

10.3 The interrogation procedures applicable to the designated RODBs and the OPMET information stored are presented in the AFI Regional Interface Control Document (ICD) - OPMET Data Bank Access Procedures.

10.4 Guidance on the management and quality control is provided in chapter 12 of this Handbook.

11. INTER-REGIONAL OPMET EXCHANGE - IROG FUNCTIONS

11.1 Inter-regional OPMET Gateways (IROGs) are designated in the AFI Region for the the purpose of exchanging OPMET data between the AFI and the other ICAO Regions, as shown in the table below.

AMBEX IROG	For Excchange of OPMET data between Regions
Dakar	AFI and EUR; SAM, NAM, CAR; MID, ASIA/PAC as backup to Pretoria
Pretoria	AFI and MID; ASIA/PAC, EUR; SAM, NAM, CAR as backup to Dakar

11.2 IROGs and their functions are described at **Appendix D.** IROGs arrange for relaying all AMBEX bulletins to a corresponding OPMET Gateway in the other ICAO regions concerned. In particular:

- *Dakar IROG* relays all AFI bulletins to ROC Toulouse in the EUR Region, which serves the EUR, SAM, NAM and CAR Regions, and should receive and store all required OPMET bulletins from these Regions;
- *Pretoria IROG* relays all AFI bulletins to ROC Toulouse in the EUR Region and IROG Bangkok in the the ASI/PAC Regions, and should receive and store all required OPMET bulletins from MID, ASIA/PAC, EUR, SAM Regions;

11.3 The following principles are applied to IROGs:

a) IROGs should have reliable and efficient AFTN connection to the regions, for which they have exchange responsibilities, with adequate capacity to handle the OPMET data flow between the regions;

b) IROGs should be associated with AFTN relay centres capable of handling efficiently the volume of traffic anticipated;

c) IROGs should be capable of handling all OPMET data types, as described in para.4.1.1.

11.4 In order to avoid duplication of the OPMET traffic and information, all inter-regional OPMET exchange should be directed through the IROGs. Inter-regional exchange via direct AFTN addressing from the originator or AMBEX centre to recipients in the other ICAO Regions should be avoided, except when bilateral or other agreements require such direct exchanges.

12. MANAGEMENT OF OPMET EXCHANGE UNDER THE AMBEX SCHEME

12.1 OPMET Bulletins Update Procedure

12.1.1 Information for changes of AMBEX bulletins should be disseminated to all AMBEX centres and national OPMET centres (NOC) concerned well in advance in order to allow the centres to introduce the necessary changes to their message handling systems. In this regard, a lead time period of two months (*or two AIRAC cycles*) is considered appropriate.

12.1.2 The AMBEX centre planning the change, should send a notification by e-mail or fax to the ICAO Office, Dakar or Nairobi with copy to all AMBEX Focal Points. The notification should include

detailed information of the changes and the proposed time schedule. The Regional Office should inform all other ICAO Regional Offices of the changes to be introduced and the effective date of implementation.

12.1.3 All requests by users for changes to AMBEX bulletins should be addressed to the ICAO Regional Office concerned. The Regional Office should carry out the necessary coordination with the Sates and AMBEX centres concerned. The duration of the coordination process should be minimized so that the period between the user request and the implementation of the change (if agreed) should normally be less than 3 months.

12.2 Quality Management of OPMET Exchange under the AMBEX Scheme

12.2.1 Objectives and Scope

12.2.1.1 **Objectives:** Develop a management system that provides general guidance on procedures applied to OPMET exchange, which includes quality control aspects and introduces a non-real-time monitoring for OPMET exchange.

12.2.1.2 **Scope:** Management of OPMET data exchange will be organized in the following sections:

Quality Control	***Data quality control applies to OPMET validation and correction during data processing and during preparation of messages***
OPMET monitoring	***Monitor and evaluate the performance indicators for the scheduled OPMET data***

12.2.2 Quality Control – General Requirements

12.2.2.1 Quality control (QC) consists of examination of OPMET data at NOCs, AMBEX Centres and RODBs to check the messages for formatting and coding errors, as well as, for time and space consistency.

12.2.2.2 OPMET data should be checked in real time or as close to it as possible, at the first point, i.e., the originator, which may be: meteorological station, aerodrome meteorological office or meteorological watch office. Errors may occur during coding or transcription of meteorological messages by the observer or forecaster. The originating office should apply quality control procedures during data processing and preparation of messages, in order to eliminate the main sources of errors.

12.2.2.3 The national OPMET centre (NOC) should apply QC procedures on the incoming messages from national sources and on the compiled national bulletins.

12.2.2.4 It is also advisable to apply QC checks at the AMBEX Centre, where the AMBEX bulletins are received or compiled. If automation is available it should be used, or partly assisted by computing facilities. The principle is that every message should be checked, preferably at the various points along the data chain.

12.2.2.5 The checks that have already been performed by originating offices and AMBEX Centres are usually repeated at the OPMET data banks. Erroneous messages found by the RODB should be either rejected or corrected by reference back to the source or by the data bank itself. Data corrected by the data banks should be flagged in the database for record purpose.

12.2.2.6 As a result of the quality control process described above, OPMET data of established quality will be used in the exchange and stored in the data banks. The RODBs should compile

information with regard to errors that were found and compile records, such as the numbers and types of errors detected during quality control. Such non-conformities should be reported to ICAO Regional Office, Dakar or Nairobi for follow-up action.

12.2.3 Quality Control Procedures

12.2.3.1 General guidance on the quality control procedures for each type of OPMET is outlined in **Appendix F.**

12.3 OPMET Monitoring

12.3.1 Monitoring of Scheduled OPMET Data

12.3.1.1 The monitoring shall focus on the measurement of three performance indicators (PIs), viz., Compliance, Availability and Regularity indices of the scheduled, routine OPMET data (SA, FT, FC) exchanged in the region. The PIs are described in detail in **Appendix F**.

12.3.1.2 Monitoring Reference. The monitoring shall involve the recording and analysis of data provided by the AFTN circuit. The three PIs should be monitored against the respective AMBEX Tables.

12.3.1.3 Methodology: Data is monitored with reference to the procedures defined in **AppendixG** the EUR OPMET Data Monitoring Procedures as produced by APIRG MET/SG (Bulletin Management Group).

12.3.2 Monitoring of Non-Scheduled OPMET data

12.3.2.1 Monitoring of non-routine OPMET data shall be executed for FK, FV, WC, WS, and WV.

12.3.2.2 Monitoring of SIGMET, VAA and TCA should be performed during the scheduled regional SIGMET tests in accordance with the procedures published by the Regional Offices, Dakar and Nairobi.

12.3.2.3 The monitoring results shall be presented in bulletin-oriented format, one line per bulletin indicating the abbreviated header (TTAAii CCCC YGGgg), the FIR/UIR where applicable, receipt time and originator.

12.4 AMBEX Focal Points

12.4.1 In order to facilitate exchange of information between the AMBEX centres a system of AMBEX focal points have been developed. Contact details of the persons designated as AMBEX focal points by the relevant State’s authorities is provided in **Appendix I**.

APPENDIX A

AMBEX COLLECTION AND DISSEMINATION OF METAR (SA) BULLETINS

Table A : METAR

Explanation of Table

Column

1: Name of the AMBEX Centre (BCC) compiling the bulletin.

2. ICAO location indicator of the AMBEX Centre compiling the bulletin.

3. Bulletin identifier- The identifier to be used in the WMO abbreviated heading of AMBEX METAR bulletins prepared by the BCC in Column 1.

4. ICAO location indicator of the aerodrome forming part of the collection area of the BCC in Column 1.

5. Name of the aerodrome forming part of the collection area of the BCC in Column 1.

6. Preparation - Times at which BCC in column 1 should prepare METAR bulletins for further dissemination.

7. Distribution of the bulletin to other AMBEX centres and RODBs – Name of the AMBEX/RODB Centre

8. Distribution of the bulletin to other AMBEX centres and RODBs – AFTN address of the AMBEX/RODB Centre.

Note: The RODB responsible for storing the bulletin is in ***bold***

Notes:

1 Aerodromes with shaded text are included in the HF VOLMET Broadcast
2 The RODB responsible for storing the bulletin is in bold
3 Non-AOP aerodeomes indicated in *italics*

AMBEX CENTRE		METAR BULLETIN				DISSEMINATION TO	
Name	**CCCC**	**Bul. Id.**	**CCCC**	**Aerodrome**	**Prepar.**	**RODB/AMBEX Centre**	**AFTN Adress**
1	2	3	4	5	6	7	8
ADDIS ABABA	HAAB	SAEA31	HAAB HAAY HADR HDAM	Addis Ababa Asmara Dire Dawa Djibouti	H+10	Addis Ababa Nairobi Dakar Brazzaville Niamey Antananarivo Cairo **Johannesburg**	HAABYMYX HKZZYPBX GOZZSNGX FCZZXLBX DRZZNAZX FMZZYPYY HEZZYPYX **FAJSYMYX**
ALGER	DAMM	SAAF31	DAMM DABB DAOO DAAT DTTA HLLT HLLB	Alger Annaba Oran Tamanrasset Tunis Tripoli Benghazi	H+10	Cairo Casablanca **Dakar** Niamey	HEZZYPYX GMZZYPYX **GOOYYZYZ** DRZZNAZX
ANTANA NARIVO	FMMI	SAI031	FMMI FMNM FIMP FMCH FMEE FMMT	Antananarivo Mahajanga Mauritius Moroni Saint-Denis Toamasina	H+10	Nairobi Addis Ababa **Johannesburg** Nairobi	HKZZYPBX HAZZYPYX **FAJSYMYX** HKZZYPBX
BRAZZA VILLE	FCBB	SAAM31	FCBB FCPP FEFF FKKD FKYS FZAA FOOL FOOG FNLU FGSL FPST	Brazzaville Pointe Noire Bangui Douala Yaounde Kinshasa Libreville Port Gentil Luanda Malabo Sao Tome	H+10	**Dakar** Niamey Addis Ababa Johannesburg Nairobi	**GOOYYZYZ** DRZZNAZX HAZZYPYX FAJSYMYX HKZZYPBX
CAIRO	HECA	SAAF32	HECA HEAX HELX HSSS	Cairo Alexandria Luxor Khartoum	H+10	Addis Ababa Nairobi Antananarivo Niamey **Johannesburg**	HAZZYPYX HKZZYPBX FMZZYPYX DRZZNAZX **FAJSYMYX**

AMBEX CENTRE		**METAR BULLETIN**				**DISSEMINATION TO**	
Name	**CCCC**	**Bul. Id.**	**CCCC**	**Aerodrome**	**Prepar.**	**RODB/AMBEX Centre**	**AFTN Adress**
1	2	3	4	5	6	7	8
CASA BLANCA	GMMC	SAMC31	GMMC GMAA GMMX GMME GMTT GCLP GCTS	Casablanca Agadir Marrakech Rabat Tanger Las Palmas Tenerife Sur	H+10	Alger **Dakar** Cairo	DAZZYPYP **GOOYYZYZ** HEZZYPYX
DAKAR	GOOY	SAA032	GOOY DIAP GBYD GABS GUCY GFLL GLRB GQPP GQNN GVAC GGOV	Dakar Abidjan Banjul Bamako Conakry Freetown Monrovia Nouadhibou Nouakchott Sal Bissau	H+10	Casablanca Alger Niamey Johannesburg Brazzaville Nairobi Addis Ababa Toulouse **Dakar** Rio de Janeiro	GMMCYPYX DAZZYPYP DRZZNAZX FAJSYMYX FCZZXLBX HKZZYPBX HAZZYPYX LFZZMAFI **GOOYYZYZ** SBGLYMYX
JOHANNE SBURG	FAJS	SAAP32	FAJS FABL FACT FALE FBSK FVHA FWKI FLLS FDMS FQBR FQMA FXMM FYWH	Johannesburg Bloemfontein Cape Town King Shaka Gaborone Harare Lilongwe Lusaka Manzini Beira Maputo Maseru Windhoek	H+10	Addis Ababa Antananarivo Brazzaville Cairo Dar Es Salaam Dakar Nairobi Toulouse **Johannesburg** Rio de Janeiro Bangkok Jeddah	HAZZYPYX FMZZYPYX FCZZXLBX HFZZYPYX HTDAYMYX GOOYYZYZ HKZZYPBX LFZZMAFI **FAJSYMYX** SBGLYMYX VTBDYMYX OEJDYPYX

AMBEX CENTRE		**METAR BULLETIN**				**DISSEMINATION TO**	
Name	**CCCC**	**Bul. Id.**	**CCCC**	**Aerodrome**	**Prepar.**	**RODB/AMBEX Centre**	**AFTN Adress**
1	2	3	4	5	6	7	8
NAIROBI	HKJK	SAEA32	HKJK HKMO HTDA HTKJ HBBA HUEN HRYR FSIA HCMM	Nairobi Mombasa Dar-Es-Salaam Kilimanjaro Bujumbura Entebbe Kigali Mahe Mogadishu	H+10	Addis Ababa Antananarivo **Johannesburg** Brazzaville Dakar Cairo Niamey	HAABYPYX FMZZYPYX **FAJSYMYX** FCZZXLBX GOZZSNGX HEZZYPYX DRZZNAZX
NIAMEY	DRRN	SAAO33	DRRN DGAA DBBB DNKN DNMM DXXX FTTJ DFFDY	Niamey Accra Cotonou Kano Lagos Lome N'djamena Ouagadougou	H+10	Addis Ababa Alger Cairo Brazzaville **Dakar** Johannesburg Nairobi	HAZZYPYX DAZZYPYP HEZZYPYX FCZZXLBX **GOOYYZYZ** FAJSYMYX HKZZYPBX

APPENDIX B

AMBEX COLLECTION AND DISSEMINATION OF LONG TAF (FT) BULLETINS

Table B : FT TAF

Explanation of the Table

Column

1: Name of the AMBEX Centre (BCC) compiling the bulletin.

2. ICAO location indicator of the AMBEX Centre compiling the bulletin.

3. Bulletin identifier- The identifier to be used in the WMO abbreviated heading of AMBEX TAF (FT) bulletins prepared by the BCC in Column 1.

4. ICAO location indicator of the aerodrome forming part of the collection area of the BCC in Column 1.

5. Name of the aerodrome forming part of the collection area of the BCC in Column 1.

6. Bulletin Filing Time -The latest filing times for AMBEX bulletins containing TAFs with the validities listed in Column 8.

7. Start of validity period

8. TAF validity

9. Distribution of the bulletin to other AMBEX centres and RODBs – Name of the AMBEX/RODB Centre

10. Distribution of the bulletin to other AMBEX centres and RODBs – AFTN address of the AMBEX/RODB Centre

Notes: 1 The RODB responsible for storing the bulletin is in bold

AMBEX CENTRE		**TAF BULLETIN**						**DISSEMINATION TO**	
Name	**CCCC**	**Bul. Id.**	**CCCC**	**Aerodrome**	**Filing Tiùme**	**Start of validity**	**TAF validit**	**RODB/ AMBEX Centre**	**AFTN Adress**
1	2	3	4	5	6	7	8	9	10
ADDIS ABABA	HAAB	FTEA31	HAAB	Addis Ababa	0400 1000 1600 2200	0600 1200 1800 0000	30h	Addis Ababa Nairobi Dakar Brazzaville Niamey Antananarivo Cairo **Johannesburg**	HAABYMYX HKZZYPBX GOZZSNGX FCZZXLBX DRZZNAZX FMZZYPYY HEZZYPYX **FAJSYMYX**
		FTEA39	HAAY HADR HDAM	Asmara Dire Dawa Djibouti	0400 1000 1600 2200	0600 1200 1800 0000	24h		
ALGER	DAMM	FTAF39	DAMM DABB DAOO DAAT DTTA HLLT HLLB	Alger Annaba Oran Tamanrasset Tunis Tripoli Benghazi	0400 1000 1600 2200	0600 1200 1800 0000	24h	Cairo Casablanca **Dakar** Niamey	HEZZYPYX GMZZYPYX **GOOYYZYZ** DRZZNAZX
ANTANA NARIVO	FMMI	FTI031	FMMI FIMP FMEE FMCH	Antananarivo Mauritius Saint-Denis Moroni	0400 1000 1600 2200	0600 1200 1800 0000	30h	Nairobi Addis Ababa **Johannesburg** Nairobi	HKZZYPBX HAZZYPYX **FAJSYMYX** HKZZYPBX
		FTI039	FMNM FMMT	Mahajanga Toamasina	0400 1000 1600 2200	0600 1200 1800 0000	24h		
BRAZZA VILLE	FCBB	FTAM31	FCBB FEFF FKKD FZAA FOOL FPST FGSL	Brazzaville Bangui Douala Kinshasa Libreville Sao Tome Malabo	0400 1000 1600 2200	0600 1200 1800 0000	30h	**Dakar** Niamey Addis Ababa Johannesburg	**GOOYYZYZ** DRZZNAZX HAZZYPYX FAJSYMYX
		FTAM39	FCPP FKYS FOOG FNLU	Pointe Noire Yaounde Port Gentil Luanda	0400 1000 1600 2200	0600 1200 1800 0000	24h	Nairobi	HKZZYPBX

AMBEX CENTRE		**TAF BULLETIN**						**DISSEMINATION TO**	
Name	**CCCC**	**Bul. Id.**	**CCCC**	**Aerodrome**	**Filing Tiùme**	**Start of validity**	**TAF validit**	**RODB/ AMBEX Centre**	**AFTN Adress**
1	2	3	4	5	6	7	8	9	10
CAIRO	HECA	FTAF39	HECA HEAX HELX HSSS	Cairo Alexandria Luxor Khartoum	0400 1000 1600 2200	0600 1200 1800 0000	24h	Addis Ababa Nairobi Antananarivo Niamey **Johannesburg**	HAZZYPYX HKZZYPBX FMZZYPYX DRZZNAZX **FAJSYMYX**
CASA BLANCA	GMMC	FTMC31	GMMC GMAA GMMX GMME GMTT	Casablanca Agadir Marrakech Rabat Tanger	0400 1000 1600 2200	0600 1200 1800 0000	30h	Alger **Dakar** Cairo	DAZZYPYP **GOOYYZYZ** HEZZYPYX
		FTMC39	GCLP GCTS	Las Palmas Tenerife Sur	0400 1000 1600 2200	0600 1200 1800 0000	24h		
DAKAR	GOOY	FTA032	GOOY GBYD GABS GFLL GLRB GQNN DIAP	Dakar Banjul Bamako Freetown Monrovia Nouakchott Abidjan	0400 1000 1600 2200	0600 1200 1800 0000	30h	Casablanca Alger Niamey Johannesburg Brazzaville	GMMCYPYX DAZZYPYP DRZZNAZX FAJSYMYX FCZZXLBX
		FTA039	GUCY GQPP GVAC GGOV	Conakry Nouadhibou Sal Bissau	0400 1000 1600 2200	0600 1200 1800 0000	24h	Nairobi Addis Ababa Toulouse **Dakar**	HKZZYPBX HAZZYPYX LFZZMAFI **GOOYYZYZ**
JOHANNE SBURG	FAJS	FTAP32	FAJS FACT FALE FBSK FVHA FWKI FLLS FQMA	Johannesburg Cape Town King Shaka Gaborone Harare Lilongwe Lusaka Maputo	0400 1000 1600 2200	0600 1200 1800 0000	30h	Addis Ababa Antananarivo Brazzaville Cairo Dar Es Salaam Dakar Nairobi	HAZZYPYX FMZZYPYX FCZZXLBX HFZZYPYX HTDAYMYX GOOYYZYZ HKZZYPBX
		FTAP39	FQBR FABL FDMS FXMM FYWH	Beira Bloemfontein Manzini Maseru Windhoek	0400 1000 1600 2200	0600 1200 1800 0000	24h	Toulouse **Johannesburg** Rio de Janeiro Bangkok Jeddah	LFZZMAFI **FAJSYMYX** SBGLYMYX VTBDYMYX OEJDYPYX

AMBEX CENTRE		**TAF BULLETIN**						**DISSEMINATION TO**	
Name	**CCCC**	**Bul. Id.**	**CCCC**	**Aerodrome**	**Filing Tiùme**	**Start of validity**	**TAF validit**	**RODB/ AMBEX Centre**	**AFTN Adress**
1	2	3	4	5	6	7	8	9	10
NAIROBI	HKJK	FTEA32	HKJK HTDA HUEN	Nairobi Dar-Es-Salaam Entebbe	0400 1000 1600 2200	0600 1200 1800 0000	30h	Addis Ababa Antananarivo **Johannesburg**	HAABYPYX FMZZYPYX **FAJSYMYX**
		FTEA39	HKMO HTKJ HBBA HRYR FSIA HCMM	Mombasa Kilimanjaro Bujumbura Kigali Mahe Mogadishu	0400 1000 1600 2200	0600 1200 1800 0000	24h	Brazzaville Dakar Cairo Niamey	FCZZXLBX GOZZSNGX HEZZYPYX DRZZNAZX
NIAMEY	DRRR	FTAO33	DRNN DGAA DBBB DNKN DNMM DXXX FTTJ DFFDY	Niamey Accra Cotonou Kano Lagos Lome N'djamena Ouagadougou	0400 1000 1600 2200	0600 1200 1800 0000	30h	Addis Ababa Alger Cairo Brazzaville **Dakar** Johannesburg Nairobi	HAZZYPYX DAZZYPYP HEZZYPYX FCZZXLBX **GOOYYZYZ** FAJSYMYX HKZZYPBX

APPENDIX C

WMO ABBREVIATED HEADINGS

(for use in AMBEX messages and bulletins)

1. Each AMBEX bulletin should have a WMO abbreviated heading in accordance with WMO No. 386, Manual on the Global Telecommunication System, Part II – Operational Procedures for the GTS. The symbolic form of the WMO abbreviated heading is as follows:

TTAAii CCCC YYGGgg (BBB)

2. Explanation of symbols

2.1. TTAAii - TT - This group is used in accordance with WMO No. 386, Manual on the Global Telecommunication System, Part II – Operational Procedures for the GTS, Attachment II-5.

2.1.1 **TT** - Data type designator, used for OPMET data as follows:

Data Type	Abbreviated Name	WMO data type designator TT
Aerodrome reports	METAR SPECI	SA SP
Aerodrome forecasts	TAF: 24 and 30 hour 9 and 12 hour	FT FC
SIGMET information	SIGMET SIGMET for TC SIGMET for VA	WS WC WV
Volcanic ash and tropical cyclone advisories	VAA TCA	FV FK
Air-reports	AIREP	UA
Administrative	ADMIN	NO

2.1.2 **AA** - Geographical designator, composed of two letters. according to WMO No. 386, Manual on the Global Telecommunication System, Part II – Operational Procedures for the GTS, Attachment II-5, Table C1. The following principles shall apply:

a) For AMBEX bulletins containing OPMET data from a single State or territory, the AA designator should be chosen from Table C1, Part I – Country or territory designators;

b) For AMBEX bulletins containing OPMET data from more than one State or territory, a suitable AA designator should be chosen from Table C1, Part II – Area Designators;

c) The part of the Table C1, Part II – Area Designators, which is relevant to the AMBEX scheme is reproduced bellow.

2.1.3 In AMBEX messages prepared by offices other than BCCs for transmission to BCCs, the following geographical designators should be used:

NOC	AA	NOC	AA
Abidjan	IV	Casablanca	MC
Accra	GH	Conakry	GN
Addis Ababa	ET	Cotonou	BJ
Aden	DY	Dakar	SG
Agadir	MC	Dar-es-Salaam	TN
Alger	AL	Djibouti	DJ
Alexandria	EG	Douala	CM
Annaba	AL	Durban	ZA
Antananarivo	MG	Entebbe	UG
Asmara	ET	Freetown	SL
Bamako	MI	Gaborone	BC
Bangui	CE	Harare	ZW
Banjul	GB	Jeddah	SD
Beira	MZ	Johannesburg	ZA
Beirut	LB	Kano	NI
Benghazi	LY	Khartoum	SU
Bissau	GW	Kigali	RW
Bloemfontein	ZA	Kilimanjaro	TN
Brazzaville	CG	Kinshasa	ZR
Bujumbura	BI	Lagos	NI
Cairo	EG	Las Palmas	CR
Cape Town	ZA	Libreville	GO
Lilongwe	MW	Niamey	NR
Lomé	TG	Nouadhibou	MT
Luanda	AN	Nouakchott	MT
Lusaka	ZB	Oran	AL
Luxor	EG	Ouagadougou	HV
Madinah	SD	Pointe Noire	CG
Mahajanga	MG	Port Gentil	GO
Mahé	SC	Rabat	MC
Malabo	GQ	Riyadh	SD
Manzini	SV	Saint-Denis	RE
Maputo	MZ	Sal	CV
Marrakech	MC	Sao Tomé	TP
Maseru	LS	Tamanrasset	AL
Mauritius	MA	Tanger	MC
Mogadishu	SI	Tenerife	CR
Mombasa	KN	Toamasina	MG
Monrovia	LI	Tunis	TS
Moroni	IC	Tripoli	LY
Nairobi	KN	Windhoek	NM
N'Djamena	CD	Yaounde	CM

2.1.4 In bulletins prepared by BCCs, the following geographical designators should be used:

BCC	AA	BCC	AA
Addis Ababa	EA	Casablanca	MC
Alger	AF	Dakar	AO
Antananarivo	IO	Johannesburg	AP
Brazzaville	AM	Nairobi	EA
Cairo	AF	Niamey	AO

2.1.5 **ii** Number used to differentiate two or more bulletins which contain data in the same code and which originate from the same geographical area and from the same originating centre. It shall be a number with a maximum of two digits. The IROGs may use numbers 36 to 38. The numbers 31 to 35, 39 shall be used in AMBEX bulletins for purposes other than those of IROGfunctions. .

2.2 **CCCC:** ICAO location indicator of location preparing the AMBEX bulletin (BCCs) or AMBEX messages (offices other than BCCs).

2.3. **YYGGgg**: Date-time group. To be used as follows:

2.3.1 YY - Day of the month

2.3.2 GGgg - hours and minutes.

- For METAR bulletins/messages: the standard time of observation in UTC.
- For TAF bulletins: the full hour in UTC (the last two digits shall be 00) preceding the transmission time.
- For all other bulletin/messages - the time of compilation in UTC.

2.4. BBB - Optional group indicating an amended, corrected or delayed bulletin.

2.4.1 An abbreviated heading defined by TTAAii CCCC YYGGgg shall be used only once. Consequently, if this abbreviated heading has to be used again for an addition, a correction or an amendment, it shall be mandatory to add an appropriate BBB indicator, which shall be added after the date-time group. The indicator BBB shall be used as defined below:

- RRx – for delayed routine meteorological messages/bulletins;
- CCx – for corrections to previously relayed messages/bulletins;
- AAx – for amendments to TAF messages/bulletins;
- Pxx – for segmenting a large set of information into several bulletins.

Note 1: *The "x" above is an alphabetic character of A through X, indicating the sequential number of the irregular bulletin of certain type. For instance, for amended TAFs, AAA is used for the first amendment, AAB for the second, AAC for the third, etc; for delayed METARs or TAFs, RRA is used for the first delayed message, RRB for the second, etc.; and, for corrections to any OPMET bulletin, CCA is used for the first correction, CCB for the second, etc.*

Note 2: *The use of the third letter A, B, C, etc. permits differentiation between bulletins/messages*

with the same type of information of the original bulletin/message. For example, assuming that a certain bulletin had the following abbreviated heading: "FTA031 DIAP 281000", a delayed bulletin containing TAF(s) which are missing from the original bulletin will bear the heading: "FTA033 DRRN 281000 RRA"; and a second delayed bulletin, containing additional missing TAF(s) will bear the heading: "FTA031 DIAP 281000 RRB".

Note 3: *The following data designators should be used by BCCs*:

	TAF	**METAR**
Addis Ababa	FTEA31 HAAB FTEA39 HAAB	SAEA 31
Alger	FTAF31 DAMM	SAAF 31
Antananarivo	FTIO31 FMMI FTIO39 FMMI	SAIO 31
Brazzaville	FTAM31 FCBB FTAM39 FCBB	SAAM 31
Cairo	FTAF32 HECA	SAAF 32
Casablanca	FTMC31 GMMC FTMC39 GMMC	SAMC 31
Dakar	FTAO32 GOOY FTAO39 GOOY	SAAO 32
Johannesburg	FTAP32 FAJS FTAP39 FAJS	SAAP 32
Nairobi	FTEA32 HKJK FTEA39 HKJK	SAEA 32
Niamey	FTAO33 DRRN	SAAO 33

APPENDIX D

EXCHANGE OF OPMET DATA BETWEEN THE AFI, EUR, MID AND ASIA REGION

IROGsRESPONSIBILITIES

1. DAKAR IROG

1.1. Outgoing responsibilities

1.1.1 The whole set of METAR, TAF, AIREP SPECIAL and SIGMET bulletins, as described in appendices A, B, C and D of this Handbook, received by RODB DAKAR shall be distributed to Rio de Janeiro and ROC Toulouse, which shall send them to the EUR ROCs deserving other adjacent regions and to the SADIS.

1.2. Incoming responsibilities

1.2.1 The bulletins containing the required international OPMET data as indicated in the FASID Table MET 1A (or 2A) shall be sent by Rio de Janeiro, Jedda and ROC Toulouse to IROG DAKAR, that shall send the bulletins following the States requirements.

1.2.2 Regular contacts with the adjacent IROG (s) shall insure the efficiency of the data exchange. A list of exchanged bulletins should be agreed and updated, as necessary.

2. PRETORIA IROG

2.1. Outgoing responsibilities

2.1.1 The whole set of METAR, TAF, AIREP SPECIAL and SIGMET bulletins, as described in appendices A, B, C and D of this Handbook received by RODB Pretoria shall be distributed to Rio de Janeiro, Jeddah, Bangkok and ROC Toulouse, that shall send to the EUR ROCs deserving other adjacent regions and to the SADIS

2.2. Incoming responsibilities

2.2.1 The bulletins containing the required international OPMET data as indicated in the FASID table MET 1A (or 2A) shall be sent by Rio de Janeiro, Jedda, Bangkok and ROC Toulouse to IROG PRETORIA, that shall send the bulletins following the States requirements.

2.2.2 Regular contacts with the adjacent IROG(s) should insure the efficiency of the data exchange. A list of exchanged bulletins should be agreed and updated, as necessary

APPENDIX E

AFI REGIONAL OPMET DATA BANKS AND SIGMET REQUIREMENTS

The AFI Regional OPMET Data Banks (RODBs) and the AFTN address to be used for direct access to the banks are shown below:

RODB	AFTN Address	AMBEX Centres of Responsibility
Dakar	GOOYYZYZ	Alger/DAMM, Brazzaville/FCBB Casablanca/GMMC Dakar/GOOO Niamey/DRNN
Pretoria	FAJSYMYX	Addis Ababa/HAAB, Antananarivo/FMMI Cairo/HECA Johannesburg/ (FAJS)** Nairobi/HKNA ** BCC located at South African Weather Service HQ.

Responsibilities:

1. Collect OPMET bulletins from AMBEX centres in the area of responsibility and store them in the data base;
2. Handle all types of OPMET bulletins;
3. Provide facilities for “request-reply” service to authorized users;
4. Maintain a catalogue of bulletins and introduce changes to the bulletins when necessary according to established procedures;
5. Quality control the incoming bulletings and inform AMBEX centres on any deficiencies;
6. Monitor the OPMET traffic by carrying on regular test on the availability and timeliness of the bulletins; report to the ICAO Regional Office on the results.

APPENDIX E-1

WMO HEADINGS FOR SIGMET BULLETINS USED BY AFI METEOROLOGICAL WATCH OFFICES (MWOs)

EXPLANATION OF THE TABLE

Col 1: State and name of the MWO

Col 2: ICAO location indicator of the MWO

Col 3: $T_1T_2A_1A_2$ii group of the WMO heading for the WS SIGMET bulletin

Col 4: $T_1T_2A_1A_2$ii group of the WMO heading for the WC SIGMET bulletin (tropical cyclone)

Col 5: $T_1T_2A_1A_2$ii group of the WMO heading for the WV SIGMET bulletin (volcanic ash)

Col 6: ICAO location indicator of the FIR/CTA served by the MWO

Col 7: Remarks

WMO HEADINGS FOR SIGMET BULLETINS
USED BY AFI METEOROLOGICAL WATCH OFFICES

MWO Location	ICAO location indicator	WMO SIGMET Headings			FIR/ACC served	Remarks
		WS	WC	WV	ICAO location indicator	
1	2	3	4	5	6	7
ALGERIA ALGER/Baraki	DAAL	WSAL31		WVAL31	DAAA	
ANGOLA LUANDA/4 de Fevereiro	FNLU	WSAN31		WVAN31	FNAN	
BOTSWANA GABORONE/Sir Seretse Khama	FBSK	WSBC31	WCBC31	WVBC31	FBGR	
BURUNDI BUJUMBURA/Bujumbura	HBBA	WSBI31		WVB131	HBBA	
CANARY ISLANDS (Spain) GRAN CANARIA/Gran Canary, Canary I	GCLP	WSCR31		WVCR31	GCCC	
CAPE VERDE SAL I/Amilcar Cabral	GVAC	WSCV31		WVCV31	GVSC	
CHAD N'DJAMENA/N'djamena	FTTJ	WSCD31		WVCD31	FTTT	
CONGO BRAZZAVILLE/Maya-Maya	FCBB	WSCG31		WVCG31	FCCC	
D.R. CONGO KINSHASA/N'Djili	FZAA	WSZR31	WCZR31	WVZR31	FZAA	
EGYPT CAIRO/Cairo International	HECA	WSEG31	WCEG31	WVEG31	HECC	
ETHIOPIA ADDIS ABABA/Bole Intl	HAAB	WSET31		WVET20	HAAA	
ERITREA ASMARA	HHAS	WSEI31		WVEI31	HHAA	
GHANA ACCRA/Kotoka Int'l	DGAA	WSGH31		WVGH31	DGAC	
KENYA KENYA/Jomo Kenyatta Int'l	HKJK	WSKN31	WCKN31	WVKN31	HKNA	
LIBERIA MONROVIA/Roberts Int'l	GLRB	WSLI31		WVSL31	GLRB	
LIBYAN ARAB JAMAHIRIYA TRIPOLI/Tripoli Int'l	HLLT	WSLY31		WVLY31	HLLL	
MADAGASCAR ANTANANARIVO/Ivato	FMMI	WSMG31	WCMG20	WVMG20	FMMM	
MALAWI LILONGWE/Lilongwe Int'l	FWKI	WSMW31	WCMW31	WVMW31	FWLL	

MWO Location	ICAO location indicator	WMO SIGMET Headings			FIR/ACC served	Remarks
		WS	WC	WV	ICAO location indicator	
1	2	3	4	5	6	7
MAURITIUS MAURITIUS/Sir Seewoosagur Ramgoolam Int'l	FIMP	WSMA31		WVMA31	FIMM	
MOROCCO CASABLANCA/Anfa	GMMC	WSMC31		WVMC31	GMMM	
MOZAMBIQUE MAPUTO/Maputo Int'l	FQMA	WSMZ31	WCMZ20	WVMZ31	FQBE	
NAMIBIA WINDHOEK/Hosea Kutako	FYWH	WSNM31		WVNM31	FYWH	
NIGER NIAMEY/Diori Hmani Int'l	DRRN	WSNR31		WVNR31	DRRR	
NIGERIA KANO/Mallam Aminu Kano Int'l	DNKN	WSNI31		WVNI31	DNKK	
RWANDA KIGALI/Gregoire Kayibanda	HRYR	WSRW31		WVRW31	HRYR	
SENEGAL Leopold Sedar Senghor	GOOY	WSSG31		WVSG31	GOOO	
SEYCHELLES MAYE/Seychelles Int'l	FSIA	WSSC31	WCSC20	WVSC31	FSSS	
SOMALIA MOGADISHU/Mogadishu	HCMM	WSSI31		WVSI31	HCSM	
SOUTH AFRICA JOHANNESBURG/Johannesburg	FAJS	WSZA31	WCZA31	WVZA31	FACA FAJA FAJO	
SUDAN KHARTOUM/Khartoum	HSSS	WSSU31		WVSU31	HSSS	
TUNISIA TUNIS/Carthage	DTTA	WSTS31		WVTS31	DTTC	
UGANDA ENTEBBE/Entebbe Int'l	HUEN	WSUG31		WVUG31	HUEC	
UNITED REPUBLIC OF TANZANIA DAR-ES-SALAAM/Dar-es-Salaam	HTDA	WSTN31	WCTN31	WVTN31	HTDC	
ZAMBIA LUSAKA/Lusaka Int'l	FLLS	WSZB31		WVZB31	FLFI	
ZIMBABWE HARARE/Harare	FVHA	WSZW31	WCZW31	WVZW31	FVHA	

APPENDIX F

OPMET Quality Control and Monitoring Procedures

(To be developed and confirmed by the QC team of the OPMET Management Task Force)

1 Quality Control Procedures

1.1 OPMET Data Validation

1.1.1 The AMBEX Centres and RODBs should not modify the content of the meteorological data, e.g. visibility, QNH etc., but only items contained in the WMO bulletin headings, such as, location indicators or observation times.

1.1.2 WMO Abbreviated Heading (TTAAii CCCC YYGGgg BBB) Validation

TT	Message Type, shall comprise two alphabetical characters
AA	Location Indicator, shall comprise two alphabetical characters
ii	comprise two digits, from 01 to 99
CCCC	A 4-letter ICAO location indicator shall comprise 4 alphabetical characters
YYGGgg	The date time group of the bulletin, shall be configured to validate it with the current time
BBB	BBB is an optional group. The use of BBB group shall comply with the rules in the WMO abbreviated heading, in regard to delayed, corrected and amended bulletins.

Examples	After QC check
METAR with incorrect YYGGgg: SABM31 VYMD 100830 **UTC** VYMD 100830Z 18005KT 8000 FEW025 31/18 Q1000 =	 SABM31 VYMD **100830** VYMD 100830Z 18005KT 8000 FEW025 31/18 Q1000 =
TAF without AHL: 112324 WIDDYMYX TAF WIDD 112324Z 1200/1224 00000KT 4000 RA BKNT017 BECMG 1203/1205 20010KT 9000 SCT017=	 **FTID31 WIDD 112300** TAF WIDD 112324Z 1200/1224 00000KT 4000 RA BKNT017 BECMG 1203/1205 20010KT 9000 SCT017=
TAF with invalid BBB: FTBN31 OBBI 030525 **AMD** TAF AMD OBBI 030525Z 0306/0406 16010KT CAVOK BECMG 0308/0312 33017KT 5000 PROB30 TEMPO 0308/0314 0800 DU=	 FTBN31 OBBI 030525 **AAA** TAF AMD OBBI 030525Z 0306/0406 16010KT CAVOK BECMG 0308/0312 33017KT 5000 PROB30 TEMPO 0308/0314 0800 DU=

1.1.3 METAR/SPECI Validation

For each individual METAR or SPECI within a bulletin the following additional fields shall be validated:

Prefix checks	METAR METAR COR SPECI SPECI COR	SA SA SP SP
Observation Time YYGGggZ	The report shall have a valid date and time of observation, including the character 'Z'. In a SPECI bulletin, this group will be same as (or very close to) the YYGGgg, part of the abbreviated bulletin heading.	
End-of-message format "="	Each METAR or SPECI report shall be terminated by the "=" character.	

Examples	After QC check
METAR with Observation Time error: SAPK31 OPKC **030159** RRA OPKC **030200** 26004 8000 BKN020 27/23 Q1007 NOSIG=	 SAPK31 OPKC **030200** RRA OPKC **030200** 26004 8000 BKN020 27/23 Q1007 NOSIG=
METAR with mistyped observation time: SAID31 WADD **120100** METAR WADD **121000Z** 17004KT 9999 FEW018CB SCT120 BKN300 28/26 Q1005=	 SAXX31 WADD **120100** METAR WADD **120100Z** 17004KT 9999 FEW018CB SCT120 BKN300 28/26 Q1005=
SPECI with incorrect Message Type, TT: **SANZ31** NZKL 040000 **SPECI** NZWP 040000Z 17005KT 010V240 25KM FEW020 FEW020CB SCT035 BKN050 18/15 Q1018 NOSIG=	 **SPNZ31** NZKL 040000 AAA **SPECI** NZWP 040000Z 17005KT 010V240 25KM FEW020 FEW020CB SCT035 BKN050 18/15 Q1018 NOSIG=

1.1.4 TAF Validation

For each individual TAF within a bulletin, the following additional items shall be validated:

Prefix checks	TAF TAF COR TAF AMD	FT or FC FT or FC FT or FC
Issue Time YYGGggZ	If the field is included, it shall have a valid date and time of origin of forecast including 'Z'.	
Validity $Y_1Y_1G_1G_1/Y_2Y_2G_2G_2$	Some TAFs are still produced with a 4-digit validity period. These shall be corrected by inserting a date consistent with the current date and the date time group of the bulletin header. If a TAF is received without a validity period it shall be discarded.	
End-of-Message format "="	Each forecast shall be terminated by the "=" character.:	

Examples	After QC check
TAF with issue time error (wrong date): FCID31 WIII 181630 TAF WIII **041630Z** 0418/0503 00000KT 9000 FEW025 BECMG 0422/0424 16005KT=	 FCID31 WIII 181630 TAF WIII **181630Z** 0418/0503 00000KT 9000 FEW025 BECMG 0422/0424 16005KT=
TAF with mistyped Validity Period: FTPH31 RPLL 132200 TAF RPLC 132200Z **1400/1428** 04006KT 9999 SCT036 BKN300 TEMPO 1400/1406 02010KT 5000 –SHRA FEW020 BKN270 TX32/1405Z TN22/1421Z=	 FTPH31 RPLL 132200 TAF RPLC 132200Z **1400/1424** 04006KT 9999 SCT036 BKN300 TEMPO 1400/1406 02010KT 5000 –SHRA FEW020 BKN270 TX32/1405Z TN22/1421Z=
TAF with Validity error (wrong date): FCMS33 WMKK 170748 TAF WMKK 170700Z **3009/3018** 30005KT 9999 FEW017CB SCT140 BKN270=	 FCMS33 WMKK 170748 TAF WMKK 170700Z **1709/1718** 30005KT 9999 FEW017CB SCT140 BKN270=
TAF with 4-digit Validity period: FTXX31 WIDD 170121 TAF WIDD **0618** 06010G20KT 9999 SCT018 BECMG 1712/1714 00000KT 7000=	 FTXX31 WIDD 170121 TAF WIDD **1706/1718** 06010G20KT 9999 SCT018 BECMG 1712/1714 00000KT 7000

1.1.5 SIGMET Validation

CCCC on the AHL	A valid 4-letter ICAO location indicator indicating the FIR for which the SIGMET was	
Prefix checks	SIGMET for TS, CB, TURB, ICE, MTW, DS and SS	WS
	SIGMET for VA	WV
	SIGMET for TC	WC
Validity Period DDHHMM/DDHHMM	Shall have a valid period of validity. Validity periods may be corrected if: • Missing VALID string • Incorrect SIGMET number format • Incorrectly formatted validity period	
Note: For SIGMET validation, please refer to the format described in the AFI (WACAF or ESAF) Regional SIGMET Guide		

Examples	After QC check
SIGMET without TTAAii: **SIGMET** OYSN 121525Z OYSC SIGMET 1 VALID 121530/122130 OYSNSANAA FIR EMBD TS OBS/FCST OVER WESTERN AND SOUTHWESTERN MOUNTAINS AND COASTAL AREAS CB TOPS FL36 NC=	 **WSXX31** OYSN 121525Z OYSC SIGMET 1 VALID 121530/122130 OYSNSANAA FIR EMBD TS OBS/FCST OVER WESTERN AND SOUTHWESTERN MOUNTAINS AND COASTAL AREAS CB TOPS FL36 NC=
SIGMET with incorrect number format WCPH30 RPLL 210445 SIGMET **NO 01** VALID 210000/210600 RPLL TC OBS N0830 E12900 ….=	 WCPH30 RPLL 210445 SIGMET **01** VALID 210000/210600 RPLL TC OBS N0830 E12900 … =
SIGMET with incorrect formatted validity period: WSIN90 VIDP 181800 VIDP SIGMET 06 VALID **18/1600** **TO 18/2000 UTC** VIDPDELHI FIR ISOL TS … = WSSD20 OEJD 220503 OEJD SIGMET 01 VALID **220500** **TO 220900** OEJN- JEDDAH FIR ….=	 WSIN90 VIDP 181800 VIDP SIGMET 06 VALID **181600/182000** VIDPDELHI FIR ISOL TS … = WSSD20 OEJD 220503 OEJD SIGMET 01 VALID **220500/220900** OEJN-JEDDAH FIR

1.2 Quality Control Methods

OPMET Data	**Elements Defining**	**Control Methods**
METAR METAR COR SPECI (SA,SP)	• AHL • Code name • Observation date/time	Software verification Manual validate Periodic Quality Control & PI Monitoring
TAF TAF AMD TAF COR (FT,FC)	• AHL • Code name • Originating station ICAO location indicator • Date/time of issue • Date, time of starting, time of end of the period the forecast refers to	Software verification Manual validate Periodic Quality Control & PI Monitoring
SIGMET (WS, WC, WV)	• AHL • SIGMET Sequence No • Date/time groups indicating the period of validity Additional Checks (recommended): • Name of the FIR or the CTA the message is issued for • Location indicator of the MWO originating the message	Software verification Manual validate Periodic SIGMET Quality Control Monitoring
Volcanic Ash Advisory FV	• Type of message • • Issue date and time Additional Checks (recommended): • • Location indicator or name of the VAAC centre originating the message	Software verification Manual validate Periodic VA Quality Control Monitoring
Tropical Cyclone Advisory FK	• Type of message • Issue date and time Additional Checks (recommended): • Location indicator or name of the TCAC centre originating the message	Software verification Manual validate Periodic TC Quality Control Monitoring

2 OPMET Monitoring

2.1 Monitoring of Scheduled OPMET data

2.1.1 Performance Indicators (PIs). The indices to be used by the RODBs are based on those developed by the European BMG for monitoring the SADIS distribution (ref. SADISOPSG/8, IP/5 – *SADIS OPMET Performance Indices*).

(i) Compliance Index

The AMBEX Compliance index can be calculated from:

$$V_{bul\ compliance} = \frac{\text{No of reports received for a bulletin}}{\text{No of reports required for the bulletin}}$$

The Compliance Index is to assess the level of compliance to the AMBEX scheme. The determination of the compliance index is performed as follows:

- Total number of reports received for AMBEX bulletin during the monitoring period, include reports in the retard bulletins.
- Weed out correction and amendment bulletins, as these are re-transmitted messages, can be disregarded.

(ii) Availability Index

The availability index measures the current coverage of the OPMET distribution against the AMBEX exchange requirements. The determination of the availability index is performed on a daily basis from the data captured during the monitoring period. If at least one non-NIL report is received from the aerodrome during the 24-hour period, that aerodrome is considered to have been available. The daily availability index of a particular bulletin can be calculated as:

$$V_{bul\ availability} = \frac{\text{No of aerodromes for which one or more non-NIL data type are received}}{\text{No of aerodromes required in the bulletins}}$$

(iii) Regularity Index

The regularity index measures the consistency in the number of reports provided by an aerodrome. The computation of Regularity Index assumes that the number of report follows a normal distribution and attempts to ascertain the distribution characteristics (mean and standard deviation) from a set of data. These
characteristics are used to determine if subsequent number of reports from an aerodrome is “regular”.

Denoting mean and standard deviation by μ and σ , a threshold report numbers (τ) can be established as:

$$\tau = \mu - \sigma$$

The threshold is a reporting characteristic of an aerodrome. If the subsequent daily number of reports meets or exceeds the threshold, it is considered “regular”. The daily regularity index for a bulletin can be expressed as:

$$V_{bul\ regularity} = \frac{\text{No of aerodromes for which the number of reports equals or exceeds the threshold}}{\text{No of aerodromes required in the bulletin}}$$

2.2 Monitoring of non-scheduled OPMET data

2.2.1 Monitoring of non-scheduled OPMET data should be executed for FK, FV, WC, WS, and WV types of bulletins.

2.2.2 The monitoring results should be presented in bulletin-oriented format, one line per bulletin indicating the abbreviated header (TTAAii CCCC YGGgg), the FIR/UIR where applicable, receipt time and originator.

2.2.3 Example non-routine OPMET monitoring result file formats:

TT	AAii	CCCC	YYGGgg	FIR/UIR Rx	Time	Origin
WS	PF21	NTAA	271004	NTTT	271004	NTAAYMYX
WS	IN90	VIDP	271000	VIDP	271007	VECCYMYX
WS	BW20	VGZR	271100	VGZR	271030	VGZRYMYX
WS	CI31	RCTP	271150	RCTP	271150	RCTPYMYX
WS	MS31	WMKK	272013	WBFC	272013	WMKKYMYX
WS	CI35	ZGGG	272225	ZGZU	272228	ZGGGYZYX
FV	AU01	ADRM	270323		270330	YMMCYMYX
FK	PQ30	RJTD	270500		270504	RJTDYMYX

Explanations to the table:

- TT: Type of bulletin FK, FV, WC, WS, WV
- AAii: Bulletin ID
- CCCC: Compiling Station
- YYGGgg: Standard time of report
- FIR/UIR: ICAO Location indicator of the FIR/UIR or blank (4 spaces) as applicable
- RxTime: Time of receipt
- Origin: Originator address.

2.2.4 Analysis of Monitoring Results:

2.2.4.1 Each RODB collects and analyses the relevant result in order to determine the effectiveness and suitability of the quality management system and to highlight any possible improvement to ICAO Regional Offices, Dakar and Pretoria.

2.3 Examples of Monitoring Results – PI Measurements

The following tables show values of Compliance, Availability and Regularity Index for ASIA/PAC OPMET bulletins compiled by Singapore RODB in March 05:

TABLE A	ROBEX Compliance Index		
	SA	FT	FC
AE31 VECC	0.81	--	
AS31 VABB	---	0.99	
AS31 VTBB	0.96	0.99	
SA32 VABB	--	0.98	
AS32 VTBB	--	0.85	
AU31 YBBN	1.00	0.99	0.97

Note: *Entry dashed out (--) means no reports of this type (SA or FT) are required*

TABLE B	**Availability Index**		
	SA	**FT**	**FC**
AE31 VECC	0.98	--	
AS31 VABB	---	1.00	
AS31 VTBB	0.99	1.00	
SA32 VABB	--	0.99	
AS32 VTBB	--	0.96	
AU31 YBBN	1.00	1.00	1.00
.	.	.	.
.	.	.	.

TABLE C	**Regularity Index**		
	SA	**FT**	**FC**
AE31 VECC	0.86	--	
AS31 VABB	---	0.96	
AS31 VTBB	0.93	0.96	
SA32 VABB	--	0.96	
AS32 VTBB	--	0.96	
AU31 YBBN	0.90	0.90	0.96
.	.	.	.
.	.	.	.

APPENDIX G

AMBEX FOCAL POINTS *(December 2009….)*

	State/*Etat*/ Organisation	Name/*Nom et Prénom*	Address/*Adresse*	E-mail	Fax	Telephone
1	Algeria					
2	Cameroon	ABONDO Cyrille	Chef de Service de la Météorologie Aéronautique	abondocyrille@yahoo.com	+237 22 30 33 62	+ 237 22 30 30 90
3	Congo	**OLEMBE Alexis Laurence**	B.P. 218 Brazzaville Aéroport CONGO	aolembe@yahoo.fr	+242 282 00 51	+242 972 16 77 / +242 411 48 95
4	Egypt					
5	Ethiopia					
6	Kenya					
7	France					
8	Madagascar	RAKOTONDRIANA Jérôme **RABENASOLO Mamitiana Alain**	Direction Générale de la Météo, BP 1254 Antananarivo B.P. 46 Ivato Aéroport MADAGASCAR	madagascarmto@asecna.org; jerome@asecna.mg mamyalain6@yahoo.fr	+261 202 258 115 +261 20 22 581 15	+ 261 33 12 108 05 +261 3410 034 54
9	Morocco					
10	Niger	**YERIMA Ladan**	B.P. 1096 Niamey Aéroport NIGER	E-mail : yeriladan@yahoo.fr	+227 20 73 55 12	+227 94 85 22 27
11	Nigeria	IKEKHUA O. Felix Mrs. M. O. Iso	NIMET	felix_ikekhua@yahoo.com maryottuiso@yahoo.com	+234 9 4130710 +234 9 4130711	+234 1 477 16 62 +234 9 4130709 + 234 9 4130710
12	Senegal (Rapporteur)	DIEME Saïdou	ASECNA Sénégal	saidoudieme@yahoo.fr	+221 33 820 06 00 +221 33 820 02 72/	+221 33 869 22 03

			B.P. 8132 Dakar Aéroport Yoff SENEGAL	saidoudieme@yahoo.fr	+221 33 820 06 00	: +221 77 652 53 87
13	South Africa					
14	United Kingdom (RU)					
15	ASECNA	NGOUAKA Dieudonné	ASECNA DG BP 3144 Dakar, Sénégal	ngouakadie@asecna.org	+221 33 8234654	+221 33 8695714
16	IATA	ZOO-MINTO'O Prosper	Adjoint au Directeur régional de l'IATA	ZooMintooP@iata.org	+2711 523 2702	+2711 523 27 00
17	WMO/OMM					
18	EUR BMG					
19	IROG Toulouse					
20	ASIA/PAC/M TSF					

To be updated by Dakar and Pretoria RODB Managers

AFI OPMET DB Catalogue Section 1 :

METAR/SPECI, FT TAF and FC TAF

Structure of the tables:

- ICAO region
- State
- name of the airport
- CCCC ICAO location indicator
- IATA code (when available, XXX if not)
- the required types of reports (Y when available, N if not).

The tables are sorted by ICAO regions:

- AFI
- ASIA/PAC
- CAR/SAM
- EUR
- MID
- NAM
- NAT

then by State and by CCCC location indicator for each State.

ANNEX 1 - AFI

Name of Aerodrome	CCCC	IATA	AOP	SA	SP	FC	FT
AFI - ALGERIA							
Adrar/Touat-Cheikh Sidi Mohamed Belkebir	DAUA	AZR	Y	Y	Y	N	N
Alger/Houari Boumediene	DAAG	ALG	Y	Y	Y	N	Y
Annaba/Rabah Bitat	DABB	AAE	Y	Y	Y	N	Y
Bechar/Boudghene Ben Ali Lotfi	DAOR	CBH		Y	Y	Y	N
Bejaia/Soummam-Abane Ramdane	DAAE	BJA		Y	Y	Y	N
Biskra	DAUB	BSK		Y	Y	Y	N
Bou Saada	DAAD	BUJ		Y	Y	N	N
Constantine/Med Boudiaf	DABC	CZL	Y	Y	Y	N	Y
Djanet/Tiska	DAAJ	DJG		Y	Y	Y	N
El Golea	DAUE	ELG		Y	Y	N	N
El Oued/Guemar	DAUO	ELU		Y	Y	Y	N
Ghardaia/Noumerat-Moufdi Zakaria	DAUG	GHA	Y	Y	Y	N	N
Ghriss	DAOV			Y	Y	Y	N
Hassi Messaoud/Oued Irara-Krim Belkacem	DAUH	HME	Y	Y	Y	N	N
Illizi/Takhamalt	DAAP	WZ		Y	Y	Y	N
In Guezzam	DATG	INF		Y	Y	Y	N
In Salah	DAUI	INZ	Y	Y	Y	N	N
Jijel/Ferhat Abbas	DAAV	GJL		Y	Y	Y	N
Oran/Es Senia Y T	DAOO	ORN	Y	Y	Y	N	Y
Tamanrasset/Aguenar	DAAT	TMR	Y	Y	Y	N	Y
Tebessa/Cheikh Larbi Tebessi	DABS	TEE	Y	Y	Y	N	N
Tiaret Abdelhafid Boussouf Ain Bou Chekif	DAOB	TID		Y	Y	Y	N
Timimoun	DAUT	TMX		Y	Y	Y	N
Tlemcen/Zenata-Messali El Hadj	DAON	TUM	Y	Y	Y	N	Y
Touggourt/Sidi Mahdi	DAUK	TGR		Y	Y	Y	N
Zarzaitine/In Amenas	DAUZ	IAM		Y	Y	N	N
AFI - ANGOLA							
Cabinda	FNCA	CAB		Y	Y	N	Y
Huambo	FNHU	NOV	Y	Y	Y	N	N
Luanda/4 De Fevereiro	FNLU	LAD	Y	Y	Y	N	Y
AFI - ASCENSION I. (United Kingdom)							
ASCENTION I	FHAW	ASC		N	N	N	Y
AFI - BENIN							
Cotonou/Cadjehoun	DBBB	COO	Y	Y	Y	N	Y
AFI - BOSTWANA							
Francistown	FBFT	FRW	Y	Y	Y	N	N
Gaborone/Sir Seretse Khama Int'l Y X F	FBSK	GBE	Y	Y	Y	N	Y
Ghanzi	FBGZ			Y	Y	N	N
Kasane	FBKE	BBK	Y	Y	Y	N	N
Maun	FBMN	MUB	Y	Y	Y	N	N
Selibe-Phikwe	FBSP		Y	Y	Y	N	N

AFI - BRITISH INDIAN OCEAN TERRITORY (United Kingdom)							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Diego Garcia (See/Voir/Ves "Kjdg")	FJDG			Y	Y	N	Y
AFI - BURKINA FASO							
Bobo Dioulasso	DFOO	BOY	Y	Y	Y	N	N
Ouagadougou/Aeroport	DFFD	OUA	Y	Y	Y	N	Y
AFI - BURUNDI							
Bujumbura	HBBA	BJM	Y	Y	Y	N	Y
AFI - CAMEROON							
Douala/Aeroport	FKKD	DLA	Y	Y	Y	N	Y
Garoua	FKKR	GOU	Y	Y	Y	N	N
Maroua/Salak	FKKL	MVR	Y	Y	Y	N	N
N'gaoundere	FKKN	NGE	Y	Y	Y	N	N
Yaounde/Nsimalen	FKYS	NSI	Y	Y	Y	N	Y
AFI - CANARY ISLANDS (Spain)							
Fuerteventura Y	GCFV		Y	Y	Y	N	Y
Gran Canaria Y	GCLP		Y	Y	Y	N	Y
Hierro	GCHI		Y	Y	Y	N	N
La Palma	GCLA		Y	Y	Y	N	N
Lanzarote	GCRR		Y	Y	Y	N	Y
Tenerife Norte (Ad Civil)	GCXO		Y	Y	Y	N	Y
Tenerife Sur/Reina Sofia	GCTS		Y	Y	Y	N	Y
AFI - CAPE VERDE							
Amilcar Cabral/Sal Island	GVAC	SID	Y	Y	Y	N	Y
Praia	GVNP		Y	Y	Y	N	N
Sao Pedro/Sao Vicente Island	GVSV		N	Y	Y	N	Y
AFI - CENTRAL AFRICAN REPUBLIC							
Bangassou	FEFG	BGU	N	Y	Y	N	N
Bangui/M'poko	FEFF	BGF	Y	Y	Y	N	Y
Berberati Y F	FEFT	BBT	Y	Y	Y	N	N
AFI - CHAD							
Moundou	FTTD	MQQ	N	Y	Y	N	N
N'djamena/Hassan Djamous	FTTJ	NDJ	Y	Y	Y	N	Y
Sarh	FTTA	SRH	N	Y	Y	N	N
AFI - COMOROS							
Dzaoudzi Pamandzi	FMCZ		Y	Y	Y	N	N
Moroni/Ihahaia	FMCH	HAH	Y	Y	Y	N	Y
AFI - CONGO							
Brazzaville/Maya-Maya	FCBB	BZV	Y	Y	Y	N	Y
Dolisie	FCPD		N	Y	Y	N	N
Impfondo	FCOI		N	Y	Y	N	N
Ouesso	FCOU		N	Y	Y	N	N
Pointe Noire	FCPP	PNR	Y	Y	Y	N	Y
AFI - COTE D'IVOIRE							
Abidjan/Felix Houphouet Boigny	DIAP	ABJ	Y	Y	Y	N	Y
Bouake	DIBK	BYK	Y	Y	Y	N	N
Korhogo	DIKO	HGO	N	Y	Y	N	N
Man	DIMN	MJC	N	Y	Y	N	N
San Pedro	DISP	SPY	N	Y	Y	N	N
Yamoussoukro	DIYO	ASK	N	Y	Y	N	Y

AFI - DEMOCRATIC REPUBLIC OF THE CONGO							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Goma	FZNA	GOM	Y	Y	Y	N	N
Kalemie	FZRF	FMI	N	Y	Y	N	N
Kamina-Base	FZSA	KMN	N	Y	Y	N	Y
Kasese	FZOS		N	Y	Y	N	Y
Kindu	FZOA	KND	N	Y	Y	N	Y
Kinshasa/N'djili	FZAA	FIH	Y	Y	Y	N	Y
Kinshasa/N'dolo	FZAB	NLO	N	Y	Y	N	Y
Kisangani-Bangoka	FZIC	FKI	Y	Y	Y	N	N
Lubumbashi-Luano	FZQA	FBM	Y	Y	Y	N	N
Malebo	FZBN		N	Y	Y	N	Y
Mbandaka	FZEA	MDK	N	Y	Y	N	Y
Mbuji-Mayi	FZWA		N	Y	Y	N	N
AFI - DJIBOUTI							
Djibouti/Ambouli	HDAM	JIB	Y	Y	Y	N	Y
AFI - EGYPT							
Abu Simbel	HEBL	ABS	N	Y	Y	N	Y
Alexandria / Intl	HEAX	ALY	Y	Y	Y	N	Y
Almaza Afb / Militar	HEAZ		Y	Y	Y	N	N
Aswan / Intl	HESN	ASW	Y	Y	Y	N	Y
Asyut / Intl	HEAT		Y	Y	Y	N	N
Borg El Arab / Intl	HEBA		N	Y	Y	N	Y
Cairo/Intl	HECA	CAI	Y	Y	Y	N	Y
El Arish / Intl	HEAR		N	Y	Y	N	Y
Hurghada / Intl	HEGN	HRG	Y	Y	Y	N	Y
Luxor / Intl	HELX	LXR	Y	Y	Y	N	Y
Marsa Alam / Intl	HEMA		N	Y	Y	N	N
Mersa Matruh	HEMM	MUH	N	Y	Y	N	Y
Port Said/ Intl	HEPS		N	Y	Y	N	Y
Shark El Oweinat / Intl	HEOW		Y	Y	Y	N	N
Sharm El Sheikh / Intl	HESH		Y	Y	Y	N	Y
St.Catherine / Intl	HESC		Y	Y	Y	N	Y
Taba / Intl	HETB	TCP	Y	Y	Y	N	Y
AFI - EQUATORIAL GUINEA							
Bata	FGBT		N	Y	Y	N	N
Malabo	FGSL	SSG	Y	Y	Y	N	Y
AFI - ERITREA							
Asmara Ais/App/Com/Met/Twr	HHAS	ASM	Y	Y	Y	N	Y
Assab	HHSB		N	Y	Y	N	N
AFI - ETHIOPIA							
Addis Ababa/Bole Com/Met/Nof	HAAB	ADD	Y	Y	Y	N	Y
Dire Dawa	HADR	DIR	N	Y	Y	N	N
AFI - GABON							
Franceville/Mvengue	FOON	HVB	Y	Y	Y	N	N
Libreville/Leon M'ba	FOOL	LBV	Y	Y	Y	N	Y
Moanda	FOOD	MFF	N	Y	Y	N	N
Port-Gentil	FOOG	POG	Y	Y	Y	N	N
AFI - GAMBIA							
Banjul International	GBYD	BJL	Y	Y	Y	N	Y

AFI - GHANA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Accra/Kotoka International	DGAA	ACC	Y	Y	Y	N	Y
Kumasi	DGSI	KMS	Y	Y	Y	N	N
Tamale	DGLE		Y	Y	Y	N	N
AFI - GUINEA							
Boke/Baralande	GUOK		N	Y	Y	N	Y
Conakry/Gbessia	GUCY	CKY	Y	Y	Y	N	Y
Faranah/Badala	GUFH	FAA	N	Y	Y	N	N
Kankan/Kankan	GUXN		Y	Y	Y	N	N
Labe/Tata	GULB		Y	Y	Y	N	N
N'zerekore/Konia	GUNZ		Y	Y	Y	N	N
AFI - GUINEA-BISSAU							
Bissau/Oswaldo Vieira Intl	GGOV	BXO	Y	Y	Y	N	Y
AFI - KENYA							
Eldoret/Intl	HKEL		Y	Y	Y	N	Y
Kisumu	HKKI	KIS	N	Y	Y	N	Y
Malindi	HKML	MYD	N	Y	Y	N	Y
Mombasa/Moi Intl.	HKMO	MBA	Y	Y	Y	N	Y
Nairobi/Jomo Kenyatta Airport	HKJK	NBO	Y	Y	Y	N	Y
Nairobi/Wilson	HKNW	WIL	N	Y	Y	N	Y
AFI - LESOTHO							
Maseru Moshoeshoe	FXMM	MSU	Y	Y	Y	N	Y
AFI - LIBERIA							
Monrovia/Roberts Intl	GLRB	ROB	Y	Y	Y	N	Y
Monrovia/Spriggs Payne	GLMR	MLW	N	Y	Y	N	Y
AFI - LIBYAN ARAB JAMAHIRIYA							
Benghazi/Benina	HLLB		Y	Y	Y	N	Y
Ghadames	HLTD		N	Y	Y	N	Y
Kufra	HLKF		N	Y	Y	N	N
Sebha	HLLS		Y	Y	Y	N	N
Tripoli/International	HLLT		Y	Y	Y	N	Y
AFI - MADAGASCAR							
Antananarivo/Ivato	FMMI	TNR	Y	Y	Y	N	Y
Antsiranana/Arrachart	FMNA		Y	Y	Y	N	N
Mahajanga/Ph. Tsiranana	FMNM	MJN	Y	Y	Y	N	Y
Nosy-Be	FMNN	NOS	Y	Y	Y	N	N
Sainte-Marie	FMMS		Y	Y	Y	N	N
Toamasina	FMMT		Y	Y	Y	N	Y
Tolagnaro	FMSD		Y	Y	Y	N	N
AFI - MALAWI							
Blantyre/Chileka	FWCL	BLZ	Y	Y	Y	N	N
Lilongwe/Kamuzu International	FWKI		Y	Y	Y	N	Y

AFI - MALI							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Bamako/Senou	GABS	BKO	Y	Y	Y	N	Y
Gao	GAGO	GAQ	Y	Y	Y	N	N
Kayes	GAKD	KLB	Y	Y	Y	N	N
Kidal	GAKL		Y	Y	Y	N	N
Mopti/Ambodedjo	GAMB	MZI	Y	Y	Y	N	N
Nioro	GANR	NIX	Y	Y	Y	N	N
Tombouctou	GATB	TOM	Y	Y	Y	N	N
AFI - MAURITANIA							
Atar	GQPA	ATR	Y	Y	Y	N	N
Kaedi	GQNK	KED	N	Y	Y	N	N
Nema	GQNI	EMN	Y	Y	Y	N	N
Nouadhibou	GQPP	NDB	Y	Y	Y	N	Y
Nouakchott/Aeroport	GQNN	NKC	Y	Y	Y	N	Y
Zoueratt/Tazadit	GQPZ		Y	Y	Y	N	N
AFI - MAURITIUS							
Rodrigues/Plaine Corail Airport	FIMR	RRG	N	Y	Y	N	N
Sir Seewoosagur Ramgoolam Intl Airport	FIMP	MRU	Y	Y	Y	N	Y
AFI - MOROCCO							
Agadir/Al Massira	GMAD	AGA	Y	Y	Y	N	Y
Al Hoceima/Cherif El Idrissi	GMTA		Y	Y	Y	N	N
Casablanca/Mohammed	GMMN	CMN	Y	Y	Y	N	Y
Errachidia/Moulay Ali Cherif	GMFK		Y	Y	Y	N	Y
Fes/Saiss	GMFF	FEZ	Y	Y	Y	N	Y
Laayoune/Hassan	GMML	EUN	N	Y	Y	N	Y
Marrakech/Menara	GMMX	RAK	Y	Y	Y	N	Y
Nador/El Aroui	GMMW	NDR	N	Y	Y	N	N
Ouarzazate	GMMZ	OZZ	Y	Y	Y	N	Y
Oujda/Angads	GMFO	OUD	Y	Y	Y	N	Y
Rabat/Sale	GMME	RBA	Y	Y	Y	N	Y
Tanger/Ibn Batouta	GMTT	TNG	Y	Y	Y	N	Y
Tan-Tan/Plage Blanche	GMAT		Y	Y	Y	N	N
Tetouan/Saniat R'mel	GMTN	TTU	Y	Y	Y	N	N
AFI - MOZAMBIQUE							
Beira	FQBR	BEW	Y	Y	Y	N	Y
Maputo	FQMA	MPM	Y	Y	Y	N	Y
Nampula	FQNP	APL	N	Y	Y	N	Y
Quelimane	FQQL	UEL	N	Y	Y	N	Y
Tete/Chingodzi	FQTT	TET	N	Y	Y	N	Y
AFI - NAMIBIA							
Hosea Kutako Intl Airport	FYWH	WDH	N	Y	Y	N	Y
Keetmanshoop	FYKT	KMP	Y	Y	Y	N	N
Walvis Bay	FYWB		Y	Y	Y	N	N

AFI - NIGER							
Agades Sud	DRZA	AJY	Y	Y	Y	N	N
Niamey	DRRN	NIM	Y	Y	Y	N	Y
Zinder	DRZR	ZND	Y	Y	Y	N	N
AFI - NIGERIA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Abuja	DNAA	ABV	Y	Y	Y	N	Y
Benin	DNBE	BNI	N	Y	Y	N	Y
Calabar	DNCA	CBQ	Y	Y	Y	N	N
Enugu	DNEN	ENU	N	Y	Y	N	Y
Ibadan (New)	DNIB	IBA	N	Y	Y	N	Y
Ilorin	DNIL	ILR	Y	Y	Y	N	N
Jos	DNJO	JOS	N	Y	Y	N	Y
Kaduna (New)	DNKA	KAD	Y	Y	Y	N	N
Kano/Mallam Aminu Kano	DNKN	KAN	Y	Y	Y	N	Y
Lagos/Murtala Muhammed	DNMM	LOS	Y	Y	Y	N	Y
Maiduguri	DNMA	MIV	Y	Y	Y	N	N
Port Harcourt	DNPO	PHC	Y	Y	Y	N	Y
Sokoto	DNSO	SKO	Y	Y	Y	N	N
AFI - REUNION (FRANCE)							
Saint Denis Gillo	FMEE	RUN	Y	Y	Y	N	Y
AFI - RWANDA							
Kigali/Gregoire Kayibanda	HRYR	KGL	Y	Y	Y	N	Y
AFI - SAO TOME AND PRINCIPE							
Sao Tome/International,Sao Tome Island	FPST	TMS	Y	Y	Y	N	Y
AFI - SENEGAL							
Cap Skiring	GOGS	CSK	Y	Y	Y	N	N
Dakar/Yoff	GOOY	DKR	Y	Y	Y	N	Y
Saint Louis	GOSS	XLS	Y	Y	Y	N	N
Tambacounda	GOTT	TUD	Y	Y	Y	N	N
Ziguinchor	GOGG	ZIG	Y	Y	Y	N	N
AFI - SEYCHELLES							
Seychelles International	FSIA	SEZ	Y	Y	Y	N	Y
AFI - SIERRA LEONE							
Freetown/Lungi	GFLL	FNA	Y	Y	Y	N	Y
AFI - SOMALIA							
Berbera	HCMI	BBO	Y	Y	Y	N	N
Burao	HCMV		Y	Y	Y	N	N
Egal International Airport	HCMH	HGA	Y	Y	Y	N	N
Kisimayu	HCMK	KMU	Y	Y	Y	N	Y
Mogadishu	HCMM	MGQ					

AFI - SOUTH AFRICA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Alexander Bay	FAAB	ALJ	N	Y	Y	N	N
Bloemfontein (Bloemfontein Airport)	FABL	BFN	Y	Y	Y	N	Y
Cape Town (Cape Town Internl Airport)	FACT	CPT	Y	Y	Y	N	Y
Durban (Durban International Airport)	FADN	DUR	Y	Y	Y	N	Y
East London	FAEL	ELS	N	Y	Y	N	N
George (George Airport)	FAGG	GJR	N	Y	Y	N	N
Kimberley (Kimberley Airport)	FAKM	KIM	N	Y	Y	N	N
Lanseria	FALA	HLA	Y	Y	Y	N	N
Mafikeng Intl. Ad	FAMM	MBD	Y	Y	Y	N	N
Nelspruit	FANS		Y	Y	Y	N	N
O.R Tambo International Airport	FAJS	JNB	Y	Y	Y	N	Y
Pietersburg (Civil)	FAPI		Y	Y	Y	N	N
Port Elizabeth (Port Elizabeth Airport)	FAPE	PLZ	Y	Y	Y	N	N
Rand	FAGM		Y	Y	Y	N	N
Upington	FAUP	UTN	Y	Y	Y	N	N
Waterkloof (Saaf)	FAWK		N	Y	Y	N	N
AFI - SPAIN							
Melilla	GEML		N	Y	Y	N	N
AFI - SUDAN							
Dongola/Dongola	HSDN	DOG	N	Y	Y	N	Y
El Obeid/El Obeid International	HSOB	EBD	N	Y	Y	N	Y
Juba/Juba	HSSJ	JUB	Y	Y	Y	N	N
Kassala/Kassala	HSKA	KSL	Y	Y	Y	N	N
Khartoum/Khartoum (Civil Aviation Dept.)	HSSS	KRT	Y	Y	Y	N	Y
Port Sudan/Port Sudan	HSPN	PZU	Y	Y	Y	N	N
AFI - SWAZILAND							
Manzini/Matsapha	FDMS	MTS	Y	Y	Y	N	Y
AFI - TOGO							
Aeroport International Gnassingbe Eyadema	DXXX	LFW	Y	Y	Y	N	Y
Niamtougou	DXNG	LRL	Y	Y	Y	N	N
Sokode	DXSK		N	Y	Y	N	N
AFI - TUNISIA							
Djerba/Zarzis	DTTJ	DJE	Y	Y	Y	N	Y
Gabes	DTTG		N	Y	Y	Y	Y
Gafsa/Ksar	DTTF		N	Y	Y	Y	Y
Monastir/Habib Bourguiba	DTMB	MIR	Y	Y	Y	N	Y
Sfax/Thyna	DTTX	SFA	Y	Y	Y	N	N
Tabarka/7 Novembre	DTKA		Y	Y	Y	N	N
Tozeur/Nefta	DTTZ	TOE	Y	Y	Y	N	Y
Tunis/Carthage	DTTA	TUN	Y	Y	Y	N	Y
AFI - UGANDA							
Entebbe (Intl)	HUEN	EBB	Y	Y	Y	N	Y
AFI - UNITED REPUBLIC OF TANZANIA							
Dar Es Salaam	HTDA	DAR	Y	Y	Y	N	Y
Kilimanjaro	HTKJ	JRO	Y	Y	Y	N	Y
Mwanza	HTMW	MWZ	N	Y	Y	N	Y
Tanga	HTTG	TGT	N	Y	Y	N	Y
Zanzibar – Kisauni	HTZA	ZNZ	Y	Y	Y	N	Y

AFI - WESTERN SAHARA							
El Aaiun	GSAI		Y	Y	Y	N	N
Villacisneros	GSVO		Y	Y	Y	N	N
AFI - ZAMBIA							
Livingstone	FLLI	LVI	Y	Y	Y	N	N
Lusaka/Intl	FLLS	LUN	Y	Y	Y	N	Y
Mfuwe	FLMF	NFU	Y	Y	Y	N	N
Ndola	FLND	NLA	Y	Y	Y	N	N
AFI - ZIMBABWE							
Harare International	FVHA	HRE	Y	Y	Y	N	Y
J.M. Nkomo	FVBU	BUQ	Y	Y	Y	N	N
Victoria Falls	FVFA	VFA	Y	Y	Y	N	N

ANNEX 1 – ASIA/PAC

ASIA/PAC - AMERICAN SAMOA (UNITED STATES)							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Pago Pago International,Tutuila I.	NSTU	PPG	Y	Y	Y	N	Y
ASIA/PAC - AUSTRALIA							
Adelaide/Adelaide Intl	YPAD	ADL	Y	Y	Y	N	Y
Alice Springs	YBAS	ASP	Y	Y	Y	N	Y
Avalon	YMAV		N	Y	Y	N	Y
Brisbane/Brisbane Intl	YBBN	BNE	Y	Y	Y	N	Y
Broome/Broome Intl	YBRM	BME	N	Y	Y	N	Y
Cairns/Cairns Intl	YBCS	CNS	Y	Y	Y	N	Y
Canberra	YSCB	CBR	N	Y	Y	N	Y
Christmas Island	YPXM		Y	Y	Y	N	Y
Cocos (Keeling) Island Intl	YPCC	CCK	Y	Y	Y	N	Y
Darwin/Darwin Intl	YPDN	DRW	Y	Y	Y	N	Y
Dubbo	YSDU		N	Y	Y	N	Y
Gold Coast	YBCG	OOL	N	Y	Y	N	Y
Gove	YPGV		N	Y	Y	N	Y
Hamilton Island	YBHM	HTI	N	Y	Y	N	Y
Hobart	YMHB	HBA	Y	Y	Y	N	Y
Kalgoorlie-Boulder	YPKG	KGI	N	Y	Y	N	Y
Kununurra	YPKU	KNX	N	Y	Y	N	Y
Learmonth	YPLM	LEA	N	Y	Y	N	Y
Melbourne/Melbourne Intl	YMML	MLB	Y	Y	Y	N	Y
Mount Isa	YBMA	ISA	N	Y	Y	N	Y
Norfolk Island Intl	YSNF	NLK	Y	Y	Y	N	Y
Pearce	YPEA		N	Y	Y	N	Y
Perth/Perth Intl	YPPH	PER	Y	Y	Y	N	Y
Port Hedland	YPPD	PHE	Y	Y	Y	N	Y
Richmond, Nsw	YSRI	RCM	N	Y	Y	N	Y
Rockhampton	YBRK	ROK	Y	Y	Y	N	Y
Sydney/Sydney (Kingsford Smith) Intl	YSSY	SYD	Y	Y	Y	N	Y
Tindal	YPTN		Y	Y	Y	N	Y
Townsville/Townsville Intl	YBTL	TSV	Y	Y	Y	N	Y
ASIA/PAC - BANGLADESH							
M.A. Hannan Intl. Chittagong	VGEG	CGP	Y	Y	Y	N	Y
Zia Intl.Airport,Dhaka	VGZR	DAC	Y	Y	Y	N	Y
ASIA/PAC - BHUTAN							
Paro/Intl	VQPR	PBH	Y	Y	Y	N	N
ASIA/PAC - BRUNEI DARUSSALAM							
Brunei/Intl	WBSB	BWN	Y	Y	Y	N	Y
ASIA/PAC - CAMBODIA							
Phnom Penh	VDPP	PNH	Y	Y	Y	N	Y
Siem Reap	VDSR		Y	Y	Y	N	N
ASIA/PAC - CHILE							
Isla De Pascua/Ad Mataveri	SCIP	IPC	Y	Y	Y	N	Y

ASIA/PAC - CHINA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Beijing/Capital	ZBAA	NAY	Y	Y	Y	N	Y
Changchun/Longjia	ZYCC		N	Y	Y	N	Y
Changsha/Huanghua	ZGHA		Y	Y	Y	N	Y
Chengdu/Shuangliu	ZUUU	CTU	Y	Y	Y	N	Y
Chongqing/Jiangbei	ZUCK		Y	Y	Y	N	Y
Dalian/Zhoushuizi	ZYTL	DLC	Y	Y	Y	N	Y
Fuzhou/Changle	ZSFZ		Y	Y	Y	N	Y
Gaoxiong	RCKH	KHH	Y	Y	Y	N	Y
Guangzhou/Baiyun	ZGGG	CAN	Y	Y	Y	N	Y
Guilin/Lianjiang	ZGKL	KWL	Y	Y	Y	N	Y
Haikou/Meilan	ZJHK	HAK	N	Y	Y	N	Y
Hangzhou/Xiaoshan	ZSHC	HGH	Y	Y	Y	N	Y
Harbin/Taiping	ZYHB	HRB	Y	Y	Y	N	Y
Hefei/Luogang	ZSOF	HFE	Y	Y	Y	N	Y
Huhhot/Baita	ZBHH		Y	Y	Y	N	Y
Jinan/Yaoqiang	ZSJN		Y	Y	Y	N	Y
Kashi/Kashi	ZWSH		Y	Y	Y	N	Y
Kunming/Wujiaba	ZPPP	KMG	Y	Y	Y	N	Y
Lanzhou/Zhongchuan	ZLLL	ZGC	Y	Y	Y	N	Y
Nanjing/Lukou	ZSNJ	NKG	Y	Y	Y	N	Y
Nanning/Wuxu	ZGNN	NNG	Y	Y	Y	N	Y
Qingdao/Liuting	ZSQD	TAO	Y	Y	Y	N	Y
Sanya/Phoenix	ZJSY		Y	N	N	N	N
Shanghai/Hongqiao	ZSSS	SHA	Y	Y	Y	N	Y
Shanghai/Pudong	ZSPD	PVG	Y	Y	Y	N	Y
Shantou/Waisha	ZGOW	SWA	N	Y	Y	N	Y
Shenyang/Taoxian	ZYTX	SHE	Y	Y	Y	N	Y
Shenzhen/Baoan	ZGSZ	SZX	Y	Y	Y	N	Y
Taibei City/Taibei Intl Ap	RCTP	TPE	Y	Y	Y	N	Y
Taibei/Songshan	RCSS	TSA	Y	Y	Y	N	Y
Taiyuan/Wusu	ZBYN	TYN	Y	Y	Y	N	Y
Tianjin/Binhai	ZBTJ	TSN	Y	Y	Y	N	Y
Urumqi/Diwopu	ZWWW	URC	Y	Y	Y	N	Y
Wuhan/Tianhe	ZHHH	WUH	Y	Y	Y	N	Y
Xiamen/Gaoqi	ZSAM	XMN	Y	Y	Y	N	Y
Xi'an/Xianyang	ZLXY	XIY	Y	Y	Y	N	N
Xichang/Quingshan	ZUXC		Y	Y	Y	N	N
ASIA/PAC - COOK ISLANDS							
Rarotonga Intl. Y T F	NCRG	RAR	Y	Y	Y	N	Y
ASIA/PAC - DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA							
Sunan	ZKPY	FNJ	Y	Y	Y	N	Y
ASIA/PAC - FIJI							
Nadi/Intl	NFFN	NAN	Y	Y	Y	N	Y
Nausori/Intl	NFNA		Y	Y	Y	N	N
ASIA/PAC - FRENCH POLYNESIA (FRANCE)							
Nengo-Nengo	NTGG		Y	Y	Y	N	N
Tahiti Faaa	NTAA		Y	Y	Y	N	Y

ASIA/PAC - HONG KONG, CHINA (CHINA)							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Hong Kong/International	VHHH	HKG	Y	Y	Y	N	Y
ASIA/PAC - INDIA							
Ahmedabad	VAAH	AMD	Y	Y	Y	N	Y
Amritsar	VIAR	ATQ	Y	Y	Y	N	Y
Bangalore (Military)	VOBG	BLR	N	Y	Y	N	Y
Bhubaneshwar	VEBS	BBI	N	Y	Y	N	Y
Calicut	VOCL	CCJ	Y	Y	Y	N	Y
Chennai	VOMM	MAA	Y	Y	Y	N	Y
Cochin International Airport	VOCI		N	Y	Y	N	Y
Delhi/Indira Gandhi Intl	VIDP	DEL	Y	Y	Y	N	Y
Hyderabad	VOHY	HYD	N	Y	Y	N	Y
Jaipur	VIJP	JAI	N	Y	Y	N	Y
Lucknow	VILK	LKO	N	Y	Y	N	Y
Mumbai/Chhatrapati Shivaji Intl.	VABB	BOM	Y	Y	Y	N	Y
Nagpur	VANP	NAG	Y	Y	Y	N	Y
Netaji Subhash Chandra Bose Intl Airpt, Kolkata	VECC	CCU	Y	Y	Y	N	Y
Pathankot (Iaf)	VIPK		N	Y	Y	N	Y
Patna	VEPT	PAT	Y	Y	Y	N	Y
Tiruchchirappalli	VOTR		Y	Y	Y	N	Y
Trivandrum	VOTV	TRV	Y	Y	Y	N	Y
Varanasi	VIBN	VNS	Y	Y	Y	N	Y
ASIA/PAC - INDONESIA							
Ambon/Pattimura	WAPP		Y	Y	Y	N	Y
Bali/Ngurah Rai	WADD		Y	Y	Y	N	Y
Balik Papan/Sepinggan	WALL	BPN	Y	Y	Y	N	Y
Banjarmasin/Syamsudin Noor	WAOO		Y	Y	Y	N	N
Batam/Hang Nadim	WIDD	BTH	Y	Y	Y	N	N
Biak/Frans Kaisiepo	WABB		Y	Y	Y	N	Y
Jakarta/Halimperdana Kusuma	WIHH		Y	Y	Y	N	Y
Jakarta/Soekarno Hatta	WIII	CGK	Y	Y	Y	N	N
Jayapura/Sentani	WAJJ	DJJ	Y	Y	Y	N	N
Jogyakarta/Adisucipto	WARJ		N	Y	Y	N	Y
Kupang/El Tari	WATT		Y	Y	Y	N	N
Manado/Sam Ratulangi	WAMM	MDC	Y	Y	Y	N	Y
Mataram/Selaparang	WADA	AMI	N	Y	Y	N	Y
Medan/Polonia	WIMM	MES	Y	Y	Y	N	Y
Merauke/Mopah	WAKK	KOE	Y	Y	Y	N	N
Padang/Tabing	WIMG	PDG	Y	Y	Y	N	N
Palembang/Sultan Mahmud Badaruddin Ii	WIPP	PLM	Y	Y	Y	N	N
Pekanbaru/Sultan Syarif Kasim Ii	WIBB		Y	Y	Y	N	N
Pontianak/Supadio	WIOO	PNK	Y	Y	Y	N	N
Solo/Adi Sumarmo	WARQ	SOL	N	Y	Y	N	Y
Sorong/Jefman	WASS	SOQ	N	Y	Y	N	Y
Surabaya/Juanda	WARR	SUB	Y	Y	Y	N	N
Tanjung Pinang/Kijang	WIDN		Y	Y	Y	N	N
Tarakan/Juwata	WALR		Y	Y	Y	N	N
Timika/Moses Kilangin	WABP		Y	Y	Y	N	N
Ujung Pandang/Hasanuddin	WAAA	UPG	Y	Y	Y	N	Y

ASIA/PAC - JAPAN

Name of Aerodrome	CCCC	IATA	AOP	SA	SP	FC	FT
Chubu Centrair Intl	RJGG		Y	Y	Y	N	Y
Fukuoka	RJFF	FUK	Y	Y	Y	N	Y
Hakodate	RJCH	HKD	Y	Y	Y	N	Y
Hiroshima	RJOA		Y	Y	Y	N	Y
Kagoshima	RJFK	KOJ	Y	Y	Y	N	Y
Kansai Intl	RJBB	KIX	Y	Y	Y	N	Y
Kumamoto	RJFT	KMJ	Y	Y	Y	N	Y
Nagasaki	RJFU	NGS	Y	Y	Y	N	Y
Naha	ROAH	NAH	Y	Y	Y	N	Y
Narita Intl	RJAA	NRT	Y	Y	Y	N	Y
Niigata	RJSN	KIJ	Y	Y	Y	N	Y
Oita	RJFO		Y	Y	Y	N	Y
Okayama	RJOB		Y	Y	Y	N	Y
Osaka Intl	RJOO	ITM	Y	Y	Y	N	Y
Sapporo/New Chitose	RJCC	CTS	Y	Y	Y	N	Y
Sendai	RJSS	SDJ	Y	Y	Y	N	Y
Takamatsu	RJOT		Y	Y	Y	N	Y
Tokyo Intl	RJTT	TYO	Y	Y	Y	N	Y
ASIA/PAC - JOHNSTON ISLAND (UNITED STATES)							
Johnston I./Johnston Atoll	PJON	PON	N	N	N	N	N
ASIA/PAC - KIRIBATI							
christmas island	PLCH		Y	Y	Y	N	Y
tarawa/bonriki intl	NGTA	TRW	Y	Y	Y	N	Y
ASIA/PAC - LAO PEOPLE'S DEMOCRATIC REPUBLIC							
Vientiane(Wattay)	VLVT	VTE	Y	Y	Y	N	Y
ASIA/PAC - MACAO, CHINA (CHINA)							
Macaou/Intl Airport	VMMC	QMP	Y	Y	Y	N	Y
ASIA/PAC - MALAYSIA							
Alor Star/Sultan Abdul Halim	WMKA	AOR	N	Y	Y	N	Y
Bintulu	WBGB	BTU	N	Y	Y	Y	N
Ipoh/Sultan Azlan Shah	WMKI	IPH	N	Y	Y	N	Y
Johor Bahru/Sultan Ismail	WMKJ	JHB	Y	Y	Y	N	Y
Kota Bharu/Sultan Ismail Petra	WMKC	KBR	N	Y	Y	N	N
Kota Kinabalu/Intl	WBKK	BKI	Y	Y	Y	N	Y
Kuala Terengganu/Sultan Mahmud	WMKN	TGG	N	Y	Y	N	Y
Kuantan (Rmaf)	WMKD	KUA	Y	Y	Y	N	N
Kuching/Intl	WBGG	KCH	Y	Y	Y	N	Y
Kuda	WBKT		N	Y	Y	N	N
Labuan (Rmaf)	WBKL	LBU	Y	Y	Y	N	Y
Malacca	WMKM	MKZ	Y	Y	Y	N	N
Mersing	WMAU		N	Y	Y	N	N
Miri Y	WBGR	MYY	Y	Y	Y	N	Y
Penang/Intl	WMKP	PEN	Y	Y	Y	N	Y
Pulau Langkawi/Intl	WMKL	LGK	Y	Y	Y	N	Y
Sandakan	WBKS	SDK	N	Y	Y	N	Y
Sepang/Kl International Airport	WMKK	KUL	Y	Y	Y	N	Y
Sibu	WBGS	SBW	Y	Y	Y	N	Y
Sitiawan	WMBA		N	Y	Y	N	N
Subang/Sultan Abdul Aziz Shah	WMSA	SZB	Y	Y	Y	N	Y
Tawau	WBKW	TWU	Y	Y	Y	N	Y

ASIA/PAC - MALDIVES

Name of Aerodrome	CCCC	IATA	AOP	SA	SP	FC	FT
Gan	VRMG	GAN	Y	Y	Y	N	Y
Male/Intl	VRMM	MLE	Y	Y	Y	N	Y
ASIA/PAC - MARSHALL ISLANDS							
Kwajalein Atoll/Bucholz Aaf, Kiribati	PKWA	KWA	Y	Y	Y	N	Y
Marshall Islands/Intl Majuro Atoll	PKMJ	MAJ	Y	Y	Y	N	Y
ASIA/PAC - MICRONESIA (FEDERATED STATES OF)							
Kosrae,Kosrae Island	PTSA	KSA	N	Y	Y	N	Y
Pohnpei Intl,Pohnpei Island	PTPN	PNI	Y	Y	Y	N	Y
Weno Island ,Fm Chuuk Intl.	PTKK	TKK	Y	Y	Y	N	N
Yap Intl,Yap Island	PTYA	YAP	Y	Y	Y	N	N
ASIA/PAC - MIDWAY (UNITED STATES)°							
Midway Naf (Henderson Field) ,Sand Island	PMDY	MDY	Y	Y	Y	N	Y
ASIA/PAC - MONGOLIA							
Ulaanbaatar	ZMUB	ULN	Y	Y	Y	N	Y
ASIA/PAC - MYANMAR							
Mandalay International	VYMD		N	Y	Y	N	Y
Sittwe	VYSW	AKY	N	Y	Y	N	Y
Yangon International	VYYY	RGN	Y	Y	Y	N	Y
ASIA/PAC - NAURU							
Nauru I.	AUUU		Y	Y	Y	N	Y
ASIA/PAC - NEPAL							
Kathmandu	VNKT	KTM	Y	Y	Y	N	Y
ASIA/PAC - NEW CALEDONIA (FRANCE)							
Noumea La Tontouta	NWWW	NOU	Y	Y	Y	N	Y
ASIA/PAC - New Zealand							
Auckland Intl	NZAA	AKL	Y	Y	Y	N	Y
Christchurch Intl	NZCH		Y	Y	Y	N	Y
Wellington Intl	NZWN	WLG	Y	Y	Y	N	Y
ASIA/PAC - NIUE (NEW ZEALAND)							
Niue Intl	NIUE	IUE	Y	Y	Y	N	Y
ASIA/PAC - NORTHERN MARIANA ISLANDS (UNITED STATES)							
Anderson Afb,Guam Island	PGUA		Y	Y	Y	N	N
Francisco C. Ada/Saipan International, Obyan	PGSN	SPN	Y	Y	Y	N	Y
Guam International, Guam Island	PGUM		Y	Y	Y	N	Y
Rota/Intl,Rota I.	PGRO		Y	Y	Y	N	Y
ASIA/PAC - PAKISTAN							
Faisalabad	OPFA	LYP	N	Y	Y	N	Y
Gwadar	OPGD	GWD	N	Y	Y	N	Y
Islamabad/Chaklala	OPRN	ISB	Y	Y	Y	N	Y
Karachi/Jinnah Int'l	OPKC	KHI	Y	Y	Y	N	Y
Lahore/Allama Iqbal Int'l	OPLA	LHE	Y	Y	Y	N	Y
Multan	OPMT	MUX	N	Y	Y	N	Y
Nawabshah	OPNH	WNS	Y	Y	Y	N	Y
Pasni	OPPI	PSI	Y	Y	Y	N	Y
Peshawar	OPPS	PEW	Y	Y	Y	N	Y
Quetta Y	OPQT	UET	N	Y	Y	N	Y

ASIA/PAC - PALAU							
Babelthuap/Koror, Babelthuap Island	PTRO	ROR	Y	Y	Y	N	Y
ASIA/PAC - PAPUA NEW GUINEA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Daru	AYDU		N	Y	Y	Y	N
Goroka	AYGA		N	Y	Y	Y	N
Madang	AYMD		N	Y	Y	Y	N
Momote	AYMO		N	Y	Y	Y	N
Mount Hagen	AYMH		N	Y	Y	Y	N
Nadzab	AYNZ		N	Y	Y	Y	N
Port Moresby Intl	AYPY	POM	Y	Y	Y	N	Y
Vanimo	AYVN		Y	Y	Y	N	N
Wewak	AYWK		Y	Y	Y	N	N
ASIA/PAC - PHILIPPINES							
Clark Ab, Pampanga	RPLC		N	N	Y	N	Y
Davao/Francisco Bangoy Intl, Davao Del Sur	RPMD	DVO	Y	Y	Y	N	N
General Santos/Buayan,South Cotabato	RPMB		N	N	Y	N	N
Laoag, Laoag Intl, Ilocos Norte	RPLI	LAO	Y	Y	Y	N	N
Lapu-Lapu/Mactan, Cebu	RPVM	MBT	Y	Y	Y	N	Y
Manila/Ninoy Aquino Intl, Pasay City, Metro Manila	RPLL	MNL	Y	Y	Y	N	Y
Puerto Princesa, Palawan	RPVP	PPS	N	Y	Y	N	Y
Subic Bay,Subic Bay Intl, Olongapo City, Zambales	RPLB		Y	Y	Y	N	N
Zamboanga, Zamboanga Intl, Zamboanga Del Norte	RPMZ	ZAM	Y	Y	Y	N	N
ASIA/PAC - REPUBLIC OF KOREA							
Cheongju	RKTU		Y	Y	Y	N	Y
Daegu	RKTN	TAE	Y	Y	Y	N	Y
Gimhae	RKPK	PUS	Y	Y	Y	N	Y
Gimpo	RKSS	SEL	Y	Y	Y	N	Y
Gunsan	RKJK	KUV	N	Y	Y	N	Y
Gwangju	RKJJ	KWJ	N	Y	Y	N	Y
Incheon	RKSI		Y	Y	Y	N	Y
Jeju	RKPC		Y	Y	Y	N	Y
Muan	RKJB		Y	Y	Y	N	N
Osan	RKSO	OSN	N	Y	Y	N	Y
Yangyang	RKNY		Y	Y	Y	N	Y
ASIA/PAC - SAMOA							
Apia	NSAP	APW	Y	Y	Y	N	Y
ASIA/PAC - SINGAPORE							
Paya Lebar (Rsaf)	WSAP	QPG	Y	Y	Y	N	Y
Seletar	WSSL	XSP	Y	Y	Y	N	Y
Singapore/Changi	WSSS	SIN	Y	Y	Y	N	Y
ASIA/PAC - SOLOMON ISLANDS							
Honiara (Henderson)	AGGH		Y	Y	Y	N	Y
ASIA/PAC - SRI LANKA							
Bandaranaike International Airport Colombo	VCBI	RML	Y	Y	Y	N	Y
Higurakgoda/Mineriya	VCCH		Y	Y	Y	N	N
Kankesanturai/Jaffna	VCCJ	JAF	N	Y	Y	N	Y
Ratmalana/Colombo	VCCC	CMB	N	Y	Y	N	Y

ASIA/PAC - THAILAND							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Bangkok/Don Mueang Intl Airport	VTBD	BKK	Y	Y	Y	N	Y
Bangkok/Suvarnabhumi Intl Airport	VTBS		Y	Y	Y	N	Y
Buri Ram	VTUO		N	Y	Y	N	Y
Chiang Mai/Chiang Mai Intl. Airport	VTCC	CNX	Y	Y	Y	N	Y
Chiang Rai/Chiang Rai Intl Airport	VTCT	CEI	Y	Y	Y	N	Y
Chumphon/Tab Gai	VTSE		N	Y	Y	N	Y
Khon Kaen	VTUK	KKL	Y	Y	Y	N	Y
Krabi	VTSG		Y	Y	Y	N	Y
Lampang	VTCL		N	Y	Y	N	Y
Loei	VTUL	LOE	N	Y	Y	N	Y
Mae Hong Son	VTCH	HGN	N	Y	Y	N	Y
Nakhon Phanom	VTUW	KOP	N	Y	Y	N	Y
Nakhon Ratchasima	VTUQ	NAK	N	Y	Y	N	Y
Nakhon Si Thammarat	VTSF		N	Y	Y	N	Y
Nan	VTCN	NNT	N	Y	Y	N	Y
Narathiwat	VTSC	NAW	N	Y	Y	N	Y
Pattani	VTSK		N	Y	Y	N	Y
Phetchabun	VTPB		N	Y	Y	N	Y
Phitsanulok	VTPP	PHS	Y	Y	Y	N	Y
Phrae	VTCP	PRH	N	Y	Y	N	Y
Phuket/Phuket Intl Airport	VTSP	HKT	Y	Y	Y	N	Y
Prachuap Khiri Khan/Hua Hin	VTPH		N	Y	Y	N	Y
Ranong	VTSR		N	Y	Y	N	Y
Rayong/U-Taphao Intl Airport	VTBU		Y	Y	Y	N	Y
Roi Et	VTUV		N	Y	Y	N	Y
Sakon Nakhon/Ban Khai	VTUI	SNO	N	Y	Y	N	Y
Songkhla/Hat Yai Intl Airport	VTSS	HDY	Y	Y	Y	N	Y
ASIA/PAC - THAILAND							
Sura Tahni/Samui	VTSM		N	Y	Y	N	Y
Surat Thani	VTSB	URT	Y	Y	Y	N	Y
Tak/Mae Sot	VTPM		N	Y	Y	N	Y
Trang	VTST	TST	N	Y	Y	N	Y
Ubon Ratchathani	VTUU	UBP	Y	Y	Y	N	Y
Udon Thani	VTUD	UTH	N	Y	Y	N	Y
ASIA/PAC - TONGA							
Fua'amotu Intl	NFTF		Y	Y	Y	N	Y
Vava'u	NFTV		Y	Y	Y	N	Y
ASIA/PAC - TUVALU							
Funafuti/Intl	NGFU		Y	Y	Y	N	Y
ASIA/PAC - UNITED STATES							
Adak Island/Adak Naf,Ak.	PADK		N	Y	Y	N	Y
Anchorage/Elmendorf Afb,Ak.	PAED		Y	Y	Y	N	Y
Annette Island,Ak.	PANT		N	Y	Y	N	Y
Barrow/Wiley Post-Will Rogers Mem,Ak.	PABR		N	Y	Y	N	Y
Barter Island Lrrs,Ak.	PABA		N	Y	Y	N	Y
Bethel,Ak.	PABE		N	Y	Y	N	Y
Bettles,Ak.	PABT		N	Y	Y	N	Y

ASIA/PAC - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Cape Lisburne Lrrs,Ak.	PALU		N	Y	Y	N	Y
Cape Newenham Lrrs,Ak	PAEH		N	Y	Y	N	Y
Cape Romanzof Lrrs,Ak.	PACZ		N	Y	Y	N	Y
Cold Bay,Ak.	PACD		Y	Y	Y	N	Y
Cordova/Merle K (Mudhole) Smith,Ak.	PACV		N	Y	Y	N	Y
Deadhorse,Ak	PASC		N	Y	Y	N	Y
Delta Junction/Allen Aaf,Ak.	PABI		N	Y	Y	N	Y
Dillingham Aprt,Ak.	PADL		N	Y	Y	N	Y
Fairbanks International, Ak.	PAFA		Y	Y	Y	N	Y
Fairbanks/Eielson Afb,Ak	PAEI		Y	Y	Y	N	Y
Fairbanks/Ft Wainwright	PAFB		N	Y	Y	N	Y
Galena,Ak.	PAGA		N	Y	Y	N	Y
Gulkana,Ak	PAGK		N	Y	Y	N	Y
Hilo International, Hilo Hi.	PHTO		Y	Y	Y	N	N
Homer,Ak.	PAHO		N	Y	Y	N	Y
Honolulu International, Oahu, Hi.	PHNL		Y	Y	Y	N	Y
Iliamna,Ak.	PAIL		N	Y	Y	N	Y
Juneau International, Ak.	PAJN		N	Y	Y	N	Y
Kahului, Hi.	PHOG		Y	Y	Y	N	Y
Kenai/Muni,Ak.	PAEN		N	Y	Y	N	Y
Ketchikan Intl,Ak.	PAKT		N	Y	Y	N	Y
King Salmon,Ak.	PAKN		Y	Y	Y	N	Y
Kodiak,Ak.	PADQ		N	Y	Y	N	Y
Kona/Keahole Kailua,Hi.	PHKO		N	Y	Y	N	Y
Kotzebue/Ralph Wien Memorial Ak.	PAOT		N	Y	Y	N	Y
Lahaina/Kapalua-West Maui, Hi.	PHJH		N	Y	Y	N	Y
Lanai City, Lanai,Hi.	PHNY		N	Y	Y	N	Y
Lihue, Kauai,Hi.	PHLI		N	Y	Y	N	Y
Mcgrath,Ak.	PAMC		N	Y	Y	N	Y
Molokai, Kaunakakai,Hi.	PHMK		N	Y	Y	N	Y
Nome,Ak.	PAOM		N	Y	Y	N	Y
Northway,Ak.	PAOR		N	Y	Y	N	Y
Sitka,Ak.	PASI		N	Y	Y	N	Y
Skagway,Ak.	PAGY		N	Y	Y	N	Y
St. Paul Island,Ak.	PASN		N	Y	Y	N	Y
Talkeetna,Ak	PATK		N	Y	Y	N	Y
Tanana/Ralph Calhoun Mem,Ak.	PATA		N	Y	Y	N	Y
Ted Stevens Anchorage International, Ak.	PANC		Y	Y	Y	N	Y
Tin City Lrrs,Ak.	PATC		N	Y	Y	N	Y
Unalakleet,Ak.	PAUN		N	Y	Y	N	Y
Unalaska,Ak.	PADU		N	Y	Y	N	Y
Valdez,Ak.	PAVD		N	Y	Y	N	Y
Yakutat,Ak.	PAYA		N	Y	Y	N	Y
ASIA/PAC - VANUATU							
Port Vila/Bauerfield	NVVV		Y	Y	Y	N	Y
Santo/Pekoa	NVSS		Y	Y	Y	N	Y

ASIA/PAC - VIET NAM							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Da Lat/Lien Khuong Y C P	VVDL		N	Y	Y	Y	N
Da Nang Y T F	VVDN		Y	Y	Y	N	Y
Dien Bien Phu Y C P	VVDB		N	Y	Y	Y	N
Ha Noi/Noi Bai	VVNB		Y	Y	Y	N	Y
Ho Chi Minh/Tan Son Nhat	VVTS		Y	Y	Y	N	Y
Hue/Phu Bai	VVPB		Y	Y	Y	N	Y
Nha Trang	VVNT		N	Y	Y	Y	N
ASIA/PAC - WAKE ISLAND (UNITED STATES)							
Wake Island Airfield,Wake I.	PWAK		N	Y	Y	N	Y
ASIA/PAC - WALLIS AND FUTUNA ISLANDS (FRANCE)							
Wallis Hihifo	NLWW		Y	Y	Y	N	N
Da Lat/Lien Khuong	VVDL		N	Y	Y	Y	N
Da Nang	VVDN		Y	Y	Y	N	Y
Dien Bien Phu	VVDB		N	Y	Y	Y	N
Ha Noi/Noi Bai	VVNB		Y	Y	Y	N	Y
Ho Chi Minh/Tan Son Nhat	VVTS		Y	Y	Y	N	Y
Hue/Phu Bai	VVPB		N	Y	Y	Y	N
Nha Trang	VVNT		N	Y	Y	Y	N

ANNEX 1 – CAR/SAM

Name of Aerodrome	CCCC	IATA	AOP	SA	SP	FC	FT
CAR/SAM - ANGUILLA (UNITED KINGDOM)							
Wallblake,Anguilla	TQPF	AXA	Y	Y	Y	N	Y
CAR/SAM - ANTIGUA AND BARBUDA							
V.C.Bird,Antigua	TAPA		Y	Y	Y	N	Y
CAR/SAM - ARGENTINA							
Aeroparque J. Newbery, Caba	SABE	AEP	Y	Y	Y	N	Y
Comodoro Rivadavia/Gral Mosconi,Cht	SAVC		Y	Y	Y	N	Y
Cordoba/Ing. A.L.V. Taravella Cba	SACO	COR	Y	Y	Y	N	Y
Ezeiza Ministro Pistarini, Ba	SAEZ	EZE	Y	Y	Y	N	Y
Formosa,F	SARF	FMA	N	Y	Y	N	Y
Iguazu/Cataratas Del Iguazu, Ms	SARI	IGR	Y	Y	Y	N	Y
Jujuy,J.	SASJ	JUJ	Y	Y	Y	N	Y
Mar Del Plata,Ba	SAZM	MDX	Y	Y	Y	N	Y
Mendoza/El Plumerillo,Mza	SAME	MDZ	Y	Y	Y	N	Y
Neuquen,N	SAZN		Y	Y	Y	N	Y
Posadas,Ms	SARP		N	Y	Y	N	Y
Resistencia,Cho	SARE	RES	Y	Y	Y	N	Y
Rio Gallegos/Brig. Gral. D.A. Parodi (Sc)	SAWG	RGL	Y	Y	Y	N	Y
Rosario,Sf	SAAR	RSJ	Y	Y	Y	N	Y
Salta,S.	SASA		Y	Y	Y	N	Y
San Carlos De Bariloche,Rn	SAZS		Y	Y	Y	N	Y
San Fernando,Ba	SADF		Y	Y	Y	N	Y
Tucuman/Ten. Benjamin Matienzo,T	SANT		N	Y	Y	N	Y
Ushuaia/Malvinas Argentinas (Tais)	SAWH		N	Y	Y	N	Y
CAR/SAM - ARUBA (NETHERLANDS)							
Oranjestad/Beatrix	TNCA	AUA	Y	Y	Y	N	Y
CAR/SAM - BAHAMAS							
George Town	MYEG		Y	Y	Y	N	Y
Governor's Harbour	MYEM		Y	Y	Y	N	Y
Grand Bahama International	MYGF	FPO	Y	Y	Y	N	Y
Marsh Harbour	MYAM		Y	Y	Y	N	Y
Nassau International	MYNN	NAS	Y	Y	Y	N	Y
North Eleuthera	MYEH		Y	Y	Y	N	Y
Rock Sound	MYER	RSD	N	Y	Y	N	Y
San Salvador International	MYSM		Y	Y	Y	N	Y
South Bimini	MYBS		Y	Y	Y	N	Y
Stella Maris	MYLS		Y	Y	Y	N	Y
Treasure Cay	MYAT		Y	Y	Y	N	Y
CAR/SAM - BARBADOS							
Grantley Adams,Barbados	TBPB	BGI	Y	Y	Y	N	Y
CAR/SAM - BELIZE							
philip s.w. goldson international	MZBZ	BZE	Y	Y	Y	N	Y

Name of Aerodrome	CCCC	IATA	AOP	SA	SP	FC	FT
CAR/SAM - BOLIVIA							
Cobija	SLCO	CIJ	N	Y	Y	N	Y
Cochabamba	SLCB	CBB	Y	Y	Y	N	Y
El Trompillo	SLET		N	Y	Y	N	Y
La Paz Y	SLLP	LPB	Y	Y	Y	N	Y
Potosi	SLPO	POI	N	Y	Y	N	Y
Puerto Suarez	SLPS	PSZ	N	Y	Y	N	Y
Sucre	SLSU	SRE	N	Y	Y	N	Y
Tarija	SLTJ		Y	Y	Y	N	Y
Trinidad	SLTR	TOO	Y	Y	Y	N	Y
Viru Viru	SLVR	VVI	Y	Y	Y	N	Y
CAR/SAM - BRAZIL							
Belem/Val De Cans, Pa	SBBE	BEL	Y	Y	Y	N	Y
Belo Horizonte/Tancredo Neves,Mg	SBCF	CNF	Y	Y	Y	N	Y
Boa Vista/Boa Vista, Rr	SBBV	BVB	Y	Y	Y	N	Y
Brasilia/Pres. Juscelino Kubitschek, Df	SBBR	BSB	Y	Y	Y	N	Y
Campinas/Viracopos,Sp	SBKP	CPQ	Y	Y	Y	N	Y
Campo Grande/Campo Grande, Ms	SBCG	CGR	Y	Y	Y	N	Y
Corumba/Corumba, Ms	SBCR		Y	Y	Y	N	Y
Cruzeiro Do Sul/Cruzeiro Do Sul, Ac	SBCZ		Y	Y	Y	N	Y
Cuiaba/Marechal Rondon, Mt	SBCY		Y	Y	Y	N	Y
Curitiba/Afonso Pena, Pr	SBCT	CWB	Y	Y	Y	N	Y
Florianopolis/Hercilio Luz,Sc	SBFL	FLN	Y	Y	Y	N	Y
Fortaleza/ Pinto Martins, Ce	SBFZ	FOR	Y	Y	Y	N	Y
Foz Do Iguacu/Cataratas, Pr	SBFI	IGU	Y	Y	Y	N	Y
Macapa/Macapa, Ap	SBMQ	MCP	Y	Y	Y	N	Y
Maceio/Zumbi Dos Palmares, Al	SBMO	MCZ	Y	Y	Y	N	Y
Manaus/Eduardo Gomes, Am	SBEG	MAO	Y	Y	Y	N	Y
Natal/Augusto Severo, Rn	SBNT	NAT	Y	Y	Y	N	Y
Ponta Pora/Ponta Pora, Ms	SBPP		Y	Y	Y	N	Y
Porto Alegre/Salgado Filho, Rs	SBPA	PGP	Y	Y	Y	N	Y
Recife/Guararapes - Gilberto Freyre, Pe	SBRF	REC	Y	Y	Y	N	Y
Rio De Janeiro/Galeao-Antonio Carlos Jobim, Rj	SBGL	GIG	Y	Y	Y	N	Y
Salvador/Deputado Luis Eduardo Magalhaes, Ba	SBSV	SSA	Y	Y	Y	N	Y
Santarem/Santarem,Pa	SBSN		Y	Y	Y	N	Y
Sao Luis/Marechal Cunha Machado,Ma	SBSL	SLZ	Y	Y	Y	N	N
Sao Paulo/Guarulhos, Governador A. F. Montoro, Sp	SBGR	GRU	Y	Y	Y	N	N
Tabatinga/Tabatinga, Am	SBTT	TBT	Y	Y	Y	N	N
Uruguaiana/Rubem Berta, Rs	SBUG		Y	Y	Y	N	N
CAR/SAM - BRITISH VIRGIN ISLANDS (UNITED KINGDOM)							
Terrance B. Lettsome,Tortola	TUPJ		Y	Y	Y	N	Y
Virgin Gorda,B.V.	TUPW		Y	Y	Y	N	Y
CAR/SAM - CAYMAN ISLANDS (UNITED KINGDOM)							
Gerrard Smith Intl/Cayman Brac	MWCB	CYB	Y	Y	Y	N	Y
Owen Roberts Intl/Grand Cayman	MWCR	GCM	Y	Y	Y	N	Y

CAR/SAM - CHILE							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Antofagasta/Ad Cerro Moreno	SCFA	ANF	Y	Y	Y	N	Y
Arica/Ap Chacalluta	SCAR	ARI	Y	Y	Y	N	Y
Balmaceda/Ad Balmaceda	SCBA		N	Y	Y	N	Y
Calama/Ad El Loa	SCCF		N	Y	Y	N	Y
Concepcion/Ad Carriel Sur	SCIE	CCP	Y	Y	Y	N	Y
Copiapo/Ad Desierto De Atacama	SCAT		N	Y	Y	N	Y
Iquique/Ad Diego Aracena	SCDA	IQQ	Y	Y	Y	N	Y
La Serena/Ad La Florida	SCSE		N	Y	Y	N	Y
Osorno/Ad Canal Bajo-Carlos Hott Siebert	SCJO		N	Y	Y	N	Y
Pto. Natales/Ad Teniente Julio Gallardo	SCNT		N	Y	Y	N	Y
Puerto Montt/Ad El Tepual	SCTE	PMC	Y	Y	Y	N	Y
Punta Arenas/Ad Pdte. Carlos Ibanez	SCCI	PUQ	Y	Y	Y	N	Y
Santiago/Ap Arturo Merino B. Y T F	SCEL	SCL	Y	Y	Y	N	Y
Temuco/Ad Maquehue Y T F	SCTC		N	Y	Y	N	Y
CAR/SAM - COLOMBIA							
Barranquilla/Atlantico	SKBQ	BAQ	Y	Y	Y	N	Y
Bucaramanga/Santander	SKBG	BGA	N	Y	Y	N	Y
Cali/Valle	SKCL	CLO	Y	Y	Y	N	Y
Cartagena/Bolivar	SKCG	CTG	Y	Y	Y	N	Y
Cucuta/N.S/Der	SKCC		Y	Y	Y	N	Y
Leticia/Amazonas	SKLT	LET	Y	Y	Y	N	Y
Pereira/Risaralda	SKPE	PEI	N	Y	Y	N	Y
Rionegro/Antioquia	SKRG	MDE	Y	Y	Y	N	Y
S/Fe De Bogota/C/Marca	SKBO	BOG	Y	Y	Y	N	Y
San Andres/Ilsa	SKSP	ADZ	Y	Y	Y	N	Y
CAR/SAM - COSTA RICA							
Alajuela/Juan Santamaria Intl.	MROC	SJO	Y	Y	Y	N	Y
Liberia/Daniel Oduber Quiros Intl.	MRLB	LIR	Y	Y	Y	N	Y
Limon/Intl.	MRLM	LIO	Y	Y	Y	N	Y
Pavas/Tobias Bolanos Intl.	MRPV		Y	Y	Y	N	Y
CAR/SAM - Cuba							
Camaguey/Ignacio Agramonte Intl	MUCM	CMW	Y	Y	Y	N	Y
Cayo Coco/Jardines Del Rey	MUCC		N	Y	Y	N	Y
Cayo Largo Del Sur/Vilo Acuna Intl.	MUCL		Y	Y	Y	N	Y
Ciego De Avila/Maximo Gomez	MUCA		Y	Y	Y	N	Y
Habana/Jose Marti Intl.	MUHA	HAV	Y	Y	Y	N	Y
Holguin/Frank Pais Intl. - Civ/Mil	MUHG	HOG	Y	Y	Y	N	Y
Santiago De Cuba/Antonio Maceo Intl	MUCU	SCU	Y	Y	Y	N	Y
Varadero/Juan G. Gomez Intl	MUVR	VRA	Y	Y	Y	N	Y
CAR/SAM - DOMINICA							
Melville Hall,Dominica	TDPD	DOM	Y	Y	Y	N	Y
Roseau,Dominica	TDPR		Y	Y	Y	N	Y
CAR/SAM - DOMINICAN REPUBLIC							
Barahona	MDBH		Y	Y	Y	N	Y
La Romana/Intl	MDLR	LRM	Y	Y	Y	N	Y
Puerto Plata	MDPP	POP	Y	Y	Y	N	Y
Punta Cana	MDPC	PUJ	Y	Y	Y	N	Y
Santiago/Cibao	MDST	STI	Y	Y	Y	N	Y
Santo Domingo/Herrera	MDHE		Y	Y	Y	N	Y
Santo Domingo/Jose Francisco Pena Gomez	MDSD	SDX	Y	Y	Y	N	Y

CAR/SAM - ECUADOR							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Guayaquil	SEGU	GYE	Y	Y	Y	N	Y
Latacunga	SELT		Y	Y	Y	N	Y
Manta	SEMT	MEC	Y	Y	Y	N	Y
Quito	SEQU	UIO	Y	Y	Y	N	Y
CAR/SAM - EL SALVADOR							
Aeropuerto Internacional De Ilopango	MSSS		Y	Y	Y	N	Y
Aeropuerto Internacional El Savador	MSLP	SAL	Y	Y	Y	N	Y
CAR/SAM - FRENCH ANTILLES (FRANCE)							
Fort-De-France-Le Lamentin	TFFF	FDF	Y	Y	Y	N	Y
Pointe-A-Pitre-Le Raizet	TFFR	PTP	Y	Y	Y	N	Y
Saint-Barthelemy	TFFJ		Y	Y	Y	N	Y
Saint-Martin-Grand Case	TFFG		Y	Y	Y	N	Y
CAR/SAM - FRENCH GUIANA (FRANCE)							
Cayenne-Rochambeau	SOCA	CAY	Y	Y	Y	N	Y
CAR/SAM - GRENADA							
Lauriston, Carriacou, Grenada, Grenadines	TGPZ		Y	Y	Y	N	Y
Point Salines, Grenada	TGPY		Y	Y	Y	N	Y
CAR/SAM - GUATEMALA							
La Aurora	MGGT	GUA	Y	Y	Y	N	Y
Puerto Barrios	MGPB	PBR	Y	Y	Y	N	Y
Puerto De San Jose	MGSJ	SJS	Y	Y	Y	N	Y
Tikal	MGTK	TKM	Y	Y	Y	N	Y
CAR/SAM - GUYANA							
Cheddi Jagan International	SYCJ	GEO	Y	Y	Y	N	Y
CAR/SAM - HAITI							
Cap Haitien	MTCH		Y	Y	Y	N	Y
Port-Au-Prince/Intl	MTPP	PAP	Y	Y	Y	N	Y
CAR/SAM - HONDURAS							
La Ceiba/Goloson Intl	MHLC	LCE	Y	Y	Y	N	Y
Roatan Intl.	MHRO		Y	Y	Y	N	Y
San Pedro Sula/La Mesa	MHLM	SAP	Y	Y	Y	N	Y
Tegucigalpa/Toncontin	MHTG	TGU	Y	Y	Y	N	Y
CAR/SAM - JAMAICA							
Kingston/Norman Manley	MKJP	KIN	Y	Y	Y	N	Y
Montego Bay/Sangster	MKJS	MBJ	Y	Y	Y	N	Y
CAR/SAM - MEXICO							
Acapulco	MMAA	ACA	Y	Y	Y	N	Y
Aeropuerto Del Norte	MMAN	NTR	Y	Y	Y	N	Y
Aguascalientes	MMAS	AGU	N	Y	Y	N	Y
Bahias De Huatulco	MMBT	HUX	Y	Y	Y	N	Y
Campeche	MMCP		Y	Y	Y	N	Y
Cancun	MMUN	CUN	Y	Y	Y	N	Y
Cd. Juarez	MMCS	CJS	Y	Y	Y	N	Y
Cd. Victoria	MMCV	CVM	Y	Y	Y	N	Y
Chetumal	MMCM	CTM	Y	Y	Y	N	Y
Chihuahua	MMCU	CUU	Y	Y	Y	N	Y

CAR/SAM - MEXICO							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Ciudad Acuna	MMCC		Y	Y	Y	N	Y
Ciudad Del Carmen	MMCE	CME	N	Y	Y	N	Y
Ciudad Obregon	MMCN	CEN	N	Y	Y	N	Y
Colima	MMIA		N	Y	Y	N	Y
Cozumel	MMCZ		N	Y	Y	N	Y
Cuernavaca	MMCB		N	Y	Y	N	Y
Culiacan	MMCL		Y	Y	Y	N	Y
Durango	MMDO		Y	Y	Y	N	Y
Guadalajara	MMGL	GDL	Y	Y	Y	N	Y
Guaymas	MMGM	GYM	Y	Y	Y	N	Y
Hermosillo	MMHO	HMO	Y	Y	Y	N	Y
Ixtapa-Zihuatanejo	MMZH		Y	Y	Y	N	Y
La Paz	MMLP	LAP	Y	Y	Y	N	Y
Leon	MMLO		Y	Y	Y	N	Y
Loreto	MMLT	LTO	Y	Y	Y	N	Y
Los Mochis	MMLM		N	Y	Y	N	Y
Manzanillo	MMZO	ZLO	Y	Y	Y	N	Y
Matamoros	MMMA	MAM	Y	Y	Y	N	Y
Mazatlan	MMMZ		Y	Y	Y	N	Y
Merida	MMMD	MID	Y	Y	Y	N	Y
Mexicali	MMML	MXL	Y	Y	Y	N	Y
Mexico	MMMX	MEX	Y	Y	Y	N	Y
Minatitlan	MMMT		N	Y	Y	N	Y
Monterrey	MMMY	MTY	Y	Y	Y	N	Y
Morelia	MMMM		Y	Y	Y	N	Y
Nogales	MMNG		Y	Y	Y	N	Y
Nuevo Laredo	MMNL	NLD	Y	Y	Y	N	Y
Oaxaca	MMOX	OAX	N	Y	Y	N	Y
Piedras Negras	MMPG		Y	Y	Y	N	Y
Poza Rica	MMPA		N	Y	Y	N	Y
Puebla	MMPB		N	Y	Y	N	Y
Puerto Escondido	MMPS	PXM	N	Y	Y	N	Y
Puerto Vallarta	MMPR	PVR	Y	Y	Y	N	Y
Queretaro	MMQT		Y	Y	Y	N	Y
Reynosa	MMRX	REX	Y	Y	Y	N	Y
Saltillo	MMIO		N	Y	Y	N	Y
San Felipe	MMSF		Y	Y	Y	N	Y
San Jose Del Cabo	MMSD	SJD	Y	Y	Y	N	Y
San Luis Potosi	MMSP	SLP	N	Y	Y	N	Y
Tampico	MMTM	TAM	Y	Y	Y	N	Y
Tapachula	MMTP	TAP	Y	Y	Y	N	Y
Tepic	MMEP		N	Y	Y	N	Y
Tijuana	MMTJ	TIJ	Y	Y	Y	N	Y
Toluca	MMTO	TLC	Y	Y	Y	N	Y

CAR/SAM - MEXICO							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Torreon	MMTC	TRC	Y	Y	Y	N	Y
Tuxtla Gutierrez (Civ)	MMTG		N	Y	Y	N	Y
Uruapan	MMPN		N	Y	Y	N	Y
Veracruz	MMVR	VER	Y	Y	Y	N	Y
Villahermosa	MMVA	VSA	Y	Y	Y	N	Y
Zacatecas	MMZC		Y	Y	Y	N	Y
CAR/SAM - MONTSERRAT (UNITED KINGDOM)							
Gerald's Airport, Montserrat Trpg	TRPG	MNI	Y	Y	Y	N	Y
CAR/SAM - NETHERLANDS ANTILLES (NETHERLANDS)							
Bonaire/Flamingo	TNCB	BON	Y	Y	Y	N	Y
Curacao/Aeropuerto Hato	TNCC	CUR	Y	Y	Y	N	Y
St. Eustatius/F.D Roosevelt	TNCE		Y	Y	Y	N	Y
St. Maarten/Princess Juliana	TNCM	SXM	Y	Y	Y	N	Y
CAR/SAM - NICARAGUA							
Managua//Managua	MNMG	MGA	Y	Y	Y	N	Y
Puerto Cabezas/Zelaya	MNPC	PUZ	Y	Y	Y	N	Y
CAR/SAM - PANAMA							
Bocas Del Toro/Bocas Del Toro	MPBO		Y	Y	Y	N	Y
Changuinola/Manuel Nino	MPCH		Y	Y	Y	N	Y
David/Enrique Malek	MPDA		Y	Y	Y	N	Y
Panama/Marcos A. Gelabert	MPMG		Y	Y	Y	N	Y
Panama/Tocumen	MPTO	PTY	Y	Y	Y	N	Y
CAR/SAM - PARAGUAY							
Asuncion/S.Pettirossi	SGAS	ASU	Y	Y	Y	N	Y
Ciudad Del Este/Guarani	SGES	AGT	Y	Y	Y	N	Y
CAR/SAM - PERU							
Andahuaylas	SPHY		N	Y	Y	N	Y
Arequipa/Rodriguez Ballon	SPQU	AQP	Y	Y	Y	N	Y
Ayacucho/Coronel Fap Alfredo Mendivil Duarte	SPHO		N	Y	Y	N	Y
Cajamarca/Mayor General Fap Armando Revoredo I.	SPJR		N	Y	Y	N	Y
Chiclayo/Cap. Jose Abelardo Quinones Gonzalez	SPHI	CIX	Y	Y	Y	N	Y
Cusco/Velazco Astete	SPZO	CUZ	Y	Y	Y	N	Y
Ilo	SPLO		N	Y	Y	N	Y
Iquitos/Coronel Fap Francisco Secada Vignetta	SPQT	IQT	Y	Y	Y	N	Y
Juanjui	SPJI		N	Y	Y	N	Y
Juliaca	SPJL	JUL	N	Y	Y	N	Y
Lima-Callao/Intl Jorge Chavez	SPIM	LIM	Y	Y	Y	N	Y
Pisco	SPSO	PIO	Y	Y	Y	N	Y
Pto. Maldonado/Padre Aldamiz	SPTU		N	Y	Y	N	Y
Pucallpa/David Abensur R.	SPCL		N	Y	Y	N	Y
Tacna/Coronel Fap Carlos Ciriani Santa Rosa	SPTN		Y	Y	Y	N	Y
Talara/Capitan Montes	SPYL	TYL	N	Y	Y	N	Y
Tarapoto/Cdte. Guillermo Del Castillo Paredes	SPST		N	Y	Y	N	Y
Tingo Maria	SPGM		N	Y	Y	N	Y
Trujillo/Capitan Carlos Martinez De Pinillos	SPRU	TRU	Y	Y	Y	N	Y
Tumbes/Pedro Canga	SPME		N	Y	Y	N	Y
Yurimaguas/Moises Benzaquen Rengifo	SPMS		N	Y	Y	N	Y

CAR/SAM - PUERTO RICO (UNITED STATES)							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**

Aguadilla/Raphael Hernandez Pr	TJBQ	BQN	Y	Y	Y	N	Y
Fajardo/Diego Jimenez Torres Pr.	TJFA		Y	Y	Y	N	Y
Mayaguez/Eugenio Maria De Hostos, Pr.	TJMZ	MAZ	N	Y	Y	N	Y
Ponce/Mercedita,Pr.	TJPS	PSE	Y	Y	Y	N	Y
Roosevelt Roads Nas,Pr.	TJNR	NRR	N	Y	Y	N	Y
San Juan/Luis Munoz Marin International, Pr	TJSJ	SJU	Y	Y	Y	N	Y
Vieques,Isla De Viques,Pr. Y T	TJVQ		Y	Y	Y	N	Y
CAR/SAM - SAINT KITTS AND NEVIS							
Robert L. Bradshaw, St. Christopher And Nevis	TKPK	SKB	Y	Y	Y	N	Y
Vance Winkworth Amory, St. Christopher And Nevis	TKPN		Y	Y	Y	N	Y
CAR/SAM - SAINT LUCIA							
George Charles, Saint Lucia	TLPC	SLU	Y	Y	Y	N	Y
Hewanorra Saint Lucia	TLPL	UVF	Y	Y	Y	N	Y
CAR/SAM - SAINT VINCENT AND THE GRENADINES							
Canouan,St.Vincent And The Grenadines	TVSC		Y	Y	Y	N	Y
E.T.Joshua,St.Vincent, And The Grenadines	TVSV	SVD	Y	Y	Y	N	Y
J.F. Mitchell,Bequia St.Vincent And The Grenadines	TVSB		Y	Y	Y	N	N
Mustique,St.Vincent And The Grenadines	TVSM		Y	Y	Y	N	Y
Union Island,St.Vincent And The Grenadines	TVSU		Y	Y	Y	N	Y
CAR/SAM - SURINAME							
J.A. Pengel Intl.Airp	SMJP	PBM	Y	Y	Y	N	Y
Nickerie/Maj. Fernandes	SMNI		Y	Y	Y	N	Y
Zorg En Hoop	SMZO		Y	Y	Y	N	Y
CAR/SAM - TRINIDAD AND TOBAGO							
Crown Point,Togago	TTCP		Y	Y	Y	N	Y
Piarco,Trinidad	TTPP	POS	Y	Y	Y	N	Y
CAR/SAM - TURKS AND CAICOS ISLANDS (UNITED KINGDOM)							
Grand Turk	MBGT		Y	Y	Y	N	Y
Providenciales	MBPV		Y	Y	Y	N	Y
South Caicos	MBSC	XSC	Y	Y	Y	N	Y
CAR/SAM - UNITED KINGDOM							
Mount Pleasant	EGYP		N	Y	Y	Y	N
CAR/SAM - URUGUAY							
Colonia/Intl "Laguna De Los Patos"	SUCA	CYR	Y	Y	Y	N	Y
Durazno/Santa Bernardina Intl. De Alternativa	SUDU		N	Y	Y	N	Y
Maldonado/ Intl C/C Carlos A.Curbelo "Lag. D. S."	SULS		Y	Y	Y	N	Y
Montevideo/Ad Angel S. Adami	SUAA		Y	Y	Y	N	Y
Montevideo/Intl.Carrasco "Gral. Cesareo L. Berisso"	SUMU	MVD	Y	Y	Y	N	Y
Rivera/Intl. P. G. (Pil. A.M.) Don Oscar D. Gestido	SURV		Y	Y	Y	N	Y
Salto/Intl.Nueva Hesperides	SUSO		Y	Y	Y	N	Y
CAR/SAM - VENEZUELA							
Acarigua, Portuguesa	SVAC	AGV	N	Y	Y	N	Y
B.A. Generalisimo Francisco De M., Caracas, M.	SVFM		N	Y	Y	N	Y
Barcelona, Anzoategui	SVBC	BLA		Y	Y	N	Y
Barinas, Barinas	SVBI	BNS		Y	Y	N	Y
Barquisimeto, Lara	SVBM	BRM	N	Y	Y	N	Y
Calabozo, Guarico	SVCL	CLZ	N	Y	Y	N	Y
Ciudad Bolivar, Bolivar	SVCB	CBL	N	Y	Y	N	Y
Coro, Falcon	SVCR	CZE	N	Y	Y	N	Y

CAR/SAM - VENEZUELA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Cumana, Sucre	SVCU		N	Y	Y	N	Y
Guanare, Portuguesa	SVGU	GUQ	N	Y	Y	N	Y
Guiria, Sucre	SVGI		N	Y	Y	N	Y
Maiquetia, Internacional Simon Bolivar, M., Vargas	SVMI		N	Y	Y	N	Y
Maracaibo, Zulia	SVMC	MAR		Y	Y	N	Y
Margarita, Nueva Esparta	SVMG	MRX		Y	Y	N	Y
Maturin,Monagas	SVMT	MUN	N	Y	Y	N	Y
Merida, Merida	SVMD	MRD	N	Y	Y	N	Y
Paraguana, Josefa Camejo, Falcon	SVJC			Y	Y	N	Y
Puerto Ayacucho, Amazonas	SVPA		N	Y	Y	N	Y
San Antonio Del Tachira, Tachira	SVSA			Y	Y	N	Y
San Fernando De Apure,Apure	SVSR	SFD	N	Y	Y	N	Y
San Juan De Los Morros, Guarico	SVJM		N	Y	Y	N	Y
Santo Domingo, B.A.M. Buenaventura Vivas,Tachira	SVSO	STD	N	Y	Y	N	Y
Tumeremo, Bolivar	SVTM		N	Y	Y	N	Y
Valencia, Carabobo	SVVA	VLN	N	Y	Y	N	Y
Valle De La Pascua, Guarico	SVVP		N	Y	Y	N	Y
CAR/SAM - VIRGIN ISLANDS (UNITED STATES)							
Charlotte Amalie St. Thomas/Cyril E. King, Vi.	TIST		Y	Y	Y	N	Y
Henry.E.Rohlsen	TISX	STX	Y	Y	Y	N	Y

ANNEX 1 – EUR

Name of Aerodrome	CCCC	IATA	AOP	SA	SP	FC	FT
EUR - ALBANIA							
Tirana	LATI	TIA	Y	Y	Y	N	Y
EUR - ARMENIA							
Gyumri	UDSG		Y	Y	Y	N	Y
Stepanavan	UDLS		Y	Y	Y	N	Y
Yerevan	UDYZ	EVN	Y	Y	Y	N	Y
EUR - AUSTRIA							
Graz	LOWG	GRZ	Y	Y	Y	Y	N
Hohenems-Dornbirn	LOIH	HOH	Y	Y	Y	Y	N
Innsbruck	LOWI		Y	Y	Y	N	Y
Klagenfurt	LOWK	KLU	Y	Y	Y	N	Y
Linz	LOWL	LNZ	Y	Y	Y	N	Y
Salzburg	LOWS	SZG	Y	Y	Y	N	Y
St. Johann/Tirol	LOIJ		Y	N	N	N	N
Voslau	LOAV		Y	Y	Y	Y	N
Wels	LOLW		Y	N	N	N	N
Wien-Schwechat	LOWW	VIE	Y	Y	Y	N	Y
Wr. Neustadt/Ost	LOAN		N	Y	Y	Y	N
Zell Am See	LOWZ		Y	Y	Y	N	N
Zeltweg Mil	LOXZ		N	Y	Y	N	N
EUR - AZERBAIJAN							
Ganja	UBBG		Y	Y	Y	Y	N
Heydar Aliyev International Airport	UBBB	BAK	Y	Y	Y	N	Y
Nakhchivan	UBBN		Y	Y	Y	Y	N
EUR - BELARUS							
Brest	UMBB	BQT	Y	Y	Y	Y	N
Gomel	UMGG	GME	Y	Y	Y	Y	N
Grodno	UMMG	GNA	Y	Y	Y	Y	N
Lipki	UMMI		N	Y	Y	Y	N
Minsk-1	UMMM	MSQ	Y	Y	Y	Y	N
Minsk-2	UMMS		Y	Y	Y	Y	N
Mogilev	UMOO		Y	N	N	N	N
Vitebsk	UMII		Y	N	N	N	N
EUR - BELGIUM							
Antwerpen/Deurne	EBAW	ANR	Y	Y	Y	Y	N
Balen/Keiheuvel	EBKH		Y	N	N	N	N
Brussels/Brussels-National	EBBR	BRU	Y	Y	Y	N	Y
Charleroi/Brussels South	EBCI	CRL	Y	Y	Y	Y	N
Genk/Zwartberg	EBZW		Y	N	N	N	N
Grimbergen/Lint	EBGB		Y	N	N	N	N
Kortrijk/Wevelgem	EBKT		Y	N	N	N	N
Liege/Liege (Civ)	EBLG	LGG	Y	Y	Y	Y	N
Oostende-Brugge/Oostende	EBOS	OST	Y	Y	Y	N	Y
Saint-Hubert/Saint-Hubert	EBSH		Y	N	N	N	N
Spa/La Sauveniere	EBSP		Y	N	N	N	N
Tournai/Maubray	EBTY		Y	N	N	N	N

EUR - BOSNIA AND HERZEGOVINA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Banja Luka	LQBK		Y	Y	Y	Y	N
Mostar	LQMO		Y	Y	Y	N	N
Sarajevo	LQSA	SJJ	Y	Y	Y	Y	N
Tuzla	LQTZ		Y	Y	Y	N	N
EUR - BULGARIA							
Burgas	LBBG	BOJ	Y	Y	Y	Y	N
Gorna Oryahovitsa	LBGO		N	Y	Y	Y	N
Plovdiv	LBPD	PDV	N	Y	Y	Y	N
Sofia	LBSF	SOF	Y	Y	Y	N	Y
Varna	LBWN	VAR	Y	Y	Y	N	Y
EUR - CROATIA							
Brac/Brac I	LDSB		Y	Y	Y	N	N
Dubrovnik/Cilipi	LDDU	DBV	Y	Y	Y	N	Y
Losinj/Losinj I.	LDLO						
Osijek/Klisa	LDOS		Y	Y	Y	Y	N
Pula/Pula	LDPL	PUY	Y	Y	Y	N	Y
Rijeka/Krk I.	LDRI	RJK	Y	Y	Y	Y	N
Split/Kastela	LDSP	SPU	Y	Y	Y	N	Y
Vrsar/Crljenka	LDPV		Y	N	N	N	N
Zadar/Zemunik	LDZD	ZAD	Y	Y	Y	Y	N
Zagreb/Pleso	LDZA	ZAG	Y	Y	Y	N	Y
EUR - CYPRUS							
Larnaka/Intl	LCLK	LCA	Y	Y	Y	N	Y
Nicosia/Intl (Dca)	LCNC		Y	Y	Y	N	Y
Pafos/Intl	LCPH	PFO	Y	Y	Y	N	Y
EUR - CZECH REPUBLIC							
Brno/Turany	LKTB	BRQ	Y	Y	Y	N	Y
Holesov	LKHO	GTW	N	Y	Y	N	N
Karlovy Vary	LKKV	KLV	Y	Y	Y	Y	N
Kunovice	LKKU		N	Y	Y	Y	N
Ostrava/Mosnov	LKMT	OSR	Y	Y	Y	N	Y
Pardubice	LKPD		Y	Y	Y	N	N
Praha/Ruzyne	LKPR		Y	Y	Y	N	Y
EUR - DENMARK							
Aalborg (Civ/Mil)	EKYT	AAL	Y	Y	Y	N	Y
Aarhus	EKAH	AAR	Y	Y	Y	Y	N
Billund	EKBI		Y	Y	Y	N	Y
Bornholm/Ronne	EKRN	RNN	Y	Y	Y	Y	N
Esbjerg	EKEB	EBJ	Y	Y	Y	Y	N
Karup (Mil)	EKKA		Y	Y	Y	Y	N
Kobenhavn/Kastrup	EKCH	CPH	Y	Y	Y	N	Y
Kobenhavn/Roskilde	EKRK	RKE	Y	Y	Y	Y	N
Kolding/Vamdrup	EKVD		Y	Y	Y	Y	N
Lolland Falster/Maribo	EKMB	MRW	Y	Y	Y	Y	N
Odense	EKOD	ODE	Y	Y	Y	Y	N
Sindal	EKSN	CNL	Y	Y	Y	Y	N
Skive	EKSV		Y	Y	Y	Y	N
Sonderborg	EKSB	SGD	Y	Y	Y	Y	N

EUR - DENMARK							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Stauning	EKVJ	STA	Y	Y	Y	Y	N
Thisted	EKTS	TED	Y	Y	Y	Y	N
Vojens/Skrydstrup (Mil)	EKSP		Y	Y	Y	Y	N
EUR - ESTONIA							
Kardla	EEKA		Y	Y	Y	N	N
Kuressaare	EEKE		Y	Y	Y	N	N
Parnu	EEPU		Y	Y	Y	N	N
Tallinn	EETN	TLL	Y	Y	Y	Y	N
Tartu/Ulenurme	EETU	TAY	Y	Y	Y	N	N
EUR - FINLAND							
Enontekio	EFET	ENF	N	Y	Y	Y	N
Halli Y	EFHA	KEV	N	Y	Y	Y	N
Helsinki-Malmi	EFHF	HEM	Y	Y	Y	N	N
Helsinki-Vantaa (Finavia)	EFHK	HEL	Y	Y	Y	N	Y
Ivalo	EFIV	IVL	Y	Y	Y	Y	N
Joensuu	EFJO	JOE	N	Y	Y	Y	N
Jyvaskyla	EFJY	JYV	N	Y	Y	Y	N
Kajaani	EFKI	KAJ	N	Y	Y	Y	N
Kauhava	EFKA	KAU	N	Y	Y	Y	N
Kemi-Tornio	EFKE	KEM	N	Y	Y	Y	N
Kittila	EFKT	KTT	N	Y	Y	Y	N
Kruunupyy	EFKK	KOK	N	Y	Y	Y	N
Kuopio	EFKU	KUO	N	Y	Y	N	Y
Kuusamo	EFKS	KAO	N	Y	Y	Y	N
Lappeenranta	EFLP	LPP	Y	Y	Y	Y	N
Mariehamn	EFMA	MHQ	Y	Y	Y	Y	N
Mikkeli	EFMI	MIK	N	Y	Y	Y	N
Oulu	EFOU	OUL	Y	Y	Y	Y	N
Pori	EFPO	POR	N	Y	Y	Y	N
Rovaniemi	EFRO	RVN	Y	Y	Y	Y	N
Savonlinna	EFSA	SVL	N	Y	Y	Y	N
Seinajoki	EFSI	SJY	N	Y	Y	Y	N
Tampere-Pirkkala	EFTP	TMP	Y	Y	Y	N	Y
Turku	EFTU	TKU	Y	Y	Y	N	Y
Utti	EFUT	UTI	N	Y	Y	Y	N
Vaasa	EFVA	VAA	Y	Y	Y	Y	N
Varkaus	EFVR	VRK	N	Y	Y	Y	N
EUR - FRANCE							
Agen-La Garenne	LFBA		N	Y	Y	Y	N
Aix-Les-Milles	LFMA		N	Y	Y	N	N
Ajaccio-Campo Dell'oro	LFKJ		Y	Y	Y	Y	N
Annecy-Meythet	LFLP		N	Y	Y	Y	N
Bale-Mulhouse	LFSB		N	Y	Y	N	Y
Bastia-Poretta	LFKB		Y	Y	Y	N	Y

EUR - FRANCE							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Beauvais-Tille	LFOB		Y	Y	Y	Y	N
Bergerac-Roumaniere	LFBE		N	Y	Y	Y	N
Beziers-Vias	LFMU		N	Y	Y	Y	N
Biarritz-Bayonne-Anglet	LFBZ		Y	Y	Y	Y	N
Bordeaux-Merignac	LFBD		Y	Y	Y	N	Y
Bourges	LFLD		N	Y	Y	Y	N
Brest-Guipavas	LFRB	BES	Y	Y	Y	N	Y
Caen-Carpiquet	LFRK	CFR	Y	Y	Y	Y	N
Calais-Dunkerque	LFAC		N	N	N	N	N
Calvi-Sainte-Catherine	LFKC	CLY	Y	Y	Y	N	Y
Cannes-Mandelieu	LFMD	CEQ	Y	Y	Y	Y	N
Carcassonne-Salvaza	LFMK	CCF	N	Y	Y	Y	N
Castelnaudary-Villeneuve	LFMW		N	Y	Y	Y	N
Chalons-Vatry	LFOK		N	Y	Y	N	Y
Chambery-Aix-Les-Bains	LFLB	CMF	Y	Y	Y	Y	N
Cherbourg-Maupertus	LFRC	CER	Y	Y	Y	Y	N
Clermont-Ferrand-Auvergne Clermont Ccer	LFLC	CFE	Y	Y	Y	Y	N
Cognac-Chateaubernard	LFBG		N	Y	Y	Y	N
Deauville-Saint-Gatien	LFRG		Y	Y	Y	Y	N
Dijon-Longvic	LFSD		N	Y	Y	Y	N
Dinard-Pleurtuit-St-Malo	LFRD	DNR	Y	Y	Y	N	Y
Dole-Tavaux	LFGJ	DLE	Y	Y	Y	Y	N
Evreux-Fauville	LFOE		N	Y	Y	Y	N
Figari-Sud-Corse	LFKF		N	Y	Y	Y	N
Grenoble-Saint-Geoirs	LFLS	GNB	Y	Y	Y	N	Y
Hyeres-Le Palyvestre	LFTH	XHE	Y	Y	Y	Y	N
Istres-Le Tube ; Istres Ccer	LFMI		N	Y	Y	Y	N
La Rochelle-Ile De Re	LFBH		Y	Y	Y	Y	N
Lannion	LFRO	LAI	Y	Y	Y	Y	N
Le Havre-Octeville	LFOH		Y	Y	Y	Y	N
Le Mans-Arnage	LFRM		N	Y	Y	N	Y
Le Touquet-Paris-Plage	LFAT		Y	N	N	N	N
Lille-Lesquin	LFQQ	LIL	Y	Y	Y	N	Y
Limoges-Bellegarde	LFBL		N	Y	Y	Y	N
Lorient-Lann-Bihoue	LFRH		N	Y	Y	Y	N
Lyon Saint-Exupery	LFLL	LYS	Y	Y	Y	N	Y
Lyon-Bron	LFLY	LYN	Y	Y	Y	Y	N
Marseille-Provence	LFML	MRS	Y	Y	Y	N	Y
Melun-Villaroche	LFPM		N	Y	Y	Y	N
Metz Nancy-Lorraine	LFJL		N	Y	Y	Y	N
Montpellier-Mediterrannee	LFMT	MPL	Y	Y	Y	Y	N
Nantes Atlantique	LFRS	NTE	Y	Y	Y	N	Y
Nice-Cote D’azur	LFMN	NCE	Y	Y	Y	N	Y
Nimes-Garons	LFTW	FNI	Y	Y	Y	Y	N
Paris-Charles De Gaulle	LFPG	CDG	Y	Y	Y	N	Y
Paris-Le Bourget	LFPB	LBG	Y	Y	Y	N	Y
Paris-Orly	LFPO	ORY	Y	Y	Y	N	Y
Pau-Pyrenees	LFBP	PUF	Y	Y	Y	Y	N
Perpignan-Rivesaltes	LFMP	PGF	Y	Y	Y	Y	N
Poitiers-Biard	LFBI	PIS	Y	Y	Y	N	Y

EUR - FRANCE							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Quimper-Pluguffan	LFRQ	UIP	Y	Y	Y	Y	N
Reims-Champagne	LFSR	RHE	Y	Y	Y	Y	N
Rennes-St-Jacques	LFRN	RNS	Y	Y	Y	Y	N
Rodez-Marcillac	LFCR		N	Y	Y	Y	N
Rouen-Vallee De Seine	LFOP		N	Y	Y	Y	N
Saint-Brieuc-Armor	LFRT	SBK	Y	Y	Y	Y	N
Saint-Etienne-Boutheon	LFMH	EBU	Y	Y	Y	Y	N
Saint-Nazaire-Montoir	LFRZ	SNR	Y	Y	Y	Y	N
Strasbourg-Entzheim	LFST	SXB	Y	Y	Y	Y	N
Tarbes Lourdes Pyrenees	LFBT	XTB	Y	Y	Y	Y	N
Toulouse-Blagnac ; Toulouse/Ccer	LFBO	TLS	Y	Y	Y	N	Y
Tours Val De Loire	LFOT	TUF	Y	Y	Y	N	Y
Toussus-Le-Noble	LFPN	TNF	Y	Y	Y	Y	N
Troyes-Barberey	LFQB		N	Y	Y	Y	N
Vichy-Charmeil	LFLV		N	Y	Y	Y	N
EUR - GEORGIA							
Kutaisi/Kopitnari	UGKO		Y	Y	Y	N	N
Tbilisi/Tbilisi	UGTB	TBS	Y	Y	Y	N	Y
EUR - GERMANY							
Altenburg-Nobitz	EDAC	AOC	Y	Y	Y	Y	N
Augsburg	EDMA	AGB	Y	Y	Y	Y	N
Barth	EDBH		Y	Y	Y	Y	N
Bautzen	EDAB		Y	N	N	N	N
Bayreuth Y	EDQD	BYU	Y	Y	Y	Y	N
Berlin-Schonefeld	EDDB	SXF	Y	Y	Y	N	Y
Berlin-Tegel	EDDT	TXL	Y	Y	Y	N	Y
Berlin-Tempelhof	EDDI	THF	Y	Y	Y	N	Y
Bielefeld	EDLI		Y	Y	Y	Y	N
Bonn-Hangelar	EDKB		Y	N	N	N	N
Braunschweig-Wolfsburg	EDVE	BWE	Y	Y	Y	Y	N
Bremen	EDDW	BRE	Y	Y	Y	Y	N
Bremerhaven	EDWB		Y	N	N	N	N
Coburg-Brandensteinsebene	EDQC		Y	N	N	N	N
Cottbus-Drewitz	EDCD		Y	N	N	N	N
Donaueschingen-Villingen	EDTD		Y	Y	Y	Y	N
Dortmund-Wickede	EDLW	DTM	Y	Y	Y	Y	N
Dresden	EDDC	DRS	Y	Y	Y	Y	N
Dusseldorf	EDDL	QDU	Y	Y	Y	N	Y
Eggenfelden	EDME		Y	N	N	N	N
Emden	EDWE		Y	Y	Y	Y	N
Erfurt	EDDE	ERF	Y	Y	Y	N	Y
Essen/Mulheim	EDLE		Y	N	N	N	N
Flensburg-Schaferhaus	EDXF		Y	Y	Y	Y	N
Frankfurt/Main	EDDF	FRA	Y	Y	Y	N	Y
Frankfurt-Egelsbach	EDFE		Y	N	N	N	N
Frankfurt-Hah	EDFH	HHN	Y	Y	Y	N	Y
Freiburg Im Breisgau	EDTF		Y	N	N	N	N

EUR - GERMANY							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Friedrichshafen	EDNY	FDH	Y	Y	Y	Y	N
Hamburg	EDDH	HAM	Y	Y	Y	N	Y
Hamburg-Finkenwerder	EDHI	XFW	Y	Y	Y	Y	N
Hannover	EDDV	HAJ	Y	Y	Y	N	Y
Heringsdorf	EDAH		Y	Y	Y	Y	N
Hof-Plauen	EDQM	HOQ	Y	Y	Y	Y	N
Ingolstadt/Manching	ETSI		Y	Y	Y	Y	N
Karlsruhe/Baden-Baden	EDSB	FKB	Y	Y	Y	Y	N
Kassel-Calden	EDVK	KSF	Y	Y	Y	Y	N
Kiel-Holtenau	EDHK	KEL	Y	Y	Y	Y	N
Koln/Bonn	EDDK	CGN	Y	Y	Y	N	Y
Konstanz	EDTZ		Y	N	N	N	N
Laage	ETNL		Y	Y	Y	Y	N
Lahr	EDTL	LHA	Y	Y	Y	Y	N
Landshut	EDML		Y	Y	Y	Y	N
Leipzig/Halle	EDDP	LEJ	Y	Y	Y	N	Y
Lemwerder	EDWD	XLW	Y	N	N	N	N
Lubeck-Blankensee	EDHL	LBC	Y	Y	Y	Y	N
Magdeburg	EDBM	ZMG	Y	Y	Y	Y	N
Mannheim City	EDFM	MHG	Y	Y	Y	Y	N
Monchengladbach	EDLN	MGL	Y	Y	Y	N	Y
Munchen	EDDM	MUC	Y	Y	Y	N	Y
Munster/Osnabruck	EDDG	FMO	Y	Y	Y	Y	N
Neubrandenburg	ETNU		Y	Y	Y	Y	N
Niederrhein	EDLV		Y	Y	Y	Y	N
Nurnberg	EDDN	NUE	Y	Y	Y	N	Y
Oberpfaffenhofen	EDMO	OBF	Y	Y	Y	Y	N
Offenburg	EDTO		Y	N	N	N	N
Paderborn/Lippstad	EDLP	PAD	Y	Y	Y	Y	N
Saarbrucken	EDDR	SCN	Y	Y	Y	N	Y
Schwabish Hall-Hessental Nc	EDTY		Y	N	N	N	N
Schwerin-Parchim	EDOP		Y	Y	Y	Y	N
Siegerland	EDGS		Y	Y	Y	Y	N
Stadtlohn-Vreden	EDLS		Y	N	N	N	N
Straubing-Wallmuhle	EDMS		Y	Y	Y	Y	N
Stuttgart	EDDS	STR	Y	Y	Y	N	Y
Trier-Fohren	EDRT		Y	N	N	N	N
Westerland/Sylt	EDXW	GWT	Y	Y	Y	Y	N
Worms	EDFV		Y	N	N	N	N
Zweibrucken	EDRZ		Y	Y	Y	Y	N
Gibraltar (United Kingdom)							
EUR - GIBRALTAR (UNITED KINGDOM)							
Gibraltar (North Front)	LXGB	GIB	Y	Y	Y	Y	N
EUR - GREECE							
Alexandroupolis/Dimokritos	LGAL	AXD	Y	Y	Y	N	Y
Almiros/Nea Anchialos (Mil)	LGBL		Y	N	N	N	N
Andravida (Mil)	LGAD	PYR	Y	Y	Y	N	Y
Araxos (Mil)	LGRX	GPA	Y	N	N	N	N

EUR - GREECE							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Athinai/Eleftherios Venizelos	LGAV		Y	Y	Y	N	Y
Chania/Ioannis Daskalogiannis (Mil)	LGSA	CHQ	Y	N	N	N	N
Chios/Omiros	LGHI	JKH	Y	N	N	N	N
Elefsis (Mil)	LGEL		Y	Y	Y	N	Y
Ioannina/King Pyrros	LGIO						
Iraklion/Nikos Kazantzakis	LGIR	HER	Y	Y	Y	N	Y
Kalamata (Mil)	LGKL	KLX	Y	Y	Y	N	Y
Karpathos	LGKP	AOK	Y	N	N	N	N
Kavala/Megas Alexandros	LGKV	KVA	Y	Y	Y	Y	N
Kefallinia	LGKF	EFL	Y	Y	Y	N	Y
Kerkira/Ioannis Kapodistrias	LGKR	CFU	Y	Y	Y	N	Y
Kithira	LGKC	KIT	N	Y	Y	Y	N
Kos/Ippokratis	LGKO	KGS	Y	Y	Y	N	Y
Limnos/Ifaistos	LGLM	LXS	Y	Y	Y	Y	N
Mikonos	LGMK	JMK	Y	N	N	N	N
Mitilini/Odysseas Elytis	LGMT	MJT	Y	Y	Y	Y	N
Preveza/Aktion (Mil)	LGPZ	PVK	Y	N	N	N	N
Rodos/Diagoras	LGRP	RHO	Y	Y	Y	N	Y
Samos/Aristarchos Of Samos	LGSM	SMI	Y	Y	Y	Y	N
Santorini	LGSR	JTR	Y	Y	Y	N	Y
Skiathos/Alexandros Papadiamandis	LGSK	JSI	Y	N	N	N	N
Thessaloniki/Makedonia	LGTS	SKG	Y	Y	Y	N	Y
Zakinthos/Dionisios Solomos	LGZA	ZTH	Y	Y	Y	Y	Y
EUR - HUNGARY							
Budapest/Ferihegy	LHBP	BUD	Y	Y	Y	N	Y
Debrecen Y	LHDC	DEB	N	Y	Y	Y	N
Pecs/Pogany	LHPP	QPJ	N	Y	Y	N	N
Szeged Y	LHUD	QZD	N	Y	Y	N	N
Szombathely	LHSY		N	Y	Y	N	N
EUR - IRELAND							
Connaught	EIKN		Y	Y	Y	Y	N
Cork	EICK	ORK	Y	Y	Y	Y	N
Dublin	EIDW	DUB	Y	Y	Y	N	Y
Kerry (Farranfore)	EIKY		Y	N	N	N	N
Shannon	EINN	SNN	Y	Y	Y	N	Y
EUR - ITALY							
Albenga	LIMG	ALL	Y	Y	Y	Y	N
Alghero/Fertilia	LIEA	AHO	Y	Y	Y	Y	N
Amendola (Mil)	LIBA		N	Y	Y	Y	N
Ancona/Falconara	LIPY	AOI	Y	Y	Y	Y	N
Aosta	LIMW		Y	N	N	N	N
Aviano (Mil)	LIPA		N	Y	Y	Y	N
Bari/Palese	LIBD	BRI	Y	Y	Y	Y	N
Bergamo/Orio Al Serio	LIME	BGY	Y	Y	Y	Y	N
Bologna/Borgo Panigale	LIPE	BLQ	Y	Y	Y	Y	N
Bolzano	LIPB	BZO	Y	Y	Y	N	N
Brindisi/Casale	LIBR	BDS	Y	Y	Y	N	Y
Cagliari/Elmas (Mil)	LIEE	CAG	Y	Y	Y	Y	N

EUR - ITALY							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Cameri (Mil)	LIMN		N	Y	Y	Y	N
Catania/Fontanarossa	LICC	CTA	Y	Y	Y	Y	N
Cervia (Mil)	LIPC		N	Y	Y	Y	N
Como (Idroscalo)	LILY		Y	Y	Y	N	N
Crotone	LIBC	CRV	N	Y	Y	Y	N
Cuneo/Levaldigi	LIMZ	CUF	Y	Y	Y	Y	N
Decimomannu (Mil)	LIED	DCI	N	Y	Y	Y	N
Dobbiaco Y F	LIVD		N	Y	Y	Y	N
Ferrara Y C F	LIPF		N	Y	Y	Y	N
Firenze/Peretola	LIRQ	FLR	Y	Y	Y	Y	N
Foggia/Gino Lisa	LIBF	FOG	N	Y	Y	Y	N
Forli’	LIPK	FRL	Y	Y	Y	Y	N
Frontone	LIVF		N	Y	Y	Y	N
Frosinone (Mil)	LIRH		N	Y	Y	Y	N
Genova/Sestri	LIMJ	GOA	Y	Y	Y	N	Y
Ghedi (Mil)	LIPL	QBS	N	Y	Y	Y	N
Gioia Del Colle (Mil)	LIBV		N	Y	Y	Y	N
Grazzanise (Mil)	LIRM		N	Y	Y	Y	N
Grosseto (Mil)	LIRS	GRS	N	Y	Y	Y	N
Guidonia (Mil)	LIRG		N	Y	Y	Y	N
Lamezia/Terme	LICA	SUF	Y	Y	Y	Y	N
Lampedusa	LICD	LMP	N	Y	Y	Y	N
Latina (Mil)	LIRL	QLT	N	Y	Y	Y	N
Lecce/Galatina (Mil)	LIBN	LCC	N	Y	Y	Y	N
Marina Di Campo	LIRJ	EBA	N	N	N	N	N
Marina Di Ravenna	LIVM		N	Y	Y	N	N
Milano/Bresso	LIMB		N	Y	Y	Y	N
Milano/Linate	LIML	LIN	Y	Y	Y	N	Y
Milano/Malpensa	LIMC	MXP	Y	Y	Y	N	Y
Napoli/Capodichino	LIRN	NAP	Y	Y	Y	N	Y
Novi Ligure	LIMR		N	Y	Y	Y	N
Olbia/Costa Smeralda	LIEO	OLB	Y	Y	Y	Y	N
Padova	LIPU	QPA	Y	N	N	N	N
Palermo/Punta Raisi	LICJ	PMO	Y	Y	Y	N	Y
Pantelleria	LICG	PNL	Y	Y	Y	Y	N
Parma	LIMP	PMF	Y	Y	Y	N	N
Perugia/S. Egidio	LIRZ	PEG	Y	Y	Y	N	N
Pescara	LIBP	PSR	Y	Y	Y	Y	N
Piacenza/S.Damiano (Mil)	LIMS	QPZ	N	Y	Y	Y	N
Pisa/S. Giusto (Mil)	LIRP	PSA	Y	Y	Y	N	Y
Pratica Di Mare (Mil)	LIRE		N	Y	Y	Y	N
Reggio Calabria	LICR	REG	Y	Y	Y	Y	N
Rieti	LIQN		Y	Y	Y	Y	N
Rimini/Miramare (Mil.)	LIPR	RMI	Y	Y	Y	Y	N
Rivolto (Mil)	LIPI		N	Y	Y	Y	N

EUR - ITALY							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Roma/Ciampino (Mil.)	LIRA	CIA	Y	Y	Y	N	Y
Roma/Fiumicino	LIRF	FCO	Y	Y	Y	N	Y
Roma/Urbe	LIRU		Y	Y	Y	N	N
Sarzana/Luni (Mil.)	LIQW		N	Y	Y	Y	N
Taranto/Grottaglie	LIBG	TAR	N	Y	Y	Y	N
Torino/Caselle	LIMF	TRN	Y	Y	Y	N	Y
Trapani/Birgi (Mil)	LICT	TPS	Y	Y	Y	Y	N
Trevico	LIRT		N	Y	Y	N	N
Treviso/S.Angelo (Mil)	LIPH	TSF	Y	Y	Y	Y	N
Trieste/Ronchi Dei Legionari	LIPQ	TRS	Y	Y	Y	Y	N
Venezia/S. Nicolo	LIPV		Y	N	N	N	N
Venezia/Tessera	LIPZ	VCE	Y	Y	Y	N	Y
Verona/Villafranca (Mil.)	LIPX	VRN	Y	Y	Y	Y	N
Vicenza (Mil.)	LIPT	VIC	N	N	N	N	N
Viterbo (Mil)	LIRV		N	Y	Y	Y	N
EUR - KAZAKHSTAN							
Aktau	UATE		Y	Y	Y	Y	N
Aktyubinsk	UATT	AKX	Y	Y	Y	N	Y
Almaty	UAAA	ALA	Y	Y	Y	N	Y
Astana	UACC	TSE	Y	Y	Y	N	Y
Atyrau	UATG	GUW	Y	Y	Y	Y	N
Karaganda	UAKK	KGF	Y	Y	Y	Y	N
Kokshetau	UACK		Y	Y	Y	Y	N
Kostanay	UAUU	KSN	Y	Y	Y	Y	N
Kyzylorda	UAOO		Y	Y	Y	Y	N
Pavlodar	UASP	PWQ	Y	Y	Y	Y	N
Petropavlovsk	UACP	PPK	N	Y	Y	Y	N
Semipalatinsk	UASS	PLX	Y	Y	Y	Y	N
Shymkent	UAII		Y	Y	Y	Y	N
Taraz	UADD		Y	Y	Y	Y	N
Uralsk	UARR	URA	N	Y	Y	Y	N
Ust-Kamenogorsk	UASK		Y	Y	Y	Y	N
Zhezkazgan Y	UAKD		Y	Y	Y	Y	N
EUR - KYRGYZSTAN							
BISHKEK/MANAS	UAFM	FRU	Y	Y	Y	N	Y
OSH	UAFO	OSS	Y	Y	Y	N	N
EUR - LATVIA							
Daugavpils	EVDA		Y	N	N	N	N
Jekabpils	EVKA		Y	N	N	N	N
Jelgava	EVEA		Y	N	N	N	N
Liepaja Y	EVLA	LPX	Y	Y	Y	Y	N
Riga (Airport)	EVRA	RIX	Y	Y	Y	N	Y
Ventspils	EVVA		N	Y	Y	N	N
EUR - LITHUANIA							
Kaunas Intl	EYKA	KUN	Y	Y	Y	Y	N
Palanga Intl	EYPA	PLQ	Y	Y	Y	Y	N
Siauliai Intl/Civ/Mil	EYSA	SQQ	Y	Y	Y	N	N
Vilnius Intl	EYVI	VNO	Y	Y	Y	Y	N

EUR - LUXEMBOURG							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Luxembourg/Luxembourg	ELLX	LUX	Y	Y	Y	N	Y
EUR - MALTA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Luqa Airport	LMML	MLA	Y	Y	Y	N	Y
EUR - MONACO							
Monaco	LNMC		Y	Y	Y	N	N
EUR - MONTENEGRO							
Podgorica/Cemovsko Polje	LYPO		Y	Y	Y	N	Y
Tivat	LYTV		Y	Y	Y	N	Y
EUR - NETHERLANDS							
Amsterdam/Schiphol	EHAM	AMS	Y	Y	Y	N	Y
Den Helder/De Kooy	EHKD	DHR	N	Y	Y	Y	N
Deventer/Teuge	EHTE		Y	N	N	N	N
Eindhoven/Eindhoven Y	EHEH	EIN	N	Y	Y	Y	N
Enschede/Twenthe Y	EHTW	ENS	N	Y	Y	Y	N
Groningen/Eelde Y	EHGG	GRQ	Y	Y	Y	Y	N
Hilversum/Hilversum	EHHV		Y	N	N	N	N
Hoogeveen/Hoogeveen	EHHO		Y	N	N	N	N
Leiden/Valkenburg	EHVB	LID	N	Y	Y	Y	N
Lelystad/Lelystad	EHLE		Y	Y	Y	Y	N
Maastricht/Maastricht Aachen	EHBK	MST	Y	Y	Y	Y	N
Middelburg/Midden –Zeeland	EHMZ		Y	N	N	N	N
Rotterdam/Rotterdam	EHRD	RTM	Y	Y	Y	N	Y
Texel/Texel	EHTX		Y	N	N	N	N
Weert/Budel	EHBD		Y	N	N	N	N
EUR - NORWAY							
Alesund/Vigra	ENAL	AES	Y	Y	Y	Y	N
Alta	ENAT	ALF	Y	Y	Y	Y	N
Andenes/Andoya	ENAN		N	Y	Y	N	Y
Bardufoss	ENDU		N	Y	Y	Y	N
Bergen/Flesland	ENBR		Y	Y	Y	N	Y
Berlevag	ENBV		N	Y	Y	N	N
Bodo	ENBO	BOO	Y	Y	Y	N	Y
Bronnoysund/Bronnoy	ENBN	BNN	N	Y	Y	Y	N
Ekofisk	ENEK		N	Y	Y	Y	N
Fagernes/Leirin	ENFG	VDB	N	Y	Y	Y	N
Farsund/Lista	ENLI		N	Y	Y	Y	N
Floro	ENFL	FRO	N	Y	Y	Y	N
Geilo/Dagali	ENDI	DLD	N	Y	Y	Y	N
Hammerfest	ENHF	HFT	N	Y	Y	Y	N
Harstad/Narvik/Evenes	ENEV	EVE	Y	Y	Y	Y	N
Haugesund/Karmoy	ENHD	HAU	N	Y	Y	Y	N
Kirkenes/Hoybuktmoen	ENKR	KKN	Y	Y	Y	Y	N
Kristiansand/Kjevik	ENCN	KRS	Y	Y	Y	Y	N

EUR - NORWAY							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Kristiansund/Kvernberget	ENKB		N	Y	Y	Y	N
Lakselv/Banak	ENNA	LKL	Y	Y	Y	Y	N
Orland	ENOL	OLA	N	Y	Y	Y	N
Oslo/Gardermoen	ENGM		Y	Y	Y	Y	N
Roros	ENRO	RRS	N	Y	Y	Y	N
Rygge	ENRY		N	Y	Y	Y	N
Sandefjord/Torp	ENTO	TRF	Y	Y	Y	Y	N
Stavanger/Sola	ENZV	SVG	Y	Y	Y	N	Y
Svalbard/Longyear	ENSB	LYR	Y	Y	Y	N	Y
Svolvaer/Helle	ENSH	SVJ	N	Y	Y	Y	N
Tromso/Langnes	ENTC	TOS	Y	Y	Y	Y	N
Trondheim/Vaernes	ENVA	TRD	Y	Y	Y	N	Y
EUR - POLAND							
Bydgoszcz/Szweredowo	EPBY		Y	Y	Y	N	Y
Gdansk/Lech Walesa	EPGD	GDN	Y	Y	Y	N	Y
Katowice/Pyrzowice	EPKT	KTW	Y	Y	Y	Y	N
Krakow/Balice	EPKK	KRK	Y	Y	Y	N	Y
Lodz/Lublinek	EPLL		Y	Y	Y	Y	N
Poznan/Lawica	EPPO	POZ	Y	Y	Y	Y	N
Rzeszow/Jasionka	EPRZ	RZE	Y	Y	Y	Y	N
Szczecin/Goleniow	EPSC	SZZ	Y	Y	Y	Y	N
Szczytno/Szymany	EPSY		Y	N	N	N	N
Warszawa/Okecie	EPWA	WAW	Y	Y	Y	N	Y
Wroclaw/Strachowice	EPWR	WRO	Y	Y	Y	Y	N
Zielona Gora/Babimost	EPZG		Y	Y	Y	Y	N
EUR - Portugal							
Madeira and Azores) (Portugal) FARO	LPFR	FAO	Y	Y	Y	N	Y
FLORES	LPFL		N	Y	Y	Y	N
HORTA	LPHR		N	Y	Y	N	Y
LAJES	LPLA		N	Y	Y	N	Y
LISBOA	LPPT	LIS	Y	Y	Y	N	Y
MADEIRA	LPMA		Y	Y	Y	N	Y
PORTO	LPPR	OPO	Y	Y	Y	N	Y
PORTO SANTO	LPPS	PXO	Y	Y	Y	N	Y
EUR - REPUBLIC OF MOLDOVA							
Balti/International	LUBL		Y	Y	Y	Y	N
Cahul/International	LUCH		Y	Y	Y	Y	N
Chisinau/International	LUKK	KIV	Y	Y	Y	N	Y
EUR - ROMANIA							
Arad/Arad	LRAR	ARW	Y	Y	Y	Y	N
Bacau/Bacau	LRBC	BCM	Y	Y	Y	Y	N
Baia Mare/Tautii Magheraus	LRBM	BAY	Y	Y	Y	Y	N
Bucuresti/Baneasa-Aurel Vlaicu	LRBS	BBU	Y	Y	Y	Y	N
Bucuresti/Henri Coanda	LROP	OTP	Y	Y	Y	N	Y
Caransebes/Caransebes	LRCS	CSB	Y	Y	Y	Y	N
Cluj Napoca/Cluj Napoca	LRCL	CLJ	Y	Y	Y	Y	N

EUR - ROMANIA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Constanta/Constanta	LRCK	CND	Y	Y	Y	Y	N
Craiova/Craiova	LRCV	CRA	Y	Y	Y	Y	N
Iasi/Iasi	LRIA	IAS	Y	Y	Y	Y	N
Oradea/Oradea	LROD	OMR	Y	Y	Y	Y	N
Satu Mare/Satu Mare	LRSM	SUJ	Y	Y	Y	Y	N
Sibiu/Sibiu	LRSB	SBZ	Y	Y	Y	Y	N
Suceava/Stefan Cel Mare-Suceava	LRSV	SCV	Y	Y	Y	Y	N
Targu Mures/Vidrasau	LRTM	TGM	Y	Y	Y	Y	N
Timisoara/Traian Vuia	LRTR	TSR	Y	Y	Y	N	Y
Tulcea/Cataloi	LRTC	TCE	Y	Y	Y	N	N
EUR - RUSSIAN FEDERATION							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Abakan	UNAA	HTA	Y	Y	Y	Y	N
Anadyr/Ugolny	UHMA	DYR	Y	Y	Y	N	Y
Anapa/Vityazevo	URKA		Y	Y	Y	Y	N
Arkhangelsk/Talagi	ULAA		Y	Y	Y	Y	N
Astrakhan	URWA		Y	Y	Y	Y	N
Barnaul	UNBB	ABA	Y	Y	Y	Y	N
Begishevo	UWKE		Y	Y	Y	Y	N
Belgorod	UUOB		Y	Y	Y	Y	N
Blagoveshchensk/Ignatyevo	UHBB		Y	Y	Y	Y	N
Bratsk	UIBB	BQS	Y	Y	Y	Y	N
Bryansk	UUBP		Y	Y	Y	Y	N
Cheboksary	UWKS		Y	Y	Y	Y	N
Chelyabinsk/Balandino	USCC	CEK	Y	Y	Y	Y	N
Chita/Kadala	UIAA		Y	Y	Y	N	Y
Elista	URWI		Y	Y	Y	N	N
Irkutsk	UIII	IKT	Y	Y	Y	N	Y
Kaliningrad/Khrabrovo	UMKK	KGD	Y	Y	Y	Y	N
Kazan	UWKD	KZN	Y	Y	Y	Y	N
Kemerovo	UNEE		Y	Y	Y	Y	N
Khabarovsk/Novy	UHHH	KHV	Y	Y	Y	N	Y
Kogalym	USRK		Y	Y	Y	Y	N
Krasnodar/Pashkovskiy	URKK	KRR	Y	Y	Y	Y	N
Krasnoyarsk/Yemelyanovo	UNKL	KJA	Y	Y	Y	Y	N
Kursk/Vostochny	UUOK		Y	Y	Y	Y	N
Magadan/Sokol	UHMM	GDX	Y	Y	Y	N	Y
Magnitogorsk	USCM		Y	Y	Y	N	Y
Makhachkala/Uytash	URML	MCX	Y	Y	Y	Y	N
Maykop	URKM		Y	Y	Y	Y	N
Mineralnyye Vody	URMM	MRV	Y	Y	Y	N	Y
Mirny	UERR		N	Y	Y	N	Y
Moscow/Domodedovo	UUDD	DME	Y	Y	Y	N	Y
Moscow/Sheremetyevo	UUEE	SVO	Y	Y	Y	N	Y
Moscow/Vnukovo	UUWW	VKO	Y	Y	Y	N	Y
Murmansk	ULMM	MMK	Y	Y	Y	Y	N
Nadym	USMM		N	Y	Y	N	Y

EUR - RUSSIAN FEDERATION							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Nalchik	URMN		Y	Y	Y	Y	N
Naryan-Mar	ULAM		N	Y	Y	N	Y
Nerungri/Chulma	UELL		N	Y	Y	N	Y
Nikolaevsk-Na-Amure	UHNN		N	Y	Y	N	Y
Nizhnevartovsk	USNN		N	Y	Y	N	Y
Nizhny Novgorod/Strigino	UWGG	GOJ	Y	Y	Y	Y	N
Novokuznetsk/Spichenkovo	UNWW	NOZ	N	Y	Y	N	Y
Novosibirsk/Tolmachevo	UNNT	OVB	Y	Y	Y	N	Y
Omsk/Tsentralny	UNOO	OMS	Y	Y	Y	Y	N
Orenburg	UWOO	REN	Y	Y	Y	Y	N
Orsk	UWOR		Y	Y	Y	Y	N
Pechora	UUYP		N	Y	Y	N	Y
Perm/Bolshoe Savino	USPP	PEE	Y	Y	Y	Y	N
Petropavlovsk-Kamchatsky/Yelizovo	UHPP	PKC	Y	Y	Y	N	Y
Petrozavodsk/Besovets	ULPB		Y	Y	Y	Y	N
Pevek	UHMP		N	Y	Y	N	Y
Poliarny	UERP		N	Y	Y	N	Y
Provideniya Bay	UHMD		Y	Y	Y	N	Y
Pskov	ULOO		Y	Y	Y	N	Y
Raduzhny	USNR		Y	Y	Y	Y	N
Rostov-Na-Donu	URRR		Y	Y	Y	Y	N
Salekhard	USDD		N	Y	Y	N	Y
Samara/Kurumoch	UWWW	KUF	Y	Y	Y	Y	N
Sankt-Peterburg/Pulkovo	ULLI	LED	Y	Y	Y	Y	N
Saratov/Tsentralny	UWSS	RTW	Y	Y	Y	Y	N
Sochi	URSS	AER	Y	Y	Y	Y	N
Stavropol/Shpakovskoye	URMT	STW	Y	Y	Y	Y	N
Surgut	USRR	SGC	Y	Y	Y	Y	N
Syktyvkar	UUYY	SCW	Y	Y	Y	Y	N
Tiksi	UEST		N	Y	Y	N	N
Tura	UNIT		N	Y	Y	N	Y
Tver/Migalovo	UUEM		Y	Y	Y	Y	N
Tyumen/Roschino	USTR		Y	Y	Y	Y	N
Ufa	UWUU	UFA	Y	Y	Y	Y	N
Ulan-Ude/Mukhino	UIUU	UUD	Y	Y	Y	N	Y
Ulyanovsk/Vostochny	UWLW		Y	Y	Y	N	Y
Vladikavkaz/Beslan	URMO		Y	Y	Y	N	Y
Vladivostok/Knevichi	UHWW	VVO	Y	Y	Y	N	Y
Volgograd/Gumrak	URWW	VOG	Y	Y	Y	N	Y
Vorkuta	UUYW	VKT	N	Y	Y	N	Y
Voronezh/Chertovitskoye	UUOO		Y	Y	Y	N	Y
Yakutsk	UEEE	YKS	Y	Y	Y	N	Y
Yaroslavl/Tunoshna	UUDL		Y	Y	Y	N	Y
Yekaterinburg/Koltsovo	USSS	SVX	Y	Y	Y	N	Y
Yuzhno-Sakhalinsk/Khomutovo	UHSS		Y	Y	Y	N	Y

Name of Aerodrome	CCCC	IATA	AOP	SA	SP	FC	FT
EUR - SERBIA							
Beograd/Nikola Tesla	LYBE		Y	Y	Y	N	Y
Nis	LYNI		N	Y	Y	N	Y
Pristina	LYPR		N	Y	Y	Y	N
EUR - SLOVAKIA							
Bratislava/M.R.Stefanik	LZIB	BTS	Y	Y	Y	N	Y
Kosice	LZKZ	KSC	Y	Y	Y	Y	N
Nitra	LZNI		N	Y	Y	N	N
Piestany	LZPP	PZY	Y	Y	Y	Y	N
Poprad-Tatry	LZTT	TAT	Y	Y	Y	Y	N
Prievidza	LZPE		N	Y	Y	Y	N
Sliac	LZSL	SLD	Y	Y	Y	Y	N
Zilina	LZZI	ILZ	Y	Y	Y	Y	N
EUR - SPAIN							
A Coruna	LECO	LCG	Y	Y	Y	Y	N
Alicante	LEAL	ALC	Y	Y	Y	N	Y
Almeria	LEAM	LEI	Y	Y	Y	Y	N
Asturias	LEAS	OVD	Y	Y	Y	Y	N
Badajoz	LEBZ		N	Y	Y	Y	N
Barcelona	LEBL	BCN	Y	Y	Y	N	Y
Bilbao	LEBB	BIO	Y	Y	Y	Y	N
Cordoba	LEBA		N	Y	Y	Y	N
Girona	LEGE	GRO	Y	Y	Y	N	Y
Granada/Federico Lorca Granada-Jaen	LEGR	GRX	Y	Y	Y	Y	N
Ibiza	LEIB	IBZ	Y	Y	Y	N	Y
Jerez	LEJR	XRY	Y	Y	Y	Y	N
Leon	LELN		Y	Y	Y	N	N
Madrid/Barajas	LEMD	MAD	Y	Y	Y	N	Y
Madrid/Cuatro Vientos (Civ)	LECU		Y	Y	Y	Y	N
Madrid/Cuatro Vientos (Mil)	LEVS		N	Y	Y	Y	N
Madrid/Torrejon	LETO		N	Y	Y	Y	N
Malaga	LEMG	AGP	Y	Y	Y	N	Y
Menorca	LEMH	MAH	Y	Y	Y	Y	N
Murcia/San Javier	LELC	MJV	Y	Y	Y	Y	N
Palma De Mallorca	LEPA	PMI	Y	Y	Y	N	Y
Pamplona	LEPP		N	Y	Y	Y	N
Reus	LERS	REU	Y	Y	Y	Y	N
Sabadell	LELL	QSA	Y	Y	Y	N	Y
Salamanca	LESA		Y	Y	Y	Y	N
San Sebastian	LESO	EAS	Y	Y	Y	Y	N
Santander	LEXJ	SDR	Y	Y	Y	Y	N
Santiago	LEST	SCQ	Y	Y	Y	N	Y
Sevilla	LEZL	SVQ	Y	Y	Y	N	Y
Valencia	LEVC	VLC	Y	Y	Y	N	Y
Valladolid	LEVD	VLL	Y	Y	Y	Y	N
Vigo	LEVX	VGO	Y	Y	Y	Y	N
Vitoria	LEVT	VIT	Y	Y	Y	N	Y
Zaragoza	LEZG	ZAZ	Y	Y	Y	N	Y

EUR - SWEDEN							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Angelholm	ESTA		Y	Y	Y	Y	N
Are Ostersund	ESNZ		Y	N	N	N	N
Arvidsjaur	ESNX		Y	N	N	N	N
Borlange	ESSD	BLE	Y	Y	Y	Y	N
Gallivare	ESNG		N	Y	Y	Y	N
Goteborg/Landvetter	ESGG	GOT	Y	Y	Y	N	Y
Goteborg/Save	ESGP	GSE	Y	Y	Y	Y	N
Halmstad	ESMT	HAD	N	Y	Y	Y	N
Jonkoping	ESGJ	JKG	Y	Y	Y	Y	N
Kalmar	ESMQ	KLR	Y	Y	Y	Y	N
Karlstad	ESOK		Y	Y	Y	Y	N
Kiruna	ESNQ	KRN	Y	Y	Y	Y	N
Kramfors-Solleftea	ESNK	KRF	N	Y	Y	Y	N
Kristianstad	ESMK	KID	Y	Y	Y	Y	N
Linkoping/Saab	ESSL	LPI	Y	Y	Y	Y	N
Ljungbyhed	ESTL		N	Y	Y	Y	N
Lulea/Kallax	ESPA	LLA	Y	Y	Y	Y	N
Lycksele	ESNL	LYL	N	Y	Y	N	N
Malmo/Sturup	ESMS	MMX	Y	Y	Y	N	Y
Norrkoping/KungsangenP	ESSP	NRK	Y	Y	Y	Y	N
Orebro	ESOE	ORB	Y	Y	Y	Y	N
Ornskoldsvik Y C P	ESNO	OER	N	Y	Y	Y	N
Ronneby	ESDF	RNB	Y	Y	Y	Y	N
Skelleftea	ESNS	SFT	Y	Y	Y	Y	N
Stockholm/Arlanda	ESSA	ARN	Y	Y	Y	N	Y
Stockholm/Bromma	ESSB	BMA	Y	Y	Y	Y	N
Stockholm/Skavsta	ESKN	NYO	Y	Y	Y	N	Y
Stockholm/Vasteras	ESOW	VST	Y	Y	Y	Y	N
Storumam	ESUD		N	Y	Y	N	N
Sundsvall-Harnosand	ESNN	SDL	Y	Y	Y	Y	N
Trollhattan-Vanersborg	ESGT	THN	Y	Y	Y	Y	N
Umea	ESNU	UME	Y	Y	Y	Y	N
Vaxjo/Kronoberg	ESMX	VXO	Y	Y	Y	Y	N
Visby	ESSV	VBY	Y	Y	Y	Y	N
EUR - SWITZERLAND							
Bern-Belp	LSZB	BRN	Y	Y	Y	Y	N
Buochs	LSZC		Y	Y	Y	Y	N
Geneve	LSGG	GVA	Y	Y	Y	N	Y
Grenchen	LSZG	ZHI	Y	Y	Y	N	Y
Lausanne-La Blecherette	LSGL		N	Y	Y	N	N
Les Eplatures	LSGC		Y	Y	Y	N	N
Locarno	LSZL	ZJI	Y	Y	Y	N	N
Lugano	LSZA	LUG	Y	Y	Y	Y	N
Samedan	LSZS	SMV	Y	Y	Y	Y	N
Sion	LSGS	SIR	Y	Y	Y	N	Y
St. Gallen-Altenrhein	LSZR	QGL	Y	Y	Y	N	Y
Zurich Flughafen	LSZH	ZRH	Y	Y	Y	N	Y

EUR - TAJIKISTAN							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Dushanbe	UTDD	DYU	Y	Y	Y	N	Y
Khudzhand	UTDL		N	Y	Y	Y	N
EUR - THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA							
Ohrid	LWOH		Y	Y	Y	Y	N
Skopje	LWSK		Y	Y	Y	Y	N
EUR - TURKEY							
Adana	LTAF	ADA	Y	Y	Y	N	Y
Ankara/Esenboga	LTAC	ESB	Y	Y	Y	N	Y
Antalya (Civ/Mil)	LTAI	AYT	Y	Y	Y	N	Y
Batman (Mil-Civ)	LTCJ		N	Y	Y	N	Y
Bursa/Yenisehir (Mil-Civ)	LTBR		Y	Y	Y	N	Y
Elazig (Mil-Civ)	LTCA		N	Y	Y	N	Y
Erzurum (Civ/Mil)	LTCE	ERZ	Y	Y	Y	N	Y
Gaziantep	LTAJ	GZT	Y	Y	Y	N	Y
Isparta/S.Demirel	LTFC		Y	Y	Y	N	Y
Istanbul/Ataturk	LTBA	IST	Y	Y	Y	N	Y
Istanbul/Sabiha Gokcen	LTFJ		Y	Y	Y	N	Y
Izmir/Adnan Menderes	LTBJ	ADB	Y	Y	Y	N	Y
EUR - TURKEY							
Kars	LTCF		Y	Y	Y	N	N
Kayseri/Erkilet (Mil-Civ)	LTAU		Y	Y	Y	N	Y
Konya (Mil-Civ)	LTAN	KYA	Y	Y	Y	N	Y
Mugla/Dalaman (Mil.Civ.)	LTBS	DLM	Y	Y	Y	N	Y
Mugla/Milas-Bodrum	LTFE		Y	Y	Y	N	Y
Nevsehir/Kapadokya	LTAZ		Y	Y	Y	N	Y
Samsun/Carsamba	LTFH		Y	Y	Y	N	Y
Tekirdag/Corlu (Mil)	LTBU		Y	Y	Y	N	Y
Trabzon	LTCG	TZX	Y	Y	Y	N	Y
Van/ Ferit Melen	LTCI	VAN	Y	Y	Y	N	Y
EUR - TURKMENISTAN							
Ashgabat	UTAA	ASB	Y	Y	Y	N	Y
Dashoguz	UTAT		Y	Y	Y	Y	N
Turkmenabat	UTAV	CRZ	N	Y	Y	Y	N
Turkmenbashi	UTAK		Y	Y	Y	Y	N
EUR - UKRAINE							
Cherkasy	UKKE		Y	Y	Y	Y	N
Chernivtsi	UKLN		Y	Y	Y	N	Y
Dnipropetrovs'k	UKDD	DNK	Y	Y	Y	N	Y
Donets'k	UKCC		Y	Y	Y	N	Y
Hostomel	UKKM		Y	Y	Y	N	Y
Ivano-Frankivs'k	UKLI	IFO	Y	Y	Y	N	Y
Kharkiv	UKHH		Y	Y	Y	N	Y
Kryvyi Rih	UKDR	KWG	Y	Y	Y	N	Y
Kyiv/Boryspil	UKBB	KBP	Y	Y	Y	N	Y
Kyiv/Zhulyany	UKKK	IEV	Y	Y	Y	N	Y

EUR - UKRAINE							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Luhans'k	UKCW		Y	Y	Y	N	Y
L'viv	UKLL	LWO	Y	Y	Y	N	Y
Mykolaiv	UKON		Y	Y	Y	N	Y
Odesa	UKOO	ODS	Y	Y	Y	N	Y
Rivne	UKLR	RWN	Y	Y	Y	N	Y
Simferopol	UKFF	SIP	Y	Y	Y	N	Y
Uzhhorod	UKLU	UDL	Y	Y	Y	Y	N
Zaporizhzhia	UKDE		Y	Y	Y	Y	N
EUR - UNITED KINGDOM							
Aberdeen	EGPD	ABZ	Y	Y	Y	N	Y
Alderney	EGJA	ACI	N	Y	Y	Y	N
Belfast/Aldergrove	EGAA	BFS	Y	Y	Y	N	Y
Belfast/City	EGAC	BHD	Y	Y	Y	N	Y
Benbecula	EGPL	BEB	N	Y	Y	Y	N
Biggin Hill	EGKB	BHQ	Y	Y	Y	Y	N
Birmingham	EGBB	BHX	Y	Y	Y	Y	N
Blackpool	EGNH	BLK	Y	Y	Y	Y	N
Bournemouth	EGHH	BOH	Y	Y	Y	Y	N
Bristol	EGGD	BRS	Y	Y	Y	Y	N
Bristol Filton	EGTG	FZO	N	Y	Y	Y	N
Brize Norton	EGVN	BZZ	Y	Y	Y	N	Y
Cambridge	EGSC	CBG	N	Y	Y	Y	N
Campbeltown	EGEC		N	Y	Y	Y	N
Cardiff	EGFF	CWL	Y	Y	Y	N	Y
Carlisle	EGNC	CAX	Y	Y	Y	Y	N
Coventry	EGBE	CVT	N	Y	Y	N	Y
Cranfield	EGTC		Y	Y	Y	Y	N
Doncaster Sheffield	EGCN		N	Y	Y	Y	N
Dundee	EGPN	PND	N	Y	Y	Y	N
Durham Tees Valley	EGNV		Y	Y	Y	Y	N
Edinburgh	EGPH	EDI	Y	Y	Y	N	Y
Exeter	EGTE	EXT	Y	N	N	N	N
Farnborough	EGLF	FAB	N	Y	Y	Y	N
Glasgow	EGPF	GLA	Y	Y	Y	N	Y
Glasgow Prestwick	EGPK	PIK	Y	Y	Y	N	Y
Gloucestershire	EGBJ	GLO	Y	Y	Y	Y	N
Guernsey	EGJB	GCI	Y	Y	Y	Y	N
Hawarden	EGNR		Y	Y	Y	Y	N
Humberside	EGNJ	HUY	Y	Y	Y	Y	N
Inverness	EGPE	ZIV	N	Y	Y	Y	N
Islay	EGPI		N	Y	Y	Y	N
Isle Of Man	EGNS	IOM	Y	Y	Y	N	N
Jersey	EGJJ	JER	Y	Y	Y	Y	N
Kirkwall	EGPA	KOI	Y	Y	Y	Y	N
Leeds Bradford	EGNM	LBA	Y	Y	Y	N	Y
Liverpool	EGGP	LPL	Y	Y	Y	N	Y
London Gatwick	EGKK	LGW	Y	Y	Y	N	Y

EUR - UNITED KINGDOM							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
London Heathrow	EGLL	LHR	Y	Y	Y	N	Y
London Luton	EGGW	LTN	Y	Y	Y	N	Y
London Stansted	EGSS	STN	Y	Y	Y	N	Y
London/City	EGLC	LCY	Y	Y	Y	Y	N
Londonderry/Eglinton	EGAE	LDY	N	Y	Y	N	N
Lydd	EGMD	LYX	Y	Y	Y	Y	N
Lyneham	EGDL	LYE	N	Y	Y	N	Y
Manchester	EGCC	MAN	Y	Y	Y	Y	N
Manston	EGMH	MSE	N	Y	Y	Y	N
Mildenhall	EGUN		N	Y	Y	N	N
Newcastle	EGNT	NCL	Y	Y	Y	N	Y
Northolt	EGWU	NHT	N	Y	Y	N	Y
Norwich	EGSH	NWI	Y	Y	Y	Y	N
Nottingham East Midlands	EGNX	EMA	Y	Y	Y	N	Y
Penzance Heliport	EGHK		Y	Y	Y	N	N
Plymouth	EGHD	PLH	Y	Y	Y	Y	N
Scatsta	EGPM	SCS	N	Y	Y	Y	N
Scilly Isles/St Mary's	EGHE	ISC	Y	Y	Y	Y	N
Shoreham	EGKA	ESH	Y	Y	Y	Y	N
Southampton	EGHI	SOU	Y	Y	Y	Y	N
Southend	EGMC	SEN	Y	Y	Y	Y	N
St. Mawgan	EGDG		N	Y	Y	N	Y
Stornoway	EGPO	SYY	N	Y	Y	N	Y
Sumburgh	EGPB	LSI	Y	Y	Y	Y	N
Tiree	EGPU	TRE	N	Y	Y	Y	N
Wick	EGPC	WIC	N	Y	Y	Y	N
Wickenby	EGNW		N	Y	Y	N	Y
EUR - UZBEKISTAN							
Bukhara	UTSB		Y	Y	Y	N	Y
Fergana	UTFF		N	Y	Y	N	Y
Karshi	UTSK		N	Y	Y	N	Y
Nukus	UTNN	NCU	N	Y	Y	N	Y
Samarkand	UTSS	SKD	Y	Y	Y	N	Y
Tashkent/Yuzhny	UTTT	TAS	Y	Y	Y	N	Y
Termez	UTST		Y	Y	Y	N	Y
Urgench	UTNU	UGC	Y	Y	Y	N	Y

ANNEX 1 – MID

Name of Aerodrome	CCCC	IATA	AOP	SA	SP	FC	FT
MID - AFGHANISTAN							
Kabul International Airport	OAKB	KBL	Y	Y	Y	N	Y
Kandahar	OAKN	KDH	Y	Y	Y	N	Y
MID - BAHRAIN							
Bahrain International	OBBI	BAH	Y	Y	Y	N	Y
MID - IRAN (ISLAMIC REPUBLIC OF)							
Abadan	OIAA	ABD	N	Y	Y	N	Y
Bandar Abbass/Intl	OIKB	BND	Y	Y	Y	N	Y
Esfahan / Shahid Beheshti Intl	OIFM	EFN	Y	Y	Y	N	Y
Mashhad/Shahid Hashemi Nejad Intl	OIMM	MHD	Y	Y	Y	N	Y
Shiraz/Shahid Dastghaib Intl	OISS	SYZ	Y	Y	Y	N	Y
Tabriz/Intl	OITT	TBZ	Y	Y	Y	N	Y
Tehran/Imam Khomaini Intl	OIIE		Y	Y	Y	N	Y
Tehran/Mehrabad Intl	OIII	THR	Y	Y	Y	N	Y
Uromiyeh	OITR		N	Y	Y	N	Y
Zahedan/Intl	OIZH	ZAH	Y	Y	Y	N	Y
MID - IRAQ							
Baghdad International Airport	ORBI	SDA	Y	Y	Y	N	Y
Basrah Intl Airport	ORMM	BSR	Y	Y	Y	N	Y
Erbil Intl Airport	ORER		Y	Y	Y	N	Y
Sulaymaniyah International Airport	ORSU		Y	Y	Y	N	Y
MID - ISRAEL							
Beer-Sheba/Teyman Airstrip	LLBS	BEV	N	Y	Y	Y	N
Eilat/J. Hozman Airport	LLET	ETH	Y	Y	Y	Y	N
Haifa/U. Michaeli Airport	LLHA		Y	Y	Y	N	Y
Ovda Airport	LLOV	VDA	Y	Y	Y	Y	N
Tel-Aviv/Ben Gurion Airport	LLBG	TLV	Y	Y	Y	N	Y
Tel-Aviv/Sde-Dov Airport	LLSD						
MID - JORDAN							
Amman/Marka	OJAM	ADJ	Y	Y	Y	N	Y
Amman/Queen Alia	OJAI	AMM	Y	Y	Y	N	Y
Aqaba/King Hussein International Airport	OJAQ	AQJ	Y	Y	Y	N	N
Jerusalem/Jerusalem	OJJR		Y	N	N	N	N
MID - KUWAIT							
Kuwait/Intl Airport	OKBK	KWI	Y	Y	Y	N	Y
MID - LEBANON							
Beirut/Beirut Intl	OLBA	BEY	Y	Y	Y	N	Y
MID - OMAN							
Masirah Y	OOMA	MSH	N	Y	Y	N	Y
Muscat/Seeb Intl	OOMS	MCT	Y	Y	Y	N	Y
Salalah	OOSA	SLL					
MID - QATAR							
Doha Internationa	OTBD	DOH	Y	Y	Y	N	Y
MID - SAUDI ARABIA							
Abha	OEAB	AHB	N	Y	Y	N	Y
Al-Baha	OEBA	ABT	N	Y	Y	N	Y
Al-Jouf	OESK	AJF	N	Y	Y	N	Y
Arar	OERR	RAE	N	Y	Y	N	Y

MID - SAUDI ARABIA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Bisha	OEBH	BHH	N	Y	Y	N	Y
Dammam/King Fahd International	OEDF		Y	Y	Y	N	Y
Gassim	OEGS	ELQ	N	Y	Y	N	Y
Guriat	OEGT		N	Y	Y	N	Y
Hail	OEHL	HAS	N	Y	Y	N	Y
Jazan/King Abdullah Bin Abdulaziz	OEGN		N	Y	Y	N	Y
Jeddah/King Abdulaziz Intl	OEJN	JED	Y	Y	Y	N	Y
Jubail	OEJB	QJB	N	Y	Y	N	Y
Madinah/Prince Mohammad Bin Abdulaziz Intl	OEMA	MED	Y	Y	Y	N	Y
Nejran	OENG		N	Y	Y	N	Y
Qaisumah/Hafr Al-Batin	OEPA		N	Y	Y	N	Y
Rafha	OERF		N	Y	Y	N	Y
Riyadh/King Khaled Intl	OERK	RUH	Y	Y	Y	N	Y
Sharurah	OESH	SHW	N	Y	Y	N	Y
Tabuk	OETB		N	Y	Y	N	Y
Taif	OETF	TIF	N	Y	Y	N	Y
Turaif	OETR		N	Y	Y	N	Y
Wadi Al-Dawasir	OEWD		N	Y	Y	N	Y
Wejh	OEWJ		N	Y	Y	N	Y
Yenbo	OEYN		N	Y	Y	N	Y
MID - SYRIAN ARAB REPUBLIC							
Aleppo/Intl	OSAP	ALP	Y	Y	Y	N	Y
Bassel Al-Assad/Intl. Lattakia	OSLK	LTK	Y	Y	Y	N	Y
Damascus/Intl	OSDI	DAM	Y	Y	Y	N	Y
MID - UNITED ARAB EMIRATES							
Abu Dhabi International	OMAA	AUH	Y	Y	Y	N	Y
Al Ain	OMAL	AAN	Y	Y	Y	N	Y
Dubai International	OMDB	DXB	Y	Y	Y	N	Y
Fujairah International	OMFJ		Y	Y	Y	N	Y
Jebel Ali International	OMJA		Y	N	N	N	N
Ras Al Khaimah International	OMRK	RKT	Y	Y	Y	N	Y
Sharjah International	OMSJ	SHJ	Y	Y	Y	N	Y
MID - YEMEN							
Aden/Intl	OYAA	ADE	Y	Y	Y	N	Y
Hodeidah	OYHD	HOD	Y	Y	Y	N	Y
Mukalla/Intl	OYRN		Y	Y	Y	N	Y
Sanaa/Intl	OYSN	SAH	N	Y	Y	N	Y
Sayun/Intl	OYSY		N	Y	Y	N	Y
Taiz/Intl	OYTZ	TAI	Y	Y	Y	N	Y

ANNEX 1 – NAM

NAM - CANADA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Abbotsford, B.C.	CYXX	YXX	Y	Y	Y	N	Y
Alert, N.W.T.	CYLT	YLT	N	Y	Y	N	Y
Arviat, N.W.T.	CYEK	YEK	N	Y	Y	N	Y
Aupaluk, Que.	CYLA	YLA	N	Y	Y	N	Y
Bagotville, Que.	CYBG	YBG	N	Y	Y	N	Y
Baie Comeau, Que.	CYBC	YBC	N	Y	Y	N	Y
Baker Lake, N.W.T.	CYBK	YBK	N	Y	Y	N	Y
Bella Coola, B.C.	CYBD	YBD	N	Y	Y	N	Y
Berens River, Man.	CYBV	YBV	N	Y	Y	N	Y
Big Trout Lake, Ont.	CYTL	YTL	N	Y	Y	N	Y
Brandon, Man.	CYBR	YBR	N	Y	Y	N	Y
Broughton Island, N.W.T.	CYVM	YVM	N	Y	Y	N	Y
Buffalo Narrows, Sask.	CYVT	YVT	N	Y	Y	N	Y
Burwash, Y.T.	CYDB	YDB	N	Y	Y	N	Y
Calgary Intl, Alta.	CYYC	YYC	Y	Y	Y	N	Y
Calgary/Springbank, Alta.	CYBW	YBW	N	Y	Y	N	Y
Cambridge Bay, N.W.T	CYCB	YCB	N	Y	Y	N	Y
Campbell River, B.C.	CYBL	YBL	N	Y	Y	N	Y
Cape Dorset, N.W.T.	CYTE	YTE	N	Y	Y	N	Y
Castlegar, B.C.	CYCG	YCG	N	Y	Y	N	Y
Charlo, N.B.	CYCL	YCL	N	Y	Y	N	Y
Charlottetown, P.E.I.	CYYG	YYG	N	Y	Y	N	Y
Chibougamou/Chapais, Que.	CYMT	YMT	N	Y	Y	N	Y
Churchill, Man.	CYYQ	YYQ	N	Y	Y	N	Y
Clyde River, N.W.T.	CYCY	YCY	N	Y	Y	N	Y
Cold Lake, Alta	CYOD	YOD	N	Y	Y	N	Y
Comox, B.C.	CYQQ	YQQ	Y	Y	Y	N	Y
Coral Harbour, N.W.T.	CYZS	YZS	N	Y	Y	N	Y
Cranbrook, B.C.	CYXC	YXC	N	Y	Y	N	Y
Dauphin, Man.	CYDN	YDN	N	Y	Y	N	Y
Dawson Creek, B.C.	CYDQ	YDQ	N	Y	Y	N	Y
Dawson, Y.T.	CYDA	YDA	N	Y	Y	N	Y
Deer Lake, Nfld.	CYDF	YDF	N	Y	Y	N	Y
Dryden Regional, Ont.	CYHD	YHD	N	Y	Y	N	Y
Edmonton Intl, Alta.	CYEG	YEG	Y	Y	Y	N	Y
Edmonton Muni, Alta.	CYXD	YXD	N	Y	Y	N	Y
Elliot Lake Muni, Ont.	CYEL	YEL	N	Y	Y	N	Y
Eureka, N.W.T.	CYEU	YEU	N	Y	Y	N	Y
Flin Flon, Man.	CYFO	YFO	N	Y	Y	N	Y
Fort Chipewyan, Alta.	CYPY	YPY	N	Y	Y	N	Y
Fort Mcmurray, Alta.	CYMM	YMM	N	Y	Y	N	Y
Fort Nelson, B.C.	CYYE	YYE	N	Y	Y	N	Y

NAM - CANADA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Fort Simpsion, N.W.T.	CYFS	YFS	N	Y	Y	N	Y
Fort Smith, N.W.T.	CYSM	YSM	N	Y	Y	N	Y
Fort St John, B.C.	CYXJ	YXJ	N	Y	Y	N	Y
Fredericton, N.B.	CYFC	YFC	N	Y	Y	N	Y
Gander Intl, Nfld.	CYQX	YQX	Y	Y	Y	N	Y
Gaspe, Que.	CYGP	YGP	N	Y	Y	N	Y
Geraldton, Ont.	CYGQ	YGQ	N	Y	Y	N	Y
Gillam, Man.	CYGX	YGX	N	Y	Y	N	Y
Gjoa Haven, N.W.T.	CYHK	YHK	N	Y	Y	N	Y
Goose Bay/Goose, Nfld.	CYYR	YYR	Y	Y	Y	N	Y
Gore Bay-Manitoulin, Ont.	CYZE	YZE	N	Y	Y	N	Y
Grande Prairie, Alta.	CYQU	YQU	N	Y	Y	N	Y
Greenwood, N.S.	CYZX	YZX	N	Y	Y	N	Y
Halifax Intl, N.S.	CYHZ	YHZ	Y	Y	Y	N	Y
Halifax/Shearwater, N.S.	CYAW	YAW	N	Y	Y	N	Y
Hall Beach, N.W.T.	CYUX	YUX	N	Y	Y	N	Y
Hamilton, Ont.	CYHM	YHM	N	Y	Y	N	Y
Havre St-Pierre, Que.	CYGV	YGV	N	Y	Y	N	Y
Hay River, Y.T.	CYHY	YHY	N	Y	Y	N	Y
High Level, Alta.	CYOJ	YOJ	N	Y	Y	N	Y
Holman, N.W.T.	CYHI	YHI	N	Y	Y	N	Y
Hope, B.C.	CYHE	YHE	N	Y	Y	N	Y
Igloolik, N.W.T.	CYGT	YGT	N	Y	Y	N	Y
Iles-De-La-Madeleine, Que.	CYGR	YGR	N	Y	Y	N	Y
Inuvik (Mike Zubko) N.W.T.	CYEV	YEV	N	Y	Y	N	Y
Iqaluit, N.W.T.	CYFB	YFB	Y	Y	Y	N	Y
Island Lake, Man.	CYIV	YIV	N	Y	Y	N	Y
Kamloops, B.C.	CYKA	YKA	N	Y	Y	N	Y
Kangirsuk, Que.	CYAS	YAS	N	Y	Y	N	Y
Kapuskasing, Ont.	CYYU	YYU	N	Y	Y	N	Y
Kelowna, B.C.	CYLW	YLW	N	Y	Y	N	Y
Kenora, Ont.	CYQK	YQK	N	Y	Y	N	Y
Kitchener/Waterloo Regional, Ont.	CYKF	YKF	N	Y	Y	N	Y
Koala Nwt	CYOA	YOA	N	Y	Y	N	Y
Kugluktuk, N.W.T.	CYCO	YCO	N	Y	Y	N	Y
Kuujjuaq, Que.	CYVP	YVP	N	Y	Y	N	Y
Kuujjuarapik, Que.	CYGW	YGW	N	Y	Y	N	Y
La Grande Riviere, Que.	CYGL	YGL	N	Y	Y	N	Y
La Grande-3, Que.	CYAD	YAD	N	Y	Y	N	Y
La Grande-4, Que.	CYAH	YAH	N	Y	Y	N	Y
La Ronge, Sask.	CYVC	YVC	N	Y	Y	N	Y
Lethbridge, Alta.	CYQL	YQL	N	Y	Y	N	Y
Lloydminster, Alta.	CYLL	YLL	N	Y	Y	N	Y
London, Ont.	CYXU	YXU	N	Y	Y	N	Y

NAM - CANADA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Lourdes-De-Blanc-Sablon, Que	CYBX	YBX	N	Y	Y	N	Y
Lupin, N.W.T.	CYWO	YWO	N	Y	Y	N	Y
Lynn Lake, Man.	CYYL	YYL	N	Y	Y	N	Y
Mackenzie, B.C.	CYZY	YZY	N	Y	Y	N	Y
Matagami, Que.	CYNM	YNM	N	Y	Y	N	Y
Meadow Lake, Sask.	CYLJ	YLJ	N	Y	Y	N	Y
Medicine Hat, Alta.	CYXH	YXH	N	Y	Y	N	Y
Miramichi Airport	CYCH	YCH	N	Y	Y	N	Y
Moncton, N.B.	CYQM	YQM	N	Y	Y	N	Y
Mont-Joli, Que.	CYYY	YYY	N	Y	Y	N	Y
Montreal Intl (Mirabel), Que.	CYMX	YMX	Y	Y	Y	N	Y
Montreal/Pierre Elliot Trudeau International Airport	CYUL	YUL	Y	Y	Y	N	Y
Montreal/St-Hubert, Que	CYHU	YHU	N	Y	Y	N	Y
Moose Jaw, Sask.	CYMJ	YMJ	N	Y	Y	N	Y
Moosonee, Ont.	CYMO	YMO	N	Y	Y	N	Y
Muskoka, Ont.	CYQA	YQA	N	Y	Y	N	Y
Nanaimo, B.C.	CYCD	YCD	N	Y	Y	N	Y
Nanisivik, N.W.T.	CYSR	YSR	N	Y	Y	N	Y
Natashquan, Que.	CYNA	YNA	N	Y	Y	N	Y
Norman Wells, N.W.T.	CYVQ	YVQ	N	Y	Y	N	Y
North Battleford(Cameron Mcintosh),Sask.	CYQW	YQW	N	Y	Y	N	Y
North Bay, Ont.	CYYB	YYB	N	Y	Y	N	Y
Norway House, Man.	CYNE	YNE	N	Y	Y	N	Y
Ottawa/Gatineau, Que.	CYND	YND	N	Y	Y	N	Y
Ottawa/Macdonald-Cartier Intl, Ont.	CYOW	YOW	Y	Y	Y	N	Y
Paulatuk, N.W.T.	CYPC	YPC	N	Y	Y	N	Y
Peace River, Alta.	CYPE	YPE	N	Y	Y	N	Y
Pelly Bay (Town Site), N.W.T.	CYBB	YBB	N	Y	Y	N	Y
Penticton, B.C.	CYYF	YYF	N	Y	Y	N	Y
Peterborough, Ont.	CYPQ	YPQ	N	Y	Y	N	Y
Pickle Lake, Ont.	CYPL	YPL	N	Y	Y	N	Y
Pond Inlet, N.W.T.	CYIO	YIO	N	Y	Y	N	Y
Port Hardy, B.C.	CYZT	YZT	N	Y	Y	N	Y
Portage La Prairie/Southport, Man.	CYPG	YPG	N	Y	Y	N	Y
Powell River, B.C.	CYPW	YPW	N	Y	Y	N	Y
Prince Albert, Sask.	CYPA	YPA	N	Y	Y	N	Y
Prince George, B.C.	CYXS	YXS	N	Y	Y	N	Y
Prince Rupert, B.C.	CYPR	YPR	N	Y	Y	N	Y
Puvirnituq, Que.	CYPX	YPX	N	Y	Y	N	Y
Quebec/Jean Lesage Intl, Que.	CYQB	YQB	N	Y	Y	N	Y
Riviere-Du-Loup, Que.	CYRI	YRI	N	Y	Y	N	Y
Saint John, N.B.	CYSJ	YSJ	N	Y	Y	N	Y
Saskatoon/John G. Diefenbaker, Sask.	CYXE	YXE	N	Y	Y	N	Y

NAM - CANADA							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Schefferville, Que.	CYKL	YKL	N	Y	Y	N	Y
Sept-Iles, Que.	CYZV	YZV	N	Y	Y	N	Y
St. John's Intl, Nfld.	CYYT	YYT	Y	Y	Y	N	Y
Stephenville, Nfld.	CYJT	YJT	N	Y	Y	N	Y
Sydney, N.S.	CYQY	YQY	N	Y	Y	N	Y
Thunder Bay, Ont.	CYQT	YQT	N	Y	Y	N	Y
Toronto/Lester B. Pearson Intl, Ont.	CYYZ	YYZ	Y	Y	Y	N	Y
Trenton, Ns	CYTN	YTN	N	Y	Y	N	Y
Val-D'or, Que.	CYVO	YVO	N	Y	Y	N	Y
Vancouver Intl, B.C.	CYVR	YVR	Y	Y	Y	N	Y
Victoria Intl, B.C.	CYYJ	YYJ	Y	Y	Y	N	Y
Wabush, Nfld.	CYWK	YWK	N	Y	Y	N	Y
Whitehorse,	CYXY	YXY	N	Y	Y	N	Y
Windsor, Ont.	CYQG	YQG	Y	Y	Y	N	Y
Winnipeg Intl, Man.	CYWG	YWG	Y	Y	Y	N	Y
Yellowknife, N.W.T.	CYZF	YZF	N	Y	Y	N	Y
NAM - FRANCE							
Saint Pierre	LFVP		N	Y	Y	Y	N
NAM - NORTHERN MARIANA ISLANDS (UNITED STATES)							
West Tinian,Tinian Island	PGWT		N	Y	Y	N	Y
NAM - UNITED STATES							
Aberdeen Regional,Sd.	KABR	ABR	N	Y	Y	N	Y
Aberdeen/Phillips Aaf Proving Ground,Md.	KAPG	APG	N	Y	Y	N	Y
Abilene/Regional, Tx.	KABI	ABI	N	Y	Y	N	Y
Akron, Oh.	KAKR	AKR	N	Y	Y	N	Y
Akron-Canton Regional,Oh.	KCAK	CAK	N	Y	Y	N	Y
Albany Country, Ny.	KALB	ALB	N	Y	Y	N	Y
Albuquerque/Intl, Nm.	KABQ	ABQ	N	Y	Y	N	Y
Alexandria/Chandler Field, Mn.	KAXN	AXN	N	Y	Y	N	Y
Alexandria/England Afb, La	KAEX	AEX	N	Y	Y	N	Y
Alexandria/Esler Regional La	KESF	ESF	N	Y	Y	N	Y
Alice/Intl, Tx.	KALI	ALI	N	Y	Y	N	Y
Allentown-Bethlehem-Easton, Pa.	KABE	ABE	N	Y	Y	N	Y
Alpena County Regional,Mi.	KAPN	APN	N	Y	Y	N	Y
Alton/St Louis Regional,Il.	KALN	ALN	N	Y	Y	N	Y
Altoona-Blair County,Pa.	KAOO	AOO	N	Y	Y	N	Y
Amarillo Intl,Tx.	KAMA	AMA	N	Y	Y	N	Y
Anderson County,Sc.	KAND	AND	N	Y	Y	N	Y
Anniston Metropolitain,Al.	KANB	ANB	N	Y	Y	N	Y
Arcata/Eureka,Ca.	KACV	ACV	N	Y	Y	N	Y
Asheville Regional,Nc.	KAVL	AVL	N	Y	Y	N	Y
Aspen-Pitkin Co/Sardy Field, Co.	KASE	ASE	N	Y	Y	N	Y
Athens/Ben Epps, Ga.	KAHN	AHN	N	Y	Y	N	Y
Atlanta/De Kalb-Peachtree, Ga.	KPDK	PDK	N	Y	Y	N	N
Atlanta/Fulton County-Brown, Ga.	KFTY	FTY	N	Y	Y	N	Y
Atlantic City/Intl, Nj.	KACY	ACY	N	Y	Y	N	Y
Augusta/Bush Field, Ga.	KAGS	AGS	N	Y	Y	N	Y
Aurora/Buckley Angb,Co	KBKF	BKF	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Austin/Robert Mueller Municipal,Tx.	KAUS	BSM	N	Y	Y	N	Y
Baker/Muni,Or.	KBKE	BKE	N	Y	Y	N	Y
Bakersfield/Meadows Field, Ca.	KBFL	BFL	N	Y	Y	N	Y
Baltimore/Martin State,Md.	KMTN	MTN	N	Y	Y	N	Y
Baltimore-Washington I. Thurgood Marshall, Md.	KBWI	BWI	Y	Y	Y	N	Y
Bangor International, Me.	KBGR	BGR	Y	Y	Y	N	Y
Baton Rouge Metropolitan/Ryan Field,La.	KBTR	BTR	N	Y	Y	N	Y
Battle Creek/W.K.Kellogg,Mi.	KBTL	BTL	N	Y	Y	N	Y
Baudette Intl, Mn.	KBDE	BDE	N				
Beaumont Port-Arthur/Jefferson County, Tx.	KBPT	BPT	N	Y	Y	N	Y
Beckley/Raleigh County Memorial, Wv.	KBKW	BKW	N	Y	Y	N	Y
Bedford/Laurence G.Hanscom Field,Ma.	KBED	BED	N	Y	Y	N	Y
Bellingham/Intl, Wa.	KBLI	BLI	N	Y	Y	N	Y
Beverly/Muni,Ma.	KBVY	BVY	N	Y	Y	N	Y
Billings Logan Intl,Mt.	KBIL	BIL	N	Y	Y	N	Y
Binghamton Regional/Edwin A Linkfield,Ny.	KBGM	BGM	N	Y	Y	N	Y
Birmingham, Al.	KBHM	BHM	N	Y	Y	N	Y
Bismarck Muni,Nd.	KBIS	BIS	N	Y	Y	N	Y
Boise Air Terminal/Gowen Fld ,Id.	KBOI	BOI	N	Y	Y	N	Y
Boston/General Edward Lawrence Logan Intl, Ma.	KBOS	BOS	Y	Y	Y	N	Y
Bozeman Mt.Gallatin Fld.	KBZN	BZN	N	Y	Y	N	Y
Bradford Regional,Pa.	KBFD	BFD	N	Y	Y	N	Y
Bradley International, Ct.	KBDL	BDL	Y	Y	Y	N	Y
Bridgeport/Igor I Sikorsky Memorial,Ct.	KBDR	BDR	N	Y	Y	N	Y
Bristol-Kingsport-Johnson City/Tri City Rgnal,Tn.	KTRI	TRI	N	Y	Y	N	Y
Brownsville/South Padre Is. Intl, Tx.	KBRO	BRO	Y	Y	Y	N	Y
Brunswick/Glynco Jetport,Ga.	KBQK	BQK	N	Y	Y	N	Y
Brunswick/Malcom-Mckinnon,Mo	KSSI	SSI	N	Y	Y	N	Y
Buffalo/Greater Buffalo Intl, Ny.	KBUF	BUF	N	Y	Y	N	Y
Burbank/Glendale-Passadena, Ca.	KBUR	BUR	N	Y	Y	N	Y
Burley Muni,Id.	KBYI	BYI	N	Y	Y	N	Y
Burlington Muni,Ia.	KBRL	BRL	N	Y	Y	N	Y
Burlington/Intl, Vt.	KBTV	BTV	N	Y	Y	N	Y
Butte/Bert Mooney,Mt.	KBTM	BTM	N	Y	Y	N	Y
Calexico/Intl, Ca.	KCXL	CXL	Y	Y	Y	N	Y
Cape Girardeau Muni,Mo.	KCGI	CGI	N	Y	Y	N	Y
Caribou Muni, Me.	KCAR	CAR	N	Y	Y	N	Y
Carlsbad/Cavern City Air Terminal,Nm.	KCNM	CNM	N	Y	Y	N	Y
Casper/Natrona County Intl, Wy.	KCPR	CPR	N	Y	Y	N	Y
Cedar City Muni,Ut.	KCDC	CDC	N	Y	Y	N	Y
Cedar Rapids Muni,Ia.	KCID	CID	N	Y	Y	N	Y
Champaign-Urbana/University Of Il.Willard,Il.	KCMI	CMI	N	Y	Y	N	Y
Chandler/Williams Afb,Az.	KIWA	IWA	N	Y	Y	N	Y
Charleston/Afb Intl,Sc.	KCHS	CHS	N	Y	Y	N	Y
Charleston/Yeager,Wv.	KCRW	CRW	N	Y	Y	N	Y
Charlotte/Douglas International, Nc.	KCLT	CLT	N	Y	Y	N	Y
Charlottesville-Albemarle,Va	KCHO	CHO	N	Y	Y	N	Y
Chattanooga/Lovell, Tn.	KCHA	CHA	N	Y	Y	N	Y
Cherry Point Mcas/Cunningham Field,Nc.	KNKT	NKT	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Cheyenne/Cheyenne,Wy.	KCYS	CYS	N	Y	Y	N	Y
Chicago - O'hare International, Il.	KORD	ORD	Y	Y	Y	N	Y
Chicago/Chicago Midway,Il.	KMDW	MDW	Y	Y	Y	N	Y
Cincinnati/Muni Lunken Field Oh.	KLUK	LUK	N	Y	Y	N	Y
Clarksburg/Benedum,Wv.	KCKB	CKB	N	Y	Y	N	Y
Cleveland/Burke Lakefront, Oh.	KBKL	BKL	N	Y	Y	N	Y
Cleveland-Hopkins International, Oh.	KCLE	CLE		Y	Y	N	Y
College Station/ Easterwood Field, Tx.	KCLL	CLL	N	Y	Y	N	Y
Colorado Springs Municipal	KCOS	COS	N	Y	Y	N	Y
Columbia Mtropolitan,Sc.	KCAE	CAE	N	Y	Y	N	Y
Columbia Regional.Mo.	KCOU	COU	N	Y	Y	N	Y
Columbus Metropolitan,Ga.	KCSG	CSG	N	Y	Y	N	Y
Columbus/Port Columbus International, Oh.	KCMH	CMH	N	Y	Y	N	Y
Columbus/Rickenbacker,Oh.	KLCK	LCK	N	Y	Y	N	Y
Corpus Christi/Corpus Christi Nas	KNGP	NGP	N	Y	Y	N	Y
Corpus Christi/Intl,Tx.	KCRP	CRP	Y	Y	Y	N	Y
Covington-Cincinnati/Northern Kentucky Intl, Ky.	KCVG	CVG	N	Y	Y	N	Y
Crescent City/Jack Mcnamara Field Arpt,Ca.	KCEC	CEC	N	Y	Y	N	Y
Crestview/Bob Sikes, Fl.	KCEW	CEW	N	Y	Y	N	Y
Crossville Memorial,Tn.	KCSV	CSV	N	Y	Y	N	Y
Cut Bank Muni, Mt.	KCTB	CTB	N	Y	Y	N	Y
Dallas/Dallas-Love Field,Tx.	KDAL	DAL	N	Y	Y	N	Y
Dallas-Fort Worth International, Tx.	KDFW	DFW	Y	Y	Y	N	Y
Danville Regional,Va.	KDAN	DAN	N	Y	Y	N	Y
Dayton/James M. Cox Dayton Intl, Oh.	KDAY	DAY	N	Y	Y	N	Y
Daytona Beach Regional,Fl.	KDAB	DAB	N	Y	Y	N	Y
Decatur/Decatur,Il.	KDEC	DEC	N	Y	Y	N	Y
Del Rio/Laughlin Afb, Tx.	KDLF	DLF	Y	Y	Y	N	Y
Deming Muni,Nm.	KDMN	DMN	N	Y	Y	N	Y
Denver International	KDEN	DEN	Y	Y	Y	N	Y
Denver Jeffco Airpor	KBJC	BJC	N	Y	Y	N	Y
Des Moines Intl,Ia.	KDSM	DSM	N	Y	Y	N	Y
Detroit Metropolitan Wayne County, Mi.	KDTW	DTW	Y	Y	Y	N	Y
Detroit/Detroit City, Mi.	KDET	DET	N	Y	Y	N	Y
Detroit/Willow Run, Mi.	KYIP	YIP	N	Y	Y	N	Y
Dodge City Regional,Ks.	KDDC	DDC	N	Y	Y	N	Y
Dothan, Al.	KDHN	DHN	N	Y	Y	N	Y
Du Bois/Jefferson County,Pa.	KDUJ	DUJ	N	Y	Y	N	Y
Duluth/Intl, Mn.	KDLH	DLH	N	Y	Y	N	Y
Eagle County,Co.	KEGE	EGE	N	Y	Y	N	Y
Eau Claire County,Wi.	KEAU	EAU	N	Y	Y	N	Y
El Paso International, Tx.	KELP	ELP	N	Y	Y	N	Y
Elizabeth City Coast Guard, Nc.	KECG	ECG	N	Y	Y	N	Y
Elkins/Jennings Randolph Fld ,Wv.	KEKN	EKN	N	Y	Y	N	Y
Elko Muni-J.C. Harris Field, Nv	KEKO	EKO	N	Y	Y	N	Y
Elmira/Corning Regional,Ny.	KELM	ELM	N	Y	Y	N	Y
Ely/Muni,Mn.	KELO	ELO	N	Y	Y	N	Y
Erie Intl,Pa.	KERI	ERI	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Eugene/Mahlon Sweet Field,Or	KEUG	EUG	N	Y	Y	N	Y
Evansville Regional,In.	KEVV	EVV	N	Y	Y	N	Y
Everett/Snohomish County (Paine Field), Wa.	KPAE	PAE	Y	Y	Y	N	Y
Fargo/Hector Intl,Nd.	KFAR	FAR	N	Y	Y	N	Y
Farmingdale/Republic,Ny.	KFRG	FRG	N	Y	Y	N	Y
Fayetteville/Regional Grannis Field,Nc.	KFAY	FAY	N	Y	Y	N	Y
Flagstaff/Pulliam,Az.	KFLG	FLG	N	Y	Y	N	Y
Flint/Bishop Intl,Mi.	KFNT	FNT	N	Y	Y	N	Y
Florence Regional, Sc.	KFLO	FLO	N	Y	Y	N	Y
Fort Lauderdale/Hollywood International, Fl.	KFLL	FLL	Y	Y	Y	N	Y
Fort Myers/Southwest Florida International,	KRSW	RSW	N	Y	Y	N	Y
Fort Smith/Regional,Ar.	KFSM	FSM	N	Y	Y	N	Y
Fort Wayne International,In.	KFWA	FWA	N	Y	Y	N	Y
Fort Worth Alliance, Tx.	KAFW	AFW	N	Y	Y	N	Y
Fort Worth/Meacham,	KFTW	FTW	N	Y	Y	N	Y
Frenchville/Northern Aroostook Rgnl,Me.	KFVE	FVE	N	Y	Y	N	Y
Fresno Yosemite International, Ca.	KFAT	FAT	N	Y	Y	N	Y
Gainesville Regional, Fl.	KGNV	GNV	N	Y	Y	N	Y
Gallup,Nm.	KGUP	GUP	N	Y	Y	N	Y
Galveston,Tx,Scholes Fld.	KGLS	GLS	N	Y	Y	N	Y
Galveston/Walker Field,Co,	KGJT	GJT	N	Y	Y	N	Y
Garden City, Ks.	KGCK	GCK	N	Y	Y	N	Y
Gary,In.	KGYY	GYY	N	Y	Y	N	Y
George Bush Intercontinental/Houston,	KIAH	IAH	Y	Y	Y	N	Y
Glasgow/Intl,Mt.	KGGW	GGW	N	Y	Y	N	Y
Glens Falls/Warren County, Ny.	KGFL	GFL	N	Y	Y	N	Y
Grand Canyon/National Park, Az.	KGCN	GCN	N	Y	Y	N	Y
Grand Forks/Intl, Nd.	KGFK	GFK	N	Y	Y	N	Y
Grand Rapids/Kent County Intl,Mi.	KGRR	GRR	N	Y	Y	N	Y
Grande Island/Central Nebraska Regional,Ne.	KGRI	GRI	N	Y	Y	N	Y
Great Falls/Intl, Mt.	KGTF	GTF	N	Y	Y	N	Y
Greenbay/Austin Straubel,Wi.	KGRB	GRB	N	Y	Y	N	Y
Greensboro,N.C,Piedmont Triad Intl.	KGSO	GSO	N	Y	Y	N	Y
Greenwood/Le Flore Arpt,Ms.	KGWO	GWO	N	Y	Y	N	Y
Greer/Greenville-Spartanburg ,Sc.	KGSP	GSP	N	Y	Y	N	Y
Groton-New London,Ct.	KGON	GON	N				
Gulfport/Biloxi Regional,Ms	KGPT	GPT	N	Y	Y	N	Y
Gwinn/K.I. Sawyer Afb,Mi.	KSAW	SAW	N	Y	Y	N	Y
Hancock, Mi Houghton County Memorial	KCMX	CMX	N	Y	Y	N	Y
Harlingen/Rio Grande Valley Intl,Tx.	KHRL	HRL	Y	Y	Y	N	Y
Harrisburg/Intl,Pa.	KMDT	DT	N	Y	Y	N	Y
Harrison/Boone County, Ar.	KHRO	HRO	N	Y	Y	N	Y
Hartford/Brainard ,Ct.	KHFD	HFD	N	Y	Y	N	Y
Hartsfield - Jackson Atlanta International, Ga.	KATL	ATL	N	Y	Y	N	Y
Helena Regional,Mt.	KHLN	HLN	N	Y	Y	N	Y
Hibbing/Chisholm-Hibbing, Mn.	KHIB	HIB	N	Y	Y	N	Y
Hickory/Regional, Nc	KHKY	HKY	N	Y	Y	N	Y
Hoqiam/Bowerman Fld,Wa.	KHQM	HQM	N	Y	Y	N	Y
Hot Springs/Memorial Field, Ar.	KHOT	HOT	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Houston/William P. Hobby,Tx.	KHOU	HOU	N	Y	Y	N	Y
Huntington/Tri-State Milton J.Ferguson Field,W	KHTS	HTS	N	Y	Y	N	Y
Huntsville/Intl Carl T.Jones Field,Al.	KHSV	HSV	N	Y	Y	N	Y
Huron Regional,Sd.	KHON	HON	N	Y	Y	N	Y
Hutchinson, Ks.	KHUT	HUT	N	Y	Y	N	Y
Hyannis/Barnstable Muni-Boardman P. Field,Ma.	KHYA	HYA	N	Y	Y	N	Y
Idaho Falls/Fanning Field,Id .	KIDA	IDA	N	Y	Y	N	Y
Indianapolis International,	KIND	IND	Y	Y	Y	N	Y
International Falls, Mn Y	KINL	INL	N	Y	Y	N	Y
Islip/Long Island Macarthur, Ny.	KISP	ISP	N	Y	Y	N	Y
Jackson County/Reynolds Field,Mi.	KJXN	JXN	N	Y	Y	N	Y
Jackson Hole,Wy	KJAC	JAC	N	Y	Y	N	Y
Jackson/Intl ,Ms.	KJAN	JAN	N	Y	Y	N	Y
Jackson/Mc Kellar-Sipes Regional,Tn.	KMKL	MKL	N	Y	Y	N	Y
Jacksonville/Intl, Fl..	KJAX	JAX	N	Y	Y	N	Y
Jamestown Muni,Nd.	KJMS	JMS	N	Y	Y	N	Y
Johnstown-Cambria County,Pa.	KJST	JST	N	Y	Y	N	Y
Jonesboro Muni,Ar.	KJBR	JBR	N	Y	Y	N	Y
Joplin Regional,Mo.	KJLN	JLN	N	Y	Y	N	Y
Kalamazoo/Battle Creek Intl, Mi.	KAZO	AZO	N	Y	Y	N	Y
Kankakee/Greater,Il.	KIKK	IKK	N	Y	Y	N	Y
Kansas City International, Mo.	KMCI	MCI	N	Y	Y	N	Y
Kansas City/Kansas City Downtown,Mo.	KMKC	MKC	N	Y	Y	N	Y
Key West/Key West Intl, Fl.	KEYW	EYW	N	Y	Y	N	Y
Kirksville/ Regional,Mo.	KIRK	IRK	N	Y	Y	N	Y
Klamath Falls Intl,Or.	KLMT	LMT	N	Y	Y	N	Y
Knoxville/Mcgee Tyson,Tn.	KTYS	TYS	N	Y	Y	N	Y
La Crosse Muni,Wi.	KLSE	LSE	N	Y	Y	N	Y
Lafayette/Regional, La.	KLFT	LFT	N	Y	Y	N	Y
Lake Charles/Regional,La.	KLCH	LCH	N	Y	Y	N	Y
Lansing/Capital City,Mi.	KLAN	LAN	N	Y	Y	N	Y
Laramie/General Brees Field Wy.	KLAR	LAR	N	Y	Y	N	Y
Laredo International, Tx.	KLRD	LRD	Y	Y	Y	N	Y
Las Cruces/Intl,Nm.	KLRU	LRU	N	Y	Y	N	Y
Las Vegas/Mccarran International, Nv.	KLAS	LAS	Y	Y	Y	N	Y
Latrobe/Westmorland County, Pa.	KLBE	LBE	N	Y	Y	N	Y
Lawrence/Muni,Ma.	KLWM	LWM	N	Y	Y	N	Y
Lebanon Muni,Nh.	KLEB	LEB	N	Y	Y	N	Y
Lexington/Blue Grass,Ky.	KLEX	LEX	N	Y	Y	N	Y
Liberal Muni,Ks.	KLBL	LBL	N	Y	Y	N	Y
Lincoln/Municipal, Ne.	KLNK	LNK	N	Y	Y	N	Y
Little Rock/Adams Field,Ar.	KLIT	LIT	N	Y	Y	N	Y
Livingston/Mission Field,Mt.	KLVM	LVM	N	Y	Y	N	Y
London-Corbin/Mage Field,Ky.	KLOZ	LOZ	N	Y	Y	N	Y
Long Beach/Daugherty Field, Ca.	KLGB	LGB	N	Y	Y	N	Y
Longview/Gregg County, Tx.	KGGG	GGG	N	Y	Y	N	Y
Los Angeles International, Ca.	KLAX	LAX	N	Y	Y	N	Y
Louisville/Bowman Field,Ky.	KLOU	LOU	N	Y	Y	N	Y
Louisville/Standiford,Ky.	KSDF	SDF	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Lubbock/Intl, Tx.	KLBB	LBB	N	Y	Y	N	Y
Lynchburg/Regional Preston Glenn Field,Va.	KLYH	LYH	N	Y	Y	N	Y
Macon/Middle Georgia Regional,Ga.	KMCN	MCN	N	Y	Y	N	Y
Madison/Dane County Regional Truax Field,Wi.	KMSN	MSN	N	Y	Y	N	Y
Manchester/Manchester,Nh.	KMHT	MHT	N	Y	Y	N	Y
Manhattan/Muni,Ks.	KMHK	MHK	N	Y	Y	N	Y
Mansfield/Lahm Muni,Oh.	KMFD	MFD	N	Y	Y	N	Y
Martinsburg/Eastern Wv. Regl-Shepherd Field,Wv.	KMRB	MRB	N	Y	Y	N	Y
Marysville/Yuba County Aprt, Ca.	KMYV	MYV	N	Y	Y	N	Y
Massena/Intl Richards Field, Ny	KMSS	MSS	N	Y	Y	N	Y
Mcalester/Regional,Ok.	KMLC	MLC	N	Y	Y	N	Y
Mcallen/Miller Intl, Tx.	KMFE	MFE	N	Y	Y	N	Y
Medford-Jackson County,Or.	KMFR	MFR	N	Y	Y	N	Y
Melbourne/Regional,Fl.	KMLB	MLB	N	Y	Y	N	Y
Memphis International, Tenn.	KMEM	MEM	N	Y	Y	N	Y
Meridian/Key Field,Ms.	KMEI	MEI	N	Y	Y	N	Y
Metropolitan Oakland International, Ca.	KOAK	OAK	N	Y	Y	N	Y
Miami International, Fl.	KMIA	MIA	Y	Y	Y	N	Y
Midland/Intl,Tx.	KMAF	MAF	N	Y	Y	N	Y
Miles City/Frank Wiley Field Mt.	KMLS	MLS	N	Y	Y	N	Y
Millville/Muni, Nj.	KMIV	MIV	N	Y	Y	N	Y
Milwaukee/General Mitchell International, Wi.	KMKE	MKE	Y	Y	Y	N	Y
Minneapolis-St. Paul Intl (Wold Chamberlain), Mn.	KMSP	MSP	Y	Y	Y	N	Y
Minot/Intl, Nd.	KMOT	MOT	N	Y	Y	N	Y
Missoula/Intl,Mt.	KMSO	MSO	N	Y	Y	N	Y
Mobile Downtown, Al	KBFM	BFM	N	Y	Y	N	Y
Mobile/Regional, Al.	KMOB	MOB	N	Y	Y	N	Y
Moline/Quad-City,Il.	KMLI	MLI	N	Y	Y	N	Y
Monroe/Monroe Regional,La.	KMLU	MLU	N	Y	Y	N	Y
Monterey/Peninsula,Ca.	KMRY	MRY	N	Y	Y	N	Y
Montgomery/Dannelly Field,Al	KMGM	MGM	N	Y	Y	N	Y
Morgantown/Muni-Walter L. Bill Hart Fld,Wv.	KMGW	MGW	N	Y	Y	N	Y
Morristown/Muni,Nj.	KMMU	MMU	N	Y	Y	N	Y
Muscle Shoals/Regional,Ms.	KMSL	MSL	N	Y	Y	N	Y
Muskegon/County,Mi.	KMKG	MKG	N	Y	Y	N	Y
Myrtle Beach/Myrtle Beach Afb, Sc.	KMYR	MYR	N	Y	Y	N	Y
Nantucket Memorial, Ma.	KACK	ACK	N	Y	Y	N	Y
Naples-Muni,Fl.	KAPF	APF	N	Y	Y	N	Y
Nashville International, Tn.	KBNA	BNA	N	Y	Y	N	Y
New Bedford/Muni,Ma.	KEWB	EWB	N	Y	Y	N	Y
New Bern/Craven County Regional,Nc.	KEWN	EWN	N	Y	Y	N	Y
New Haven/Tweed,Ct.	KHVN	HVN	N	Y	Y	N	Y
New Orleans/Lakefront,La.	KNEW	NEW	N	Y	Y	N	Y
New Orleans/Louis Armstrong New Orleans Intl,	KMSY	MSY	N	Y	Y	N	Y
New York/John F. Kennedy International, Ny.	KJFK	JFK	Y	Y	Y	N	Y
New York/La Guardia, Ny.	KLGA	LGA	N	Y	Y	N	Y
Newark Liberty International, Nj.	KEWR	EWR	Y	Y	Y	N	Y
Newburgh/Stewart Intl,Ny.	KSWF	SWF	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Newport News/Williamsburg Intl,Va.	KPHF	PHF	N	Y	Y	N	Y
Niagara Falls International, Ny.	KIAG	IAG	N	Y	Y	N	Y
Norfolk/Intl,Va.	KORF	ORF	N	Y	Y	N	Y
North Bend Muni,Or.	KOTH	OTH	N	Y	Y	N	Y
North Kingstown/Quonset State,Ri.	KOQU	OQU	N	Y	Y	N	Y
North Platte/Regional,Ne.	KLBF	LBF	N	Y	Y	N	Y
Ogden/Hinckley,Ut.	KOGD	OGD	N	Y	Y	N	Y
Oklahoma City/Will Roger World, Ok.	KOKC	OKC	N	Y	Y	N	Y
Olympia,Wa.	KOLM	OLM	N	Y	Y	N	Y
Omaha/Eppley Air Field,Ne.	KOMA	OMA	N	Y	Y	N	Y
Omaha/Offut Afb,Ne.	KOFF	OFF	N	Y	Y	N	Y
Ontario International, Ca.	KONT	ONT	Y	Y	Y	N	Y
Orlando International, Fl.	KMCO	MCO	N	Y	Y	N	Y
Orlando/Central Florida Regional,Fl.	KSFB	SFB	N	Y	Y	N	Y
Oshkosh/Wittman Regional,Wi.	KOSH	OSH	N	Y	Y	N	Y
Ottumwa/Industrial,Ia.	KOTM	OTM	N	Y	Y	N	Y
Owensboro-Davies County,Ky.	KOWB	OWB	N	Y	Y	N	Y
Paducah/Barkley Regional,Ky.	KPAH	PAH	N	Y	Y	N	Y
Palm Beach International, Fl.	KPBI	PBI	Y	Y	Y	N	Y
Palm Springs/Regional,Ca	KPSP	PSP	N	Y	Y	N	Y
Palmdale Production Flight/Test Intl Af Plant Ca.	KPMD	PMD	Y	Y	Y	N	Y
Panama City/Bay County,Fl.	KPFN	PFN	N	Y	Y	N	Y
Parkeresburg/Wood County-Gil Robb Wilson Arpt	KPKB	PKB	N	Y	Y	N	Y
Paso Robles/Muni,Ca.	KPRB	PRB	N	Y	Y	N	Y
Pellston/Regional Airport Of Emmet County,Mi.	KPLN	PLN	N	Y	Y	N	Y
Pensacola/Regional, Fl.	KPNS	PNS	N	Y	Y	N	Y
Peoria/Greaterpreoria Regional,Il.	KPIA	PIA	N	Y	Y	N	Y
Philadelphia International, Pa.	KPHL	PHL	N	Y	Y	N	Y
Phoenix Sky Harbor International, Az.	KPHX	PHX	N	Y	Y	N	Y
Pierre/Muni,Sd.	KPIR	PIR	N	Y	Y	N	Y
Pittsburgh/Allegheny County, Pa.	KAGC	AGC	N	Y	Y	N	Y
Pittsburgh/Pittsburgh International, Pa.	KPIT	PIT	Y	Y	Y	N	Y
Plattsburgh/Clinton Co,Ny.	KPLB	PLB	N	Y	Y	N	Y
Pocatello/Regional,Id.	KPIH	PIH	N	Y	Y	N	Y
Point Mugu/Point Mugu Nas, Ca.,U.S	KNTD	NTD	N	Y	Y	N	Y
Pontiac-Oakland,Mi.	KPTK	PTK	N	Y	Y	N	Y
Port Angeles/William R. Fairchild Intl,Wa.	KCLM	CLM	N	Y	Y	N	Y
Portland International, Or.	KPDX	PDX	Y	Y	Y	N	Y
Portland/Intl Jetport,Me.	KPWM	PWM	N	Y	Y	N	Y
Portsmouth/Pease Intl Tradeport,Nh.	KPSM	PSM	N	Y	Y	N	Y
Poughkeepsie/Dutchess County Ny.	KPOU	POU	N	Y	Y	N	Y
Prescott/Ernest A, Love Field,Az.	KPRC	PRC	N	Y	Y	N	Y
Presque Is/Northern Maine Regional Arpt,Me.	KPQI	PQI	N	Y	Y	N	Y
Providence/Theodore Francis Greene State,Ri.	KPVD	PVD	N	Y	Y	N	Y
Pueblo Memorial, Co.	KPUB	PUB	Y	Y	Y	N	Y
Quincy/Muni Baldwin Field, Il.	KUIN	UIN	N	Y	Y	N	Y
Raleigh-Durham International, Nc.	KRDU	RDU	N	Y	Y	N	Y
Rapid City/Regional,Sd.	KRAP	RAP	N	Y	Y	N	Y
Reading/Regional Carl A. Spaatz Field,Pa.	KRDG	RDG	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Red Bluff/Muni,Ca.	KRBL	RBL	N	Y	Y	N	Y
Redding/Muni,Ca.	KRDD	RDD	N	Y	Y	N	Y
Redmond/Roberts Field,Or.	KRDM	RDM	N	Y	Y	N	Y
Reno/Tahoe International, Nv.	KRNO	RNO	N	Y	Y	N	Y
Renton/Muni,Wa.	KRNT	RNT	N	Y	Y	N	Y
Richmond/Intl (Byrd Field), Va.	KRIC	RIC	N	Y	Y	N	Y
Roanoke/Regional Woodrum Field,Va.	KROA	ROA	N	Y	Y	N	Y
Rochester/Greater Rochester Intl,Ny.	KROC	ROC	N	Y	Y	N	Y
Rochester/Muni,Mn.	KRST	RST	N	Y	Y	N	Y
Rockford/Greater Rockford,Il	KRFD	RFD	N	Y	Y	N	Y
Rocksprings/Swetwater County Wy.	KRKS	RKS	N	Y	Y	N	Y
Rocky-Mount/Wilson,Nc.	KRWI	RWI	N	Y	Y	N	Y
Roswell/Industrial Air Center, Nm.	KROW	ROW	N	Y	Y	N	Y
Sacramento International, Ca.	KSMF	SMF	N	Y	Y	N	Y
Sacramento/Executive, Ca.	KSAC	SAC	N	Y	Y	N	Y
Saginaw/Tri City Intl,Mi.	KMBS	MBS	N	Y	Y	N	Y
Salina/Muni,Ks.	KSLN	SLN	N	Y	Y	N	Y
Salinas/Muni,Ca.	KSNS	SNS	N	Y	Y	N	Y
Salisbury/Wicomico County Regional,Md.	KSBY	SBY	N	Y	Y	N	Y
Salt Lake City International, Ut.	KSLC	SLC	N	Y	Y	N	Y
San Angelo/Mathis Field,Tx.	KSJT	SJT	N	Y	Y	N	Y
San Antonio International, Tx.	KSAT	SAT	Y	Y	Y	N	Y
San Bernardino/Norton Afb, Ca.	KSBD	SBD	N	Y	Y	N	Y
San Diego International, Ca.	KSAN	SAN	Y	Y	Y	N	Y
San Diego/Brown Fld Muni,Ca.	KSDM	SDM	N	Y	Y	N	Y
San Francisco/Intl,Ca.	KSFO	SFO	Y	Y	Y	N	Y
San Jose Norman Y. Mineta International, Ca.	KSJC	SJC	Y	Y	Y	N	Y
San Lui Obispo/County Mc Chesney Field,Ca.	KSBP	SBP	N	Y	Y	N	Y
Santa Ana/John Wayne Arpt Orange County,Ca	KSNA	SNA	N	Y	Y	N	Y
Santa Barbara/Muni,Ca.	KSBA	SBA	N	Y	Y	N	Y
Santa Maria/Publiv,Ca.	KSMX	SMX	N	Y	Y	N	Y
Saranac Lake/Adirondack,Ny.	KSLK	SLK	N	Y	Y	N	Y
Sarasota/Bradenton,Fl.	KSRQ	SRQ	N	Y	Y	N	Y
Sault Ste Marie/Chippewa County Intl,Mi.	KCIU	CIU	N	Y	Y	N	Y
Savannah/Intl, Ga.	KSAV	SAV	N	Y	Y	N	Y
Schenectady,Ny.	KSCH	SCH	N	Y	Y	N	Y
Scottsbluff/William B.Heilig Field,Ne.	KBFF	BFF	N	Y	Y	N	Y
Scranton/Wilkes-Barre Intl, Pa.	KAVP	AVP	N	Y	Y	N	Y
Seattle Boeing Field/King Country Intl, Wa.	KBFI	BFI	N	Y	Y	N	Y
Seattle/Seattle-Tacoma International, Wa.	KSEA	SEA	Y	Y	Y	N	Y
Sheridan/County,Wy	KSHR	SHR	N	Y	Y	N	Y
Shreveport/Regional,La.	KSHV	SHV	N	Y	Y	N	Y
Sioux City/Gateway,Ia.	KSUX	SUX	N	Y	Y	N	Y
Sioux Falls/Joe Foss Field, Sd.	KFSD	FSD	N	Y	Y	N	Y
South Bend/Michiana Rgnal, In.	KSBN	SBN	N	Y	Y	N	Y
South Lake Tahoe/Lake Tahoe, Ca.	KTVL	TVL	N	Y	Y	N	Y
Southwest Georgia Regional, Albany,Ga.	KABY	ABY	N	Y	Y	N	Y
Spokane International, Wa.	KGEG	GEG	Y	Y	Y	N	Y
Spokane/Felts Field,Wa.	KSFF	SFF	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Springfield/Capital,Il.	KSPI	SPI	N	Y	Y	N	Y
Springfield/Regional,Mo.	KSGF	SGF	N	Y	Y	N	Y
Springfield-Chicope/Westover Afb Metropolit	KCEF	CEF	N	Y	Y	N	Y
St Cloud/Muni,Mn.	KSTC	STC	N	Y	Y	N	Y
St Joseph/Rosecrans Memorial Mo.	KSTJ	STJ	N	Y	Y	N	Y
St Paul/Downtown Holman Fld, Mn.	KSTP	STP	N	Y	Y	N	Y
St. Louis, Mo.Spirit Of St Louis	KSUS	SUS	N	Y	Y	N	Y
St. Louis/Lambert-St. Louis International, Mo.	KSTL	STL	Y	Y	Y	N	Y
St. Petersburg/Clearwater Intl, Fl.	KPIE	PIE	N	Y	Y	N	Y
Stockton Metropolitan, Ca.	KSCK	SCK	Y	Y	Y	N	Y
Syracuse Hancock International, Ny.	KSYR	SYR	Y	Y	Y	N	Y
Tacoma/Tacoma Narrows,Wa.	KTIW	TIW	N	Y	Y	N	Y
Tallahassee/Regional,Fl.	KTLH	TLH	N	Y	Y	N	Y
Tampa International, Fl.	KTPA	TPA	Y	Y	Y	N	Y
Terre Haute/Hulman Regional, In.	KHUF	HUF	N	Y	Y	N	Y
Teterboro, Nj.	KTEB	TEB	N	Y	Y	N	Y
Texarkana/Regional-Webb Fld Tx.	KTXK	TXK	N	Y	Y	N	Y
Toledo/Express,Oh.	KTOL	TOL	N	Y	Y	N	Y
Trenton/Mercer County,Nj.	KTTN	TTN	N	Y	Y	N	Y
Treverse City/Cherry Capital Mi.	KTVC	TVC	N	Y	Y	N	Y
Truth Or Consequences/ Municipal, Nm.	KTCS	TCS	N	Y	Y	N	Y
Tucson International, Az.	KTUS	TUS	Y	Y	Y	N	Y
Tucumcari/Muni, Nm.	KTCC	TCC	N	Y	Y	N	Y
Tulsa/Intl, Ok.	KTUL	TUL	N	Y	Y	N	Y
Tupelo/Muni-C D Lemons,Ms.	KTUP	TUP	N	Y	Y	N	Y
Tuscaloosa/Muni,Al.	KTCL	TCL	N	Y	Y	N	Y
Twin Falls/Sun Valley Regnl Joslin Fld,Id.	KTWF	TWF	N	Y	Y	N	Y
Tyler/Pounds Field,Tx.	KTYR	TYR	N	Y	Y	N	Y
Ukiah/Muni,Ca	KUKI	UKI	N	Y	Y	N	Y
Utica/Oneida County,Ny.	KUCA	UCA	N	Y	Y	N	Y
Valdosta/Regional,Ga.	KVLD	VLD	N	Y	Y	N	Y
Vero Beach/Vero Beach Muni, Fl.	KVRB	VRB	N	Y	Y	N	Y
Victoria/Regional,Tx.	KVCT	VCT	N	Y	Y	N	Y
Waco Regional, Tx.	KACT	ACT	N	Y	Y	N	Y
Walla Walla Regional,Wa.	KALW	ALW	N	Y	Y	N	Y
Washington Dulles International, Dc.	KIAD	IAD	Y	Y	Y	N	Y
Washington/National, Dc.	KDCA	DCA	N	Y	Y	N	Y
Waterloo Muni,Ia.	KALO	ALO	N	Y	Y	N	Y
Watertown Muni,Sd.	KATY	ATY	N	Y	Y	N	Y
Watertown/Intl,Ny.	KART	ART	N	Y	Y	N	Y
Westfield/Barnes Muni,Ma.	KBAF	BAF	N	Y	Y	N	Y
White Plains/Westchester County Ny.	KHPN	HPN	N	Y	Y	N	Y
Wichita Mid-Continent, Ks.	KICT	ICT	Y	Y	Y	N	Y
Williamsport/Lycoming County Pa.	KIPT	IPT	N	Y	Y	N	Y
Wilmington/New Castle,De.	KILG	ILG	N	Y	Y	N	Y
Wilmington/New Hannover Intl, Nc.	KILM	ILM	N	Y	Y	N	Y
Wink/Winkler County, Tx.	KINK	INK	N	Y	Y	N	Y
Winston Salem/Smith Reynolds, Nc.	KINT	INT	N	Y	Y	N	Y
Worcester/Muni,Ma.	KORH	ORH	N	Y	Y	N	Y

NAM - UNITED STATES							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
Worland/Muni,Wy.	KWRL	WRL	N	Y	Y	N	Y
Wrightstown/Mcguire Afb,Nj.	KWRI	WRI	N	Y	Y	N	Y
Yakima/Air Terminal,Wa.	KYKM	YKM	N	Y	Y	N	Y
Youngstown/Muni, Oh.	KYNG	YNG	N	Y	Y	N	Y
Yuma/Yuma Mcas.Yuma Intl,Az.	KYUM	YUM	N	Y	Y	N	Y
Zanesville,Oh.	KZZV	ZZV	N	Y	Y	N	Y

ANNEX 1 – NAT

NAT - BERMUDA (UNITED KINGDOM)							
Name of Aerodrome	**CCCC**	**IATA**	**AOP**	**SA**	**SP**	**FC**	**FT**
L.F. Wade International Airport	TXKF	BDA	Y	Y	Y	N	Y
NAT - DENMARK							
Vagar Y	EKVG		N	Y	Y	Y	N
NAT - GREENLAND (DENMARK)							
Ilulissat Y	BGJN		N	Y	Y	Y	N
Kangerlussuaq	BGSF	SFJ	N	Y	Y	N	Y
Kulusuk	BGKK		N	Y	Y	Y	N
Narsarsuaq	BGBW		N	Y	Y	Y	N
Nuuk	BGGH		N	Y	Y	Y	N
Thule Air Base (Mil)	BGTL	THU	N	Y	Y	N	Y
NAT - ICELAND							
Akureyri	BIAR	AEY	Y	Y	Y	N	Y
Egilsstadir	BIEG	EGS	Y	Y	Y	N	Y
Hofn/Hornafjordur	BIHN	HFN	N	Y	Y	Y	N
Isafjordur	BIIS	IFJ	N	Y	Y	Y	N
Keflavik Airport,App/Twr,Ops,Met	BIKF	KEF	Y	Y	Y	N	Y
Reykjavik Airport,Nof,Met	BIRK	REK	Y	Y	Y	N	Y
Saudarkrokur	BIKR	SAK	N	Y	Y	Y	N
Vestmannaeyjar	BIVM	VEY	N	Y	Y	Y	N
NAT - PORTUGAL (MADEIRA AND AZORES) (PORTUGAL)							
Ponta Delgada	LPPD	PDL	Y	Y	Y	N	Y
Santa Maria	LPAZ	SMG	Y	Y	Y	N	Y

AFI OPMET DB Catalogue Section 2 :

SIGMET

Structure of the tables :

- State
- FIR name
- CCCC ICAO location indicator of the FIR/UIR

The tables are sorted by ICAO regions:

- AFI
- ASIA/PAC
- CAR/SAM
- EUR
- MID
- NAM
- NAT

ANNEX 2 – AFI

State	FIR Name	CCCC
Algeria	Alger FIR/SRR	DAAA
ANGOLA	Luanda FIR/SRR	FNAN
BOTSWANA	Gaborone FIR/SRR	FBGR
BURUNDI	Bujumbura FIR	HBBA
CANARY ISLANDS (Spain)	Canarias FIR and Grando RSS	GCCC
CAPE VERDE	Sal Oceanic FIR/SRR	GVSC
CHAD	N'Djamena FIR/SRR	FTTT
CONGO	Brazzaville FIR/SRR	FCCC
DEMOCRATIC REP. OF THE CONGO	Zaire FIR, Kinshasa SRR	FZAA
EGYPT	Cairo FIR/SRR	HECC
ETHIOPIA	Addis Ababa FIR/SRR	HAAA
ERITREA	Asmara FIR	HHAA
GHANA	Accra FIR/SRR	DGAC
KENYA	Nairobi FIR/SRR	HKNA
LIBERIA	Roberts FIR/SRR	GLRB
LIBYAN ARAB JAMAHIRIYA	Tripoli FIR/SRR	HLLL
MADAGASCAR	Antananarivo FIR/SRR	FMMM
MALAWI	Lilongwe FIR/SRR	FWLL
MAURITIUS	Mauritius FIR/SRR	FIMM
MOROCCO	Casablanca FIR/SRR	GMMM
MOZAMBIQUE	Beira FIR/SRR	FQBE
NAMIBIA	Windhoek FIR/SRR	FYWH
NIGER	Niamey FIR/SRR	DRRR
NIGERIA	Kano FIR/SRR	DNKK
RWANDA	Kigali FIR/SRR	HRYR
SENEGAL	Dakar FIR/SRR	GOOO
	Dakar oceanic FIR	
SEYCHELLES	Seychelles FIR/SRR	FSSS
SOMALIA	Mogadishu FIR/SRR	HCSM
SOUTH AFRICA	Johannesburg FIR/ARCC	FAJS
SUDAN	Khartoum FIR/SRR	HSSS
TUNISIA	Tunis FIR/UIR	DTTC
UGANDA	Entebbe FIR	HUEC
UNITED REPUBLIC OF TANZANIA	Dar-es-Salaam FIR	HTDC
ZAMBIA	Lusaka FIR/SRR	FLFI
ZIMBABWE	Harare FIR/SRR	FVHA

ANNEX 2 – ASIA/PAC

State	FIR Name	CCCC
AUSTRALIA	Melbourne FIR 1)	YMMM
	Brisbane FIR 2)	YBBB
BANGLADESH	Dhaka FIR and SRR	VGFR
CAMBODIA	Phnom-Penh FIR and SRR	VDPP
CHINA	Beijing FIR and SRR	ZBPE
	Guangzhou FIR and SRR	ZGZU
	Kunming FIR and SRR	ZPKM
	Lanzhou FIR and SRR	ZLHW
	Sanya FIR and SRR	ZJSA
	Shanghai FIR and SRR	ZSHA
	Shenyang FIR and SRR	ZYSH
	Taibei FIR and SRR	RCAA
	Urumqi FIR and SRR	ZWUQ
	Wuhan FIR and SRR	ZHWH
	Hong Kong FIR and SRR	VHHK
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	Pyongyang FIR and SRR	ZKKK
FIJI	Nadi FIR and SRR	NFFF
FRENCH POLYNESIA	Tahiti FIR and SRR	NTTT
INDIA	Chennai FIR and SRR	VOMF
	Delhi FIR and SRR	VIDF
	Kolkata FIR and SRR	VECF
	Mumbai FIR and SRR	VABF
INDONESIA	Jakarta FIR/UIR and SRR	WIIF
	Ujung Pandang FIR/UIR and SRR	WAAF
JAPAN	Fukuoka FIR and Tokyo SRR	RJJJ
LAO PEOPLE'S DEMOCRATIC REPUBLIC	Vientiane FIR and SRR	VLVT
MALAYSIA	Kota Kinabalu FIR and SRR	WBFC
	Kuala Lumpur FIR and SRR	WMFC
MALDIVES	Male FIR and SRR	VRMM
MONGOLIA	Ulan Bator FIR and SRR	ZMUB
MYANMAR	Yangon FIR and SRR	VYYY
NAURU	Nauru FIR and SRR	ANAU
NEPAL	Kathmandu FIR and SRR	VNSM
NEW ZEALAND	Auckland Oceanic FIR and SRR	NZZO
	New Zealand FIR AND SRR	NZZC
PAKISTAN	Karachi FIR and SRR	OPKR
	Lahore FIR and SRR	OPLR
PAPUA NEW GUINEA	Port Moresby FIR and SRR	AYPY
PHILIPPINES	Manila FIR and SRR	RPHI
REPUBLIC OF KOREA	Incheon FIR and SRR	RKRR
SINGAPORE	Singapore FIR and SRR	WSJC
SOLOMON ISLANDS	Honiara FIR and SRR	AGGG
SRI LANKA	Colombo FIR and SRR	VCBI
THAILAND	Bangkok FIR and SRR	VTBB
UNITED STATES	Anchorage FIR	PAZA
	Oakland Oceanic and Honolulu SRR.	KZOA
	Oakland Oceanic FIR	KZOA
VIET NAM	Hanoi FIR and SRR	VVNB
	Ho-Chi-Minh FIR and SRR	VVTS

ANNEX 2 – EUR

State	FIR Name	CCCC
ALBANIA	Tirana FIR/RCC	LAAA
ARMENIA	Yerevan FIR/Armenia SRR	UDYZ
AUSTRIA	Wien FIR/RCC	LOVV
AZERBAIJAN	Baku FIR	UBBB
BELARUS	Minsk FIR/Belarus SRR	UMMV
BELGIUM	Brussels FIR/SRR	EBBU
BOSNIA AND HERZEGOVINA	Sarajevo FIR/UIR/SSR	LYBA
	Sarajevo FIR/UIR/SSR	LDZB
BULGARIA	Sofia FIR/ SRR	LBSR
	Varna FIR/SRR	LBWR
CROATIA	Zagreb FIR/UIR/SRR	LDZO
CYPRUS	Nicosia FIR	LCCC
	Episkop SRR	LCRO
CZECH REPUBLIC	Praha FIR/SRR	LKAA
DENMARK	København FIR	EKDK
	Karup SRR	EKMC
ESTONIA	Tallinn FIR/UIR	EETT
FINLAND	Tampere FIR/UIR/SRR	EFES
	Rovaniemi FIR/UIR/SRR	EFPS
FRANCE	Marseille FIR/SRR	LFMM
	Bordeaux FIR/SRR	LFBB
	Brest FIR/SRR	LFRR
	Reims FIR/SRR	LFEE
	Paris FIR/SRR	LFFF
GEORGIA	Tbilisi FIR/Georgia SRR	UGGZ
GERMANY	Berlin FIR/ Berlin UIR	EDBB
	Düsseldorf FIR	EDLL
	Frankfurt FIR	EDFF
	Bremen FIR	EDWW
	München FIR	EDM
GREECE	Athinai FIR/UIR/SRR	LGGG
HUNGARY	Budapest FIR/UIR/SRR	LHCC
IRELAND	Shannon FIR/SRR	EISL
	Shannon UIR	EISU
ITALY	Brindisi FIR	LIBB
	Milano FIR	LIMM
	Roma FIR	LIRR
KAZAKHSTAN	Aktyubinsk FIR	UATT
	Almaty FIR	UAAA
	Zhezkazgan FIR	UAKD
	Atyrau FIR	UATG
	Kostanay FIR	UAUU
	Kyzylorda FIR	UAOO
	Semipalatinsk FIR	UASS
	Aktau FIR	UATE
	Astana FIR	UACC
	Shymkent FIR	UAII
	Uralsk FIR	UARR

State	FIR Name	CCCC
KYRGYZSTAN	Bishkek FIR	UAFM
LATVIA	Riga FIR/UIR	EVRR
LITHUANIA	Vilnius FIR/UIR	EYVL
MALTA	Malta FIR/SRR	LMMM
NETHERLANDS	Amsterdam FIR	EHAA
NORWAY	Norway FIR/UIR	ENOR
	Bodø Oceanic FIR	ENOB
POLAND	Warszawa FIR/SRR	EPWW
PORTUGAL	Lisboa FIR/UIR/SRR	LPPC
REPUBLIC OF MOLDOVA	Chisinau FIR/Moldova SRR	LUKK
ROMANIA	Bucuresti FIR/SRR	LRBB
RUSSIAN FEDERATION	Amderma FIR	ULDD
	Anadyr FIR	UHMA
	Arkhangelsk FIR	ULAA
	Astrakhan FIR	URWA
	Batagay FIR/North-East	UEBB
	Beryozovo FIR/North	USHB
	Blagoveshchensk FIR/Far East SRR	UHBB
	Bratsk FIR/East Siberia SRR	UIBB
	Chaybukha FIR	UHMG
	Chersky FIR/North-East Siberia SRR	UESS
	Chita FIR/East Siberia SRR	UIAA
	Chokurdakh FIR/North-	UESO
	Chulman FIR	UELL
	Dickson FIR	UODD
	Irkutsk FIR/East Siberia SRR	UIII
	Kaliningrad FIR	UMKK
	Kazan FIR/Tatarstan SRR	UWKD
	Khabarovsk FIR/Far East SRR	UHHH
	Pevek FIR	UHMP
	Rostov FIR/North Caucasus SRR	URRV
	Salekhard FIR/North	USDD
	Samara FIR/Privolzhsky SRR	UWWW
	Seymchan FIR	UHMS
	Omolon FIR	UHMN
	Surgut FIR/North Siberia SRR	USRR
	Syktyvkar FIR/Komi SRR	UUYY
	Tarko-Sale FIR	USD
	Tiksi FIR/North-East	UEST
	Tyumen FIR/North	USTT
	Turukhansk FIR	UOTT
	Ufa FIR	UWUU
	Velikie Luki FIR	ULOL
	Vladivostok FIR/	UHWW
	Volgograd FI	URWW
	Vologda FIR	ULWW
	Vorkuta FIR	UUYW
	Yakutsk FIR/North-East	UEEE
	Yekaterinburg FIR/Urals SRR	USSS
	Yeniseysk FIR	UNII
	Yuzhno-Sakhalinsk FIR	UHSS
	Zhigansk FIR	UEVV
	Zyryanka FIR/North-	UESU

State	FIR Name	CCCC
SERBIA & MONTENEGRO	Beograd FIR/UIR/SRR	LYBA
SLOVAKIA	Bratislava FIR/UIR	LZBB
SLOVENIA	Ljubljana FIR/UIR	LJLA
SPAIN	Barcelona FIR/UIR	LECB
	Canarias FIR/UIR/SRR	GCCC
	Madrid FIR/UIR	LECM
	Baleares SRR	LECP
SWEDEN	Sweden FIR/UIR/SRR	ESAA
SWITZERLAND	Genève FIR/UIR	LSAW
THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA	Ohrid FIR	LWOH
	Skopje FIR/UIR/SRR	LWSS
TAJIKISTAN	Dushanbe FIR/SRR	UTDD
TURKEY	Ankara FIR/SRR	LTAA
	Istanbul FIR	LTBB
TURKMENISTAN	Askhabad FIR	UTAA
UKRAINE	Kyiv FIR/SRR	UKBV
	Kharkiv FIR/SRR	UKHV
	L'viv FIR/SSR	ULLV
	Odesa FIR/SRR	UKOV
	Simferopol' FIR/SRR	UKFV
UNITED KINGDOM	London FIR/UIR	EGTT
	Shanwick Oceanic Control Area/FIR	EGGX
	Scottish FIR/UIR	EGPX
	UK Mission Control Centre SRR	EGQP
UZBEKISTAN	Nukus FIR	UTNN
	Samarkand FIR	UTSS
	Tashkent FIR	UTTT

ANNEX 2 – MID

State	FIR Name	CCCC
AFGHANISTAN	KABUL FIR and SRR	OAKX
BAHRAIN	BAHRAIN FIR and SRR	OBBB
EGYPT	CAIRO FIR and SRR	HECC
IRAN (ISLAMIC REPUBLIC OF)	TEHRAN FIR and SRR	OIIX
IRAQ	BAGHDAD FIR and SRR	ORBS
ISRAEL	TEL AVIV FIR and SRR	LLAD
JORDAN	AMMAN FIR and SRR	OJAC
KUWAIT	KUWAIT FIR and SRR	OKAC
LEBANON	BEIRUT FIR and SRR	OLBA
OMAN	MUSCAT FIR and SRR	OOMM
SAUDI ARABIA	JEDDAH FIR and SRR	OEJD
SYRIAN ARAB REPUBLIC	DAMASCUS FIR and SRR	OSDI
UNITED ARAB EMIRATES	EMIRATES FIR and SRR	OMAE
YEMEN	SANAA FIR and SRR	OYSN

ANNEX 2 – CAR/SAM

State	FIR Name	CCCC
ARGENTINA	Ezeiza FIR/SRR Ezeiza ACC/UIR	SAEF SAEU
	Comodoro Rivadavia FIR/SRR Comodoro Rivadavia ACC/UIR	SAVF SAVU
	Córdoba FIR/SRR Córdoba ACC/UIR	SACF SACU
	Mendoza FIR/SRR Mendoza ACC/UIR	**SAMF** SAMV
	Resistencia FIR/SRR Resistencia ACC/UIR	**SARR** SARU
BOLIVIA	La Paz FIR/SRR	SLLP
BRAZIL	Brasilia FIR/UIR/SRR	SBBS
	Curitiba FIR/UIR/UTA/SRR	SBCW
	Amazónica FIR/UIR/SRR	SBAZ
	Recife FIR/UIR/SRR Atlántico FIR/UIR/SRR	SBRE SBAO

ANNEX 2 – NAM

State	FIR Name	CCCC

ANNEX 2 – NAT

State	FIR Name	CCCC

ANNEXE 3

AFI OPMET DB Catalogue Section 3 :

Database Bulletins

At this moment, the common database catalogue contains only a limited list of the AFI database bulletins. For the complete lists of available bulletins of the individual database agents, please refer to the national AFI OPMET DB catalogues (for URLs : see section 5 of this document).

Structure of the tables :

- Bulletin type (FC, FT or SA)
- "AAii" bulletin identifier
- CCCC ICAO location indicators.

ANNEXE 3 : AFI Bulletin Catalogue

TT	AAii	CCCC of Aerodromes
AFI - Addis Ababa		
SA	EA31	HAAB HAAY HADR HDAM
FT	EA31	HAAB HAAY HADR HDAM
AFI - Alger		
SA	AF31	DAAE DAUB DAAJ DAUO DAOV DAAP DATG DAAV DAUU DAOB DAUT DAUK
		DAAG DABB DABC DAOO DAON DAAT DTTA HLLT HLLB
FC	AF31	DAAE DAUB DAAJ DAUO DAOV DAAP DATG DAAV DAUU DAOB DAUT DAUK
FT	AF31	DAAG DABB DABC DAOO DAON DAAT DTTA HLLT HLLB
AFI - Antananarivo		
SA	IO31	FMMI FIMP FMEE FMNM FMCH FMMT
FT	IO31	FMMI FIMP FMEE FMNM FMCH FMMT
AFI - Brazzaville		
SA	AM31	FCBB FEFF FKKD FZAA FOOL FPST FCPP FKYS FOOG FGSL FNLU
FT	AM31	FCBB FEFF FKKD FZAA FOOL FPST FCPP FKYS FOOG FGSL FNLU
AFI - Caire		
SA	AF31	HECA HEAX HELX HSSS
FT	AF31	HECA HEAX HELX HSSS
AFI - Casablanca		
SA	MC31	GMMC GMAA GMMX GMME GMTT GCLP GCTS
FT	MC31	GMMC GMAA GMMX GMME GMTT GCLP GCTS
AFI - Dakar		
SA	AO32	GOOY GBYD GABS GFLL GLRB GQNN DIAP GUCY GQPP GVAC GGOV
FT	AO32	GOOY GBYD GABS GFLL GLRB GQNN DIAP GUCY GQPP GVAC GGOV
AFI - Pretoria (Johannesburg)		
SA	AP32	FAPR FACT FADN FBSK FVHA FWLI FLLS FQMA FQBR FABL FDMS FXMM FYWH
FT	AP32	FAPR FACT FADN FBSK FVHA FWLI FLLS FQMA FQBR FABL FDMS FXMM FYWH
AFI - Nairobi		
SA	AE32	HKJK HTDA HUEN HKMO HTKJ HBBA HRYR FSIA HCMM
FT	AE32	HKJK HTDA HUEN HKMO HTKJ HBBA HRYR FSIA HCMM
AFI - Niamey		
SA	AO33	DRNN DGAA DBBB DNKN DNMM DXXX FTTJ DFFDY
FT	AO33	DRNN DGAA DBBB DNKN DNMM DXXX FTTJ DFFDY

INTERNATIONAL CIVIL AVIATION ORGANIZATION

AFRICA AND INDIAN OCEAN (AFI) REGIONAL SIGMET GUIDE

NINTHEDITION — SEPTEMBER 2007

Amendment 2- June 2011

Prepared by the ICAO ESAF &WACAF Offices
And published under the authority of the Secretary General

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of ICAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

RECORD OF AMENDMENTS AND CORRIGENDA

Amendments			
No.	Date of issue	Date entered	Entered by
1	31/05/2010	07/06/2010	RO/MET
2	2/06/2011	30/06/2011	ROMET

Corrigenda			
No.	Date of issue	Date entered	Entered by
1	28/10/2008	27/10/2008	RO/MET

TABLE OF CONTENTS

1. INTRODUCTION 5

2. RESPONSIBILITIES AND COORDINATION.....6

2.1 General.....6

2.2 Meteorological Watch Office - responsibilities and procedures related to SIGMET 6

2.3 Responsibilities of ATS units 8

2.4 Responsibilities of pilots.....9

2.5 Coordination between MWOs and the TCACs and VAACs.....9

3. PROCEDURES FOR PREPARATION OF SIGMET INFORMATION.....10

3.1 General.....10

3.2 Types of SIGMET 10

3.3 Structure of the SIGMET message 10

3.4 Format of SIGMET.....11

3.4.1 WMO Header..... 11

3.4.2 First line of SIGMET 12

3.4.3 Format of the meteorological part of SIGMET messages for weather phenomena other than TC and VA 13

3.4.4 Structure of the meteorological part of VA SIGMET 16

3.4.5 Structure of the meteorological part of TC SIGMET 18

3.4.6 Cancellation of SIGMET 21

3.5 Dissemination 22

APPENDIX A: Meteorological Watch Offices.....22

APPENDIX B: Tropical Cyclone Advisory Centres 26

APPENDIX C: Volcanic Ash Advisory Centres 28

APPENDIX D: List of the Abbreviations and Code Words Used in SIGMET 30

APPENDIX E: Meteorological Phenomena to be Reported by SIGMET.....32

APPENDIX F: Standard for Reporting Geographical Coordinates in SIGMET.....33

APPENDIX G: Examples.....34

APPENDIX H: WMO Headings for SIGMET Bulletins Used by AFI Meteorological Watch Offices (MWO) 37

APPENDIX H1: OPERATIONAL UNITS.....37

APPENDIX I: WMO Headings for Tropical Cyclone and Volcanic Ash Advisory Bulletins (FK And FV) Used by AFI TCAC And VAAC 41

APPENDIX J AFI SIGMET Test Procedures.....43

1. INTRODUCTION

1.1 The main purpose of this document is to provide guidance for standardization and harmonization of the procedures and formats related to the aeronautical meteorological warnings for hazardous en-route meteorological phenomena, known as SIGMET information. The guidance is complementary to the Annex 3 standards and recommended practices regarding SIGMET and to the SIGMET related provisions of the AFI Basic ANP and FASID, ICAO **Doc 7474**.

1.2 ICAO provisions concerning the issuance and dissemination of SIGMET information are contained in:

- **Annex 3** - *Meteorological Service for International Air Navigation*, Part I, Chapter 3, 3.4 – 3.7, Chapter 7, 7.1, and Part II, Appendix 6;
- **AFI Basic ANP**, Part I and VI, and **AFIFASID** Table MET 1B, MET 3A and MET 3B;
- **Annex 11** - *Air Traffic Services*, Chapter 4, 4.2.1 and Chapter 7, 7.1;
- PANS – *Air Traffic Management*, **Doc 4444**, Chapter 9, 9.1.3.2;
- Regional Supplementary Procedures**, Doc 7030**, Part 1, 8.2.

Additional guidance on the SIGMET procedures is contained in the *Manual of Aeronautical Meteorological Practice* (**Doc 8896**), and the *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services* (**Doc 9377**).

1.3 The SIGMET Guide is intended mainly to assist the MWOs in the ICAO African and Indian Ocean (AFIAFI) Region in preparing and disseminating SIGMET information. It provides detailed information on the format of SIGMET messages as specified by Annex 3. The explanations of the format are accompanied by examples based on region-specific meteorological phenomena. The guide also provides information regarding the necessary coordination between the MWOs, the ATS units and the pilots, and their respective responsibilities.

1.4 This document was prepared by the ICAO AFI and ESAF Regional Offices. It is reviewed and updated regularly in order to be kept in line with the relevant ICAO SARPs and regional procedures. This current version incorporates the changes to SIGMET-related provisions included in Amendment 74 to Annex 3 which was approved by ICAO Council on 21 February 2007.

———————

2. RESPONSIBILITIES AND COORDINATION

2.1 General

2.1.1 SIGMET is warning information, hence it is of highest priority among other types of meteorological information provided to the aviation users. The primary purpose of SIGMET is for in-flight service, which requires timely transmission of the SIGMET messages to pilots by the ATS units and/or through VOLMET and D-VOLMET.

2.1.2 Airlines are the main users of the SIGMET information. They contribute to the effectiveness of the SIGMET service through issuance of special air-reports reported by pilots to the ATS units. Special air-reports are among the most valuable sources of information for the Meteorological Watch Offices (MWO) in the preparation of SIGMET. The ATS units receiving special air-reports should forward them to the associated MWOs without delay.

2.1.3 In view of the foregoing, it should be well understood that the effectiveness of the SIGMET service depends strongly on the level of collaboration between the MWOs, ATS units and pilots. That is why, close coordination between these parties, as well as mutual understanding of their needs and responsibilities, are essential for the successful implementation of the SIGMET service.

2.1.4 For the special cases of SIGMET for volcanic ash and tropical cyclones, the MWOs are provided with advisories from the volcanic ash advisory centres (VAAC), and tropical cyclone advisory centres (TCAC) designated in the Regional ANP.

2.1.5 Another use of SIGMET is for the flight planning. This requires global dissemination of SIGMET through the international OPMET data banks and the satellite broadcasts: ISCS and SADIS. SIGMET should also be distributed to the World Area Forecast Centres (WAFC) London and Washington for use in the preparation of the significant weather (SIGWX) forecasts.

2.1.6 In the next paragraphs, the main responsibilities and coordination links,related to the provision of SIGMET information, are described.

2.2 Meteorological Watch Office - responsibilities and procedures related to SIGMET

2.2.1 SIGMET information should be issued by the meteorological watch offices (MWO) in order to provide timely warning for occurrence or expected occurrence of specified en-route weather phenomena, affecting the safety of the flight operations in the MWO's area of responsibility (AOR). SIGMET provides information concerning the location, extent, intensity and expected evolution of the specified phenomena.

2.2.2 Information about the provision of SIGMET service, including details on the designated MWO(s), should be included in the State's Aeronautical Information Publication (AIP) as specified in Annex 15, Aeronautical Information Service, Appendix 1, GEN 3.5.8.

2.2.3 All designated MWOs in the AFI Region are listed in Appendix A to this Guide extracted from the FASID AFI Table MET 1B. The MWOs situated outside of the AFI Region are in italic.

2.2.4 If, for some reason, a State is not able to meet its obligations for establishing MWO(s) and for provision of SIGMET for the FIR(s) or control area(s) the State is providing air traffic services, arrangements should be made between the meteorological authorities of the States concerned, that another

MWOtakes over these responsibilities for certain period of time. Such delegation of responsibilities should be notified by a NOTAM and a letter to the ICAO Regional Office.

2.2.5 Since the MWO is normally not a separate administrative unit, but part of the functions of an aerodrome meteorological office or other meteorological office, the meteorological authority concerned should ensure that the MWO obligations and responsibilities are clearly defined and assigned to the unit designated to serve as MWO. Corresponding operational procedures should be established and the meteorological staff should be trained accordingly.

2.2.6 In preparing SIGMET information MWOs should follow strictly the format determined in Annex 3 (detailed format description is provided in Appendix 6, Table A6-1 of Annex 3). SIGMET should be issued only for those weather phenomena listed in Annex 3 and only when specified criteria for their intensity and spatial extent are met.

Note: MWOs should not issue SIGMET for weather phenomena of lower intensity or such of transient nature or smaller scale, which do not affect significantly the flight safety and their transmission to users may lead to unnecessary precautionary measures.

2.2.7 The MWOs should be adequately equipped in order to be able to identify, analyze and forecast (to the extent required) those phenomena for which SIGMET is required. The MWO should make use of all available sources of information, such as special air-reports, information from meteorological satellites and weather radars.

2.2.8 On receipt of a special air-report from the associated ACC or FIC, the MWO should:

a) issue SIGMET information based on the special-air report; or

b) send the special air-report for on-ward transmission in case that the issuance of SIGMET information is not warranted (e.g., the phenomenon concerned is of transient nature).

2.2.9 Appropriate telecommunication means should be available at the MWO in order to ensure timely dissemination of SIGMET according to a dissemination scheme, which should include transmission to:

- Local ATS users;
- Aeronautical MET offices within its AOR, where SIGMET is required for briefing and/or flight documentation;
- Other MWOs concerned (it should be ensured that SIGMET is sent to all MWOs whose AORs are, at least partly, within the 1800 km (1000 NM) range from the observed phenomenon);
- Centres designated for transmission of VOLMET or D-VOLMET where SIGMET is required for those transmissions;
- Responsible AMBEX centre and Regional OPMET Data Bank (it should be arranged that through the AMBEX scheme SIGMETs are sent to the designated OPMET data banks in the other ICAO regions, to the WAFCs and to the SADIS and ISCS providers);

- Responsible TCAC or VAAC according to FASID Tables MET 3A and MET 3B.

2.2.10 In issuing SIGMET for tropical cyclones or volcanic ash, the MWOs should include as appropriate the advisory information received from the responsible TCAC or VAAC. In addition to the information received from the TCAC and VAAC the MWOs may use the available complementary information from other reliable sources. In such a case the responsibility for this additional information would lie completely on the MWO concerned.

2.3 Responsibilities of ATS units

2.3.1 Close coordination should be established between the MWO and the corresponding ATS unit (ACC or FIC) and arrangements should be in place to ensure:

- receipt without delay and display at the relevant ATS units of SIGMET issued by the associated MWO;

- receipt and display at the ATS unit of SIGMETs issued by MWOs responsible for the adjacent FIRs/ACCs if these SIGMETs are required according to para2.3.4 below, (within 1800 km (1000 NM) range from the observed phenomenon); and

- transmission without delay by the ATS unit of special air-reports received through voice communication to the associated MWO.

2.3.2 SIGMET information should be transmitted to aircraft with the least possible delay on the initiative of the responsible ATS unit, by the preferred method of direct transmission followed by acknowledgement or by a general call when the number of aircraft would render the preferred method impracticable.

2.3.3 SIGMET information transmitted to aircraft-in-flight should cover a portion of the route up to two hours flying time ahead of the aircraft. SIGMET should be transmitted only during the time corresponding to their period of validity (p. 3.4.2.3 refers).

2.3.4 Air traffic controllers should ascertain whether any of the currently valid SIGMETs may affect any of the aircraft they are controlling, either within or outside the FIR/CTA boundary, up to a distance of 1000 NM (1800 KM), which corresponds to two hours flying time ahead of the current position of the aircraft. If this is the case, the controllers should at their own initiative transmit the SIGMET promptly to the aircraft-in-flight likely to be affected. If necessary, the controller should pass to the aircraft available SIGMETs issued for the adjacent FIR/CTA, which the aircraft will be entering, if relevant to the expected flight route.

2.3.5 The ATS units concerned should also transmit to aircraft-in-flight the special air reports received, for which SIGMET has not been issued. Once a SIGMET for the weather phenomenon reported in the special air report is made available this obligation of the ATS unit expires.

2.4 Responsibilities of pilots

2.4.1 Timely issuance of SIGMET information is largely dependant on the prompt receipt by MWOs of special air-reports. That is why, it is essential that pilots prepare and transmit such reports to the ATS units whenever any of the specified en-route conditions are encountered or observed.

2.4.2 It should be emphasized that, even when automatic dependent surveillance (ADS) is being used for routine air-reports, pilots should continue to make special air-reports.

2.5 Coordination between MWOs and the TCACs and VAACs

2.5.1 Amongst the phenomena for which SIGMET information is required, the volcanic ash clouds and tropical cyclones are of particular importance for the planning of long-haul flights.

2.5.2 Since the identification, analysis and forecasting of volcanic ash and tropical cyclones requires considerable technical and human resource, normally not available at each MWO, the Volcanic Ash Advisory Centres (VAAC) and Tropical Cyclone Advisory Centres (TCAC) have been designated to provided VA and TC advisories to the users and assist the MWOs in the preparation of the forecast part of the SIGMETs for those phenomena. Close coordination should be established between the MWO and its responsible TCAC and/or VAAC.

2.5.3 Information regarding the VAACs and TCACs serving the AFIRegionwith their corresponding areas of responsibility and lists of MWOs and ACCs to which advisories are to be sent is provided in FASID Tables MET 3A and MET 3B of the AFIFASID. These tables are reproduced in Appendix B and Appendix C to this Guide.

2.5.4 TC and VA advisories are required for global exchange through the satellite distribution systems, SADIS and ISCS. They are used by the operators during the preflight planning. Nevertheless, it should be emphasized that SIGMET information is still of higher operational status and is required especially for in-flight re-planning. SIGMETs should be transmitted to aircraft-in-flight through voice communication or VOLMET or D-VOLMET thus providing vital information for making in-flight decisions regarding large-scale route deviations due to volcanic ash clouds or tropical cyclones.

———————

3. PROCEDURES FOR PREPARATION OF SIGMET INFORMATION

3.1 General

3.1.1 SIGMET information is prepared in abbreviated plain language using approved ICAO abbreviations, a limited number of non-abbreviated words, geographical names and numerical values of self-explanatory nature. All abbreviations and words to be used in SIGMET are given in Appendix D.

3.1.2 The increasing use of automated systems for handling the MET information by the aviation users makes it essential that all types of OPMET information, including SIGMET, are prepared and transmitted in the prescribed standardized formats. Therefore, the structure and format of the SIGMET message, as specified in Annex 3, Part II, Appendix 6, which provides detailed information regarding the content and order of elements in the SIGMET message, should be followed strictly by the MWOs.

3.1.3 SIGMET is intended for transmission to aircraft in flight either by ATC or by VOLMET or D-VOLMET. Therefore, SIGMET messages should be kept conciseand clear without additional descriptive text other than the prescribed in Annex 3.

3.1.4 After the issuance of a SIGMET the MWO should maintain watch over the evolution of the phenomenon for which the SIGMET has been issued and issue updated SIGMET when necessary. The TC and VA SIGMET should be updated at least every 6 hours.

3.1.5 SIGMET should be promptly cancelled when the phenomenon is no longer occurring or no longer expected to occur in the MWO's area of responsibility. The SIGMET is understood to cancel itself automatically at the end of its validity period. If the phenomenon persists a new SIGMET message for a further period of validity should be issued.

3.2 Types of SIGMET

3.2.1 Although Annex 3 provides one general SIGMET format, which encompasses all weather phenomena, it is convenient when describing the structure and format of the messages to distinguish between three types of SIGMET, as follows:

- SIGMET for en-route weather phenomena other than VA and TC (this includes: TS, CB, TURB, ICE, MTW, DS and SS); this SIGMET will be referred as WS SIGMET;
- SIGMET for volcanic ash, which will hereafter be denoted as VA SIGMET or WV SIGMET; and
- SIGMET for tropical cyclones, which will hereafter be denoted as TC SIGMET or WC SIGMET.

3.2.2 The three types of SIGMET can be identified by the data type designator included in the WMO abbreviated heading of the SIGMET message, as explained below.

3.3 Structure of the SIGMET message

3.3.1 A SIGMET message consists of:

- ***WMO heading*** – all SIGMETs are preceded by an appropriate WMO heading;

- ***First line***, containing location indicators of the respective ATS unit and MWO, sequential number and period of validity;
- ***SIGMET main body***, containing information concerning the observed or forecast weather phenomenon for which the SIGMET is issued together with its expected evolution within the period of validity;

3.3.2 The first two parts of the SIGMET message are common for all types of SIGMET. The format and content of the third part is different; that is why, in the following paragraphs the meteorological part of the SIGMET message is described separately for the three types of SIGMET.

3.4 Format of SIGMET

Note: In the following text, square brackets - [ ] - are used to indicate an optional or conditional element, and angled brackets - <> - for symbolic representation of a variable element, which in a real SIGMET accepts concrete numerical value.

3.4.1 WMO Header

$T_1T_2A_1A_2$ii CCCC YYGGgg [CCx]

3.4.1.1 The group **$T_1T_2A_1A_2$ii** is the bulletin identification for the SIGMET message. It is constructed in the following way:

T_1T_2	Data type designator	**WS** – for SIGMET for meteorological phenomena other than volcanic ash cloud or tropical cyclone **WC** – for SIGMET for tropical cyclone **WV** – for SIGMET for volcanic ash
A_1A_2	Country or territory designators	Assigned according to Table C1, Part II of Manual on the Global Telecommunication System, Vol I – Global Aspects (WMO - No. 386)
ii	Bulletin number	Assigned on national level according to p 2.3.2.2, Part II of Manual on the Global Telecommunication System, Vol I – Global Aspects (WMO - No. 386)

3.4.1.2 **CCCC** is the ICAO location indicator of the communication centre disseminating the message (could be the same as the MWO location indicator).

3.4.1.3 **YYGGgg** is the date/time group, where YY is the date and GGgg is the time of transmission of the SIGMET in hours and minutes UTC (normally this time is assigned by the disseminating (AFTN) centre).

3.4.1.4 The group **CCx** should be used only when issuing a correction to a SIGMET which had already been transmitted.The third letter "x" takes the value A for the first correction, B for the second correction, etc.

Examples:

WSSG31 GOOY121200
WVCV31 GVAC 010230
WCGG31FCBB 100600 CCA

3.4.2 First line of SIGMET

CCCC SIGMET [nn]n VALID YYGGgg/YYGGgg CCCC-

3.4.2.1 The meaning of the groups in the first line of the SIGMET is as follows:

CCCC	ICAO location indicator of the ATS unit serving the FIR or CTA to which the SIGMET refers
SIGMET	Message identifier
[nn]n	Daily sequence number (see p.3.4.2.2)
VALID	Period of validity indicator
YYGGgg/YYGGgg	Validity period of the SIGMET given by date/time group of the beginning and date/time group of the end of the period (see p.3.4.2.3)
CCCC	ICAO location indicator of the issuing MWO
-	**hyphen** to separate the preamble from the text

3.4.2.2 The numbering of SIGMETs starts every day at 0001 UTC. The sequence number should consist of up to three symbols and may be a combination of letters and numbers, such as:

- 1, 2, …
- 01, 02, …
- A01, A02, …

Examples:

GOOO SIGMET 2 VALID 121100/121700 GOOY-
DGACSIGMET A04 VALID 202230/210430 DGAA-

Note 1: No other combinations should be used, like "CHARLIE 05" or "NR7".

Note 2: Correct numbering of SIGMET is very important since the number is used for reference in communication between ATC and pilots and in VOLMET and D-VOLMET.

3.4.2.3 The following considerations should be taken into account when determining the validity period:

- The period of validity of a WS SIGMET should not be more than 4 hours;
- The period of validity of a WC or WV SIGMET should not be more than 6 hours;
- In case of a SIGMET for an observed phenomenon, the filing time (date/time group in the WMO header) should be the same or very close to the time in the date/time group indicating the start of the SIGMET validity period;
- When the SIGMET is issued for a forecast phenomenon:
  - the beginning of validity period should be the time of the expected commencement (occurrence) of the phenomenon in the MWO area of responsibility;
  - the time of issuance of the SIGMET should not be more than 4 hours before the start of validity period (i.e., expected time of occurrence of the phenomenon); for TC and VA SIGMET the lead time should be up to 12 hours.

3.4.2.4 The period of validity is that period during which the SIGMET information is valid for transmission to aircraft in flight.

Examples:

1. SIGMET for an observed phenomenon:

WSNI31 DNKN241120
DNKKSIGMET 3 VALID 241120/241500 DNKN-

2. SIGMET for a forecast phenomenon (expected time of occurrence 1530)

WSCG31 FCBB 311130
FCBBSIGMET 1 VALID 1530/1930 FCCC-

3.4.3 Format of the meteorological part of SIGMET messages for weather phenomena other than TC and VA

3.4.3.1 The meteorological part of a SIGMET for weather phenomena consists of seven elements as shown in the table below.

Start of the second line of the message

1	2	3	4	5
Name of the FIR/UIR or CTA	Description of the phenomenon	Observed or forecast	Location	Level
<CCCC><name> FIR [CTA]	<Phenomenon>	OBS [AT <GGgg>Z] FCST OBS [AT <GGgg>Z] AND FCST	Geographical location of the phenomenon given by coordinates, or geographical objects, or location indicators	FL<nnn> or FL<nnn/nnn> or [TOP [ABV or BLW]] FL<nnn>

6	7
Movement or expected movement	Changes in intensity
MOV <direction, speed>KMH[KT] or STNR	INTSF or WKN or NC

3.4.3.1.1 Name of the FIR/UIR or CTA*(Column 1)*

CCCC <name> FIR[/UIR]
or
CCCC <name> CTA

The ICAO location indicator and the name of the FIR/CTA is given followed by the appropriate abbreviation: FIR, FIR/UIR or CTA.

Examples:

DRRRNIAMEYFIR

3.4.3.1.2 Phenomenon*(Column 2)*

The phenomenon description consists of a qualifier and a phenomenon abbreviation. SIGMET should be issued only for the following phenomena:

at cruising levels (irrespective of altitude):

- thunderstorms (TS) – if they are OBSC, EMBD, FRQ or SQL with or without hail;
- turbulence (TURB) – only SEV
- icing (ICE) – only SEV with or without FZRA
- mountain waves (MTW) – only SEV
- dust storm (DS) – only HVY
- sand storm (SS) – only HVY
- radioactive cloud – RDOACT CLD

The appropriate abbreviations and combinations, and their meaning are given in Appendix E.

3.4.3.1.3 Indication whether the phenomenon is observed or forecast*(Column 3)*

OBS [AT <GGgg>Z]
or FCST

The indication whether the phenomenon is observed or forecast is given by using the abbreviations OBS or FCST. OBS is followed by anoptionaltime group in the form AT GGggZ, where GGgg is the time of the observation in hours and minutes UTC. If the exact time of the observation is not known the time is not included. When FCST is used, it is assumed that the time of occurrence or commencement of the phenomenon coincides with the beginning of the period of validity included in the first line of the SIGMET.

Examples:

OBS AT 0140Z
FCST

3.4.3.1.4 Location of the phenomenon*(Column 4)*

The location of the phenomenon is given with reference to geographical coordinates (latitude and longitude) or with reference to geographical features well known internationally. The MWOs should try to be as specific as possible in reporting the location of the phenomenon and, at the same time, to avoid overwhelming geographical information, which may be difficult to process or perceive.

The following are the most common ways to describe the location of the phenomenon:

- Indication of a part of the FIR with reference to latitude:
  N OF or S OF <Nnn[nn]> or <Snn[nn]>
- Indication of a part of the FIR with reference to longitude:

E OF or W OF <Ennn[nn]> or <Wnnn[nn]>

- Indication of a part of the FIR with reference to latitude and longitude: **any combination of the above two cases**;
- with reference to a location with ICAO location abbreviation CCCC (normally, this should be the case of SIGMET based on special air-report in which the reported phenomenon is given with reference to an airport or another object with ICAO location indicator CCCC);
- with reference to geographical features well known internationally.

More details on reporting the location of the phenomenon are given in Appendix 6 to Annex 3 and in Appendix F to this Guide.

3.4.3.1.5 Flight level and extent*(Column 5)*

FL<nnn>
or FL<nnn/nnn>
or TOP FL<nnn>
or [TOP] ABVFL<nnn>
or [TOP] BLWFL<nnn>

The location or extent of the phenomenon in the vertical is given by one or more of the above abbreviations, as follows:

- reporting single level – **FL<nnn>**
- reporting a layer – **FL<nnn/nnn>**, where the lower level is reported first; this is used particularly in reporting turbulence and icing;
- reporting a level or layer with reference to one FL using ABV or BLW
- reporting the level of the tops of the TS clouds using the abbreviation TOP.

Examples:

EMBD TS … TOP ABV FL340
SEV TURB … FL180/210
SEV ICE … BLW FL150
SEV MTW … FL090

3.4.3.1.6 Movement*(Column 6)*

MOV <direction><speed>KMH[KT]
or
STNR

Direction of movement is given with reference to one of the eight points of compass. Speed is given in KMH or KT. The abbreviation STNR is used if no significant movement is expected.

Examples:

MOV NW 30KMH
MOV E 25KT

3.4.3.1.7 Expected changes in intensity*(Column 7)*

The expected evolution of the phenomenon's intensity is indicated by one of the following abbreviations:

INTSF – intensifying
WKN – weakening
NC – no change

3.4.4 Structure of the meteorological part of VA SIGMET

3.4.4.1 The general structure of the meteorological part of the SIGMET message is given in the table below:

Start of the second line of the message

1	**2**			**3**
FIR/UIR or CTA	Phenomenon	Volcano		Volcanic ash cloud observed or forecast
		Name	Location	
<CCCC><name> FIR [/UIR][CTA]	VA	[ERUPTION] [MT <name>]	[LOC <lat,lon>]	VA CLD OBS AT <GGgg>Z VA CLD FCST

4			5
Extent of the cloud			Expected movement
Vertical	Horizontal	Position	
FL <nnn/nnn>	[APRX <nnn> KM[NM] BY <nnn> KM[NM]]	[<lat,lon> - <lat,lon> - …]	MOV <direction><speed>

6	
Volcanic ash cloud forecast at the end of the period of validity	
FCST time	Position
FCST <GGgg>Z	VA CLD APRX <lat,lon> - <lat,lon> - …

3.4.4.2 Name and location of the volcano and/or indicator for VA cloud*(Column 2)*

VA [ERUPTION] [MT <name>] [LOC <lat,lon>] VA CLD
or
VA CLD

3.4.4.2.1 The description of the volcano injecting volcanic ash consists of the following elements:

- starts with the abbreviation **VA** – volcanic ash;
- the word **ERUPTION** is used when the SIGMET is issued for a known volcanic eruption;
- geographical/location information:

i. if the name of the volcano is known, it is given by the abbreviation **MT** – mountain, followed by the name;
e.g., **MT RABAUL**

ii. location of the volcano is given by the abbreviation **LOC** – location, followed by the latitude and longitude in degrees and minutes;
e.g., **LOC N3520 E09040**

- this section of the message ends with the abbreviation **VA CLD** – volcanic ash cloud.

3.4.4.2.2 If the FIR is affected by a VA cloud with no information about the volcanic eruption which generated the cloud, only the abbreviation **VA CLD** should be included in the SIGMET.

3.4.4.3 Time of observation or indication of forecast*(Column 3)*

VA CLD OBS AT <GGgg>Z
or
VA CLD FCST

The time of observation is taken from the source of the observation – satellite image, special air- report, report from a ground volcano logical station, etc. If the VA cloud is not yet observed over the FIR but the volcanic ash advisory received from the responsible VAAC indicates that the cloud is going to affect the FIR within the next 12 hrs, SIGMET should be issued, according to paragraph 2.4 above, and the abbreviation VA CLD FCST should be used.

Examples:

VA CLD OBS AT 0100Z
VA CLD FCST

3.4.4.4 Level and extent of the volcanic ash cloud*(Column 4)*

FL<nnn/nnn> [APRX <nnn>KM BY <nnn>KM] [<P1(lat,lon) - P2(lat,lon) - … >]
or
FL<nnn/nnn> [APRX <nnn>NM BY <nnn>NM] [<P1(lat,lon) - P2(lat,lon) - … >]

FL<nnn/nnn>	The layer of the atmosphere where the VA cloud is situated, given by two flight levels from the lower to the upper boundary of the cloud
[APRX <nnn>KM BY <nnn>KM] or [APRX <nnn>NM BY <nnn>NM]	Approximate horizontal extent of the VA cloud in KM or NM
[<P1(lat,lon) – P2(lat,lon) - … >]	Approximate description of the VA cloud by a number of points given with their geographical coordinates[1]; the points should be separated by hyphen

If the VA cloud spreads over more than one FIR, separate SIGMETs should be issued by all MWOs whose FIRs are affected. In such a case, the description of the volcanic ash cloud by each MWO should encompass the part of the cloud, which lies over the MWO's area of responsibility. The MWOs should try and keep the description of the volcanic ash clouds consistent by checking the SIGMET messages received from the neighbouring MWOs.

[1] The format of geographical coordinates reporting in SIGMET is given in Appendix E.

Examples:

FL100/180 APRX 10KM BY 50KM N0100 E09530 – N1215 E11045
FL 150/210 S0530 E09300 – N0100 E09530 – N1215 E11045

3.4.4.5 Movement or expected movement of the VA cloud*(Column 5)*

MOV <direction><speed>KMH[KT]
or
STNR

The direction of movement is given by the abbreviation **MOV** – moving, followed by one of the eight points of compass: N, NE, E, SE, S, SW, W, NW. The speed of movement is given in KMH or KT.

Examples:

MOV E 35KMH
MOV SW 20KT
STNR

3.4.4.6 Forecast position of the VA cloud at the end of the validity period of the SIGMET message*(Column 6)*

FCST <GGgg>Z VA CLD APRX <P1(lat,lon) - P2(lat,lon) - … >

3.4.4.6.1 The **GGggZ** group should indicate the end of validity period given in the first line of the SIGMET message. The description of the expected position of the volcanic ash cloud is given by a number of points forming a simplified geometrical approximation of the cloud.

3.4.4.6.2 In describing the VA cloud up to four different layers can be used, indicated by flight levels in the form FL<nnn/nnn>. The use of more than one level is necessary when the wind direction distribution with height determines that the cloud is spread horizontally into different directions at different height layers.

3.4.5 Structure of the meteorological part of TC SIGMET

3.4.5.1 The general structure of the meteorological part of the TC SIGMET is given in the table below:

Start of the second line of the message

1	2	3		4
FIR/UIR or CTA	TC name	Observed or forecast		Extent
		Time	Locationof TC centre	
<CCCC><name> FIR [/UIR][CTA]	TC <name>	OBS AT <GGgg>Z [FCST]	<lat,lon>	CB TOP [ABV or BLW] FL<nnn> WI <nnn>KM[NM] OF CENTRE

5	6	7
Expected movement	Intensity change	Forecast of the centre position at the end of the validity period
MOV <direction><speed>KMH[KT] or STNR	INTSF or WKN or NC	FCST <GGgg>Z TC CENTRE <lat,lon>

3.4.5.2 Name of the tropical cyclone*(Column 2)*

TC <name>

The description of the tropical cyclone consists of the abbreviation TC followed by the international name of the tropical cyclone given by the corresponding WMO RSMC.

Examples:

TC GLORIA
TC 04B

3.4.5.3 Time of observation or indication of forecast*(Column 3.1)*

OBS AT <GGgg>Z
or
FCST

The time in UTC is given in hours and minutes, followed by the indicator Z. Normally, time is taken from own observations or from a TC advisory received from the responsible TCAC. If the TC is not yet observed in the FIR but the tropical cyclone advisory received from the responsible TCAC, or any other TC forecast used by the MWO, indicates that the TC is going to affect the FIR within the next 12 hrs, SIGMET should be issued, according to paragraph 2.4 above, and the abbreviation FCST should be used.

Examples:

OBS AT 2330

3.4.5.4 Location of the TC centre*(Column 3.2)*

<location>

The location of the TC centre is given by its lat,lon coordinates in degrees and minutes.

Examples:

N1535 E14230

3.4.5.5 Vertical and horizontal extent of the CB cloud formation around TC centre *(Column 4)*

CB TOP [ABV or BLW] <FLnnn> WI <nnnKM or nnnNM> OF CENTRE

Examples:

CB TOP ABV FL450 WI 200NM OF CENTRE
CB TOP FL500 WI 250KM OF CENTRE

3.4.5.6 Movement or expected movement*(Column 5)*

MOV <direction><speed>KMH[KT]
or
STNR

Direction of movement is given with reference to one of the eight points of compass. Speed is given in KMH or KT. The abbreviation STNR is used if no significant movement is expected.

Examples:

MOV NW 30KMH
MOV E 25KT

3.4.5.7 Intensity change*(Column 6)*

The expected change of the intensity of the tropical cyclone is indicated by one of the following abbreviations:

INTSF – intensifying
WKN – weakening
NC – no change

3.4.5.8 Forecast location of the TC centre at the end of the validity period of the SIGMET message*(Column 7)*

FCST <GGgg>Z TC CENTRE <location>

Normally, the time given by GGggZ should be the same as the end of validity period indicated in the first line of the SIGMET message. Since the period of validity is up to 6 hours (normally, 6 hours), this is a 6-hour forecast of the position of the TC centre.

The location of the TC centre is given by its lat, lon coordinates following the general rules of reporting lat, lon information provided in Appendix F to this Guide.

Examples:

FCST 1200Z TC CENTRE N1430 E12800

3.4.6 Cancellation of SIGMET

3.4.6.1 If during the validity period of a SIGMET the phenomenon for which the SIGMET had been issued is no longer occurring or no longer expected, the SIGMET should be cancelled by the issuing MWO. The cancellation is done by issuing same type of SIGMET with the following structure:

- WMO heading with the same data type designator;
- First line that contains as period of validity the remaining time of the original period of validity;
- Second line, which contains the name of the FIR or CTA, the combination CNL SIGMET, followed by the sequential number of the original SIGMET and its validity period.

Examples:

1. WS SIGMET:

WSZR31 FZAA 101200
FZAA SIGMET 5 VALID 101200/101600 FZAA-
FZAA FIR KINSHASA…

Cancellation of WS SIGMET:

WSZR31 FZAA 101430
FZAA SIGMET 6 VALID 101430/101600 FZAA-
FZAA FIR KINSHASACNL SIGMET 5 101200/101600=

2. VA SIGMET

WVCG31 FCBB 131518
FCCC SIGMET 03 VALID 131515/132115 FCBB-
FCCC FIR BRAZZAVILLE…

Cancellation of a VASIGMET:

WVCG31 FCBB 132000
FCCC SIGMET 04 VALID 132000/132115 FCBB-
FCCCFIR BRAZZAVILLE CNL SIGMET 03 13151500/132115=

or, in case that the volcanic ash cloud moves to an adjacent FIR:

WSZR31 FZAA 132000
FZAA SIGMET 04 VALID 132000/132115 FZAA -

FZAA FIR KINSHASACNL SIGMET 03 13151500/132115 VA MOV TO YUDO FIR=

3.5 Dissemination

3.5.1 SIGMET information is part of the operational meteorological (OPMET) information. According to Annex 3 the telecommunication facilities used for the exchange of the operational meteorological information should be the aeronautical fixed service (AFS).

3.5.2 The AFS consists of a terrestrial segment, AFTN or ATN (AMHS), and a satellite segment which comprises the SADIS and ISCS satellite broadcasts provided by the UK and the USA respectively.

3.5.3 Currently, AFTN links should be used by the MWOs to send the SIGMET, as follows:

- to the adjacent MWOs and ACCs* using direct AFTN addressing;
- When required for VOLMET or D-VOLMET, SIGMET should be sent to the relevant centre providing the VOLMET service;
- SIGMET should be sent to all regional OPMET Data Banks (RODB);
- It should be arranged that SIGMET is relayed to the SADIS and ISCS providers for satellite dissemination, as well as to the WAFCs London and Washington, either through the AMBEX scheme, or directly by the issuing MWO;
- SIGMET for volcanic ash should be disseminated to the responsible VAAC.

3.5.4 Through SADIS and ISCS, SIGMET is disseminated to all authorised users . In this way, SIGMET is available on a global basis, meeting the aeronautical requirements.

* *Note: For this dissemination it is required that SIGMET is available at the ACCs for transmission to aircraft in flight for the route ahead up to a distance corresponding to two hours flying time.*

APPENDIX A: Meteorological Watch Offices

EXPLANATION OF THE TABLE

Column

1. Location of the meteorological watch office (MWO)

2. ICAO location indicator, assigned to the MWO

3 Name of the FIR, UIR and/or search and rescue region (SRR) served by the MWO

4 ICAO location indicator assigned to the ATS unit serving the FIR, UIR and/or SRR

5 X if the MWO in column 2 issues VA SIGMET

6 X if the MWO in column 2 issues TC SIGMET

7 Remarks

Note: MWOs in italics are situated outside the AFI Region.

MWO Location	ICAO loc. ind.	Area served		SIGMET		Remarks
		Name	ICAO loc. ind.	VA	TC	
1	2	3	4	5	6	7
ALGERIA						
ALGER/Baraki1	*DAAL*	*Alger FIR/SRR*	*DAAA*	*X*		
ANGOLA						
LUANDA/4 de Fevereiro	*FNLU*	*Luanda FIR/SRR*	*FNAN*	*X*		
BOTSWANA						
GABORONE/Sir SeretseKhamaIntl	*FBSK*	*Gaborone FIR/SRR*	*FBGR*	*X*	*X*	
BURUNDI						
BUJUMBURA/Bujumbura	*HBBA*	*Bujumbura FIR*	*HBBA*	*X*		
CANARYISLANDS (Spain)						
GRAN CANARIA/Gran Canary, Canary I.	*GCLP*	*Canarias FIR and Grando RSS*	*GCCC*	*X*		
CAPE VERDE						
SAL I./AMILCAR CABRAL	GVAC	Sal Oceanic FIR/SRR	GVSC	X		
CHAD						
N'DJAMENA/N'Djamena	FTTJ	N'Djamena FIR/SRR	FTTT	X		
CONGO						
BRAZZAVILLE/Maya-Maya	FCBB	Brazzaville FIR/SRR	FCCC	X		
DEMOCRATIC REP. OF THE CONGO						
KINSHASA/N'Djili	FZAA	Zaire FIR, Kinshasa SRR	FZAA	X		
EGYPT						
CAIRO/Cairo Intl	*HECA*	*Cairo FIR/SRR*	*HECC*	*X*		
ETHIOPIA						
ADDIS ABABA/Bole Intl	*HAAB*	*Addis Ababa FIR/SRR*	*HAAA*	*X*		
ERITREA						
ASMARA	*HHAS*	*Asmara FIR*	*HHAA*	*X*		
GHANA						
ACCRA/Kotoka Intl	DGAA	Accra FIR/SRR	DGAC	X		

MWO Location	ICAO loc. ind.	Area served		SIGMET		Remarks
		Name	ICAO loc. ind.	VA	TC	
1	2	3	4	5	6	7
KENYA						
NAIROBI/Jomo Kenyatta Intl	*HKJK*	*Nairobi FIR/SRR*	*HKNA*	*X*	*X*	
LIBERIA2					/	
MONROVIA/Roberts Intl	GLRB	Roberts FIR/SRR	GLRB	X		
LIBYAN ARAB JAMAHIRIYA						
TRIPOLI/Tripoli Intl	*HLLT*	*Tripoli FIR/SRR*	*HLLL*	*X*		
MADAGASCAR						
ANTANANARIVO/Ivato	*FMMI*	*Antananarivo FIR/SRR*	*FMMM*	*X*	*X*	
MALAWI						
LILONGWE/Lilongwe Intl	*FWLI*	*Lilongwe FIR/SRR*	*FWLL*	*X*	*X*	
MAURITIUS						
MAURITIUS/Sir SeewoosagurRamgoolam Intl	*FIMP*	*Mauritius FIR/SRR*	*FIMM*	*X*	*X*	
MOROCCO						
CASABLANCA/Anfa	*GMMC*	*Casablanca FIR/SRR*	*GMMM*	*X*		
MOZAMBIQUE						
MAPUTO/Maputo Intl	*FQMA*	*Beira FIR/SRR*	*FQBE*	*X*	*X*	
NAMIBIA						
WINDHOEK/Hosea Kutako	*FYWH*	*Windhoek FIR/SRR*	*FYWH*	*X*		
NIGER						
NIAMEY/DioriHamani Intl	DRRN	Niamey FIR/SRR	DRRR	X		
NIGERIA						
KANO/MallamAminu Kano Intl	DNKN	Kano FIR/SRR	DNKK	X		
RWANDA						
KIGALI/GregoireKayibanda	*HRYR*	*Kigali FIR/SRR*	*HRYR*	*X*		
SENEGAL						
DAKAR/Leopold Sedar Senghor	GOOY	Dakar FIR/SRR Dakar oceanic FIR	GOOO	X		

MWO Location	ICAO loc. ind.	Area served		SIGMET		Remarks
		Name	ICAO loc. ind.	VA	TC	
1	2	3	4	5	6	7
SEYCHELLES						
MAHE/Seychelles Intl	*FSIA*	*Seychelles FIR/SRR*	*FSSS*	*X*	*X*	
SOMALIA						
MOGADISHU/Mogadishu	*HCMM*	*Mogadishu FIR/SRR*	*HCSM*	*X*		
SOUTH AFRICA						
CAPE TOWN/Cape Town	*FACT*	*Cape town FIR*	*FACT*	*X*		
JOHANNESBURG/Johannesburg	*FAJS*	*Johannesburg FIR/ARCC*	*FAJS*	*X*	*X*	
JOHANNESBURG/Johannesburg	*FAJO*	*Johannesburg Oceanic*	*FAJO*	*X*	*X*	
SUDAN						
KHARTOUM/Khartoum	*HSSS*	*Khartoum FIR/SRR*	*HSSS*	*X*		
TUNISIA						
Institut National de la Météorologie	*DTTA*	*Tunis FIR/UIR*	*DTTC*	*X*		
UGANDA						
ENTEBBE/Entebbe Intl.	*HUEN*	*Entebbe FIR*	*HUEC*	*X*		
UNITED REPUBLIC OF TANZANIA						
DAR-ES-SALAAM/Dar-es-Salaam	*HTDA*	*Dar-es-Salaam FIR*	*HTDC*	*X*	*X*	
ZAMBIA						
LUSAKA/Lusaka Intl	*FLLS*	*Lusaka FIR/SRR*	*FLFI*	*X*		
ZIMBABWE						
HARARE/Harare	*FVHA*	*Harare FIR/SRR*	*FVHA*	*X*	*X*	

APPENDIX B: Tropical Cyclone Advisory Centres

FASID AFI TABLE MET 3A

EXPLANATION OF THE TABLE

Column

1. Location of the tropical cyclone advisory centre (TCAC).
2. ICAO location indicator of TCAC (for use in the WMO heading of advisory bulletin).
3. Area of responsibility for the preparation of advisory information on tropical cyclones by the TCAC in Column 1.
4. Period of operation of the TCAC.
5. MWOs to which the advisory information on tropical cyclones should be sent.
6. ICAO location indicator of the MWOs in Column 4.

Note: MWOs in italics are situated outside the AFI Region.

TABLE MET 3A

TROPICAL CYCLONE ADVISORY CENTRES

TROPICAL CYCLONE ADVISORY CENTRE	ICAO LOC. INDICATOR	AREA OF RESPONSIBILITY	PERIOD OF OPERATION	MWOs TO WHICH ADVISORY INFORMATION IS TO BE SENT	
				Name	ICAO LOC. INDICATOR
1	2	3	4	5	6
RÉUNION (France)	FMEE	SouthwestIndianOcean Sud-ouest de l'océan Indien Sudoeste del océano Índico N: 0° S S: 30°S W: 30°E E: 90°E	1 November–30 April 1er novembre–30 avril 1 de noviembre–30 de abril	*Antananarivo* *Bloemfontein* *Bombay/Mumbay* *Dar-es-Salaam* *Durban* *Gaborone* *Harare* *Johannesburg* *Lilongwe* *Mahé/Seychelles* *Male* *Maputo* *Mauritius* *Nairobi* *Perth*	*FMMA* *FABL* *VABB* *HTDC* *FADN* *FBSK* *FVHA* *FAJS* *FWKI* *FSIA* *VRMM* *FQMA* *FIMM* *HKJK* *YYPPH*

APPENDIX C: Volcanic Ash Advisory Centres

FASID AFI TABLE MET 3B

EXPLANATION OF THE TABLE

Column

3. Location of the volcanic ash advisory centre (VAAC).

4. ICAO location indicator of VAAC (for use in the WMO heading of advisory bulletin).

5. Area of responsibility for the preparation of advisory information on volcanic ash by the VAAC in Column 1.

6. MWOs to which the advisory information on volcanic ash should be sent.

7. ICAO location indicator of the MWOs in Column 4.

8. ACCs to which the advisory information on volcanic ash should be sent.

9. ICAO location indicator of the ACCs in Column 6.

Note: MWOs and ACCs in italics are situated outside the AFI Region

---

FASID TABLE MET 3B — VOLCANIC ASH ADVISORY CENTRES

VOLCANIC ASH ADVISORY CENTRE	ICAO LOCATION INDICATOR	AREA OF RESPONSIBILITY	MWOs TO WHICH ADVISORY INFORMATION IS TO BE SENT		ACC TO WHICH ADVISORY INFORMATION IS TO BE SENT	
			Name	ICAO LOCATION INDICATOR	Name	ICAO LOCATION INDICATOR
1	2	3	4	5	6	7
Toulouse (France)	LFPW	AFI Region Santa Maria Oceanic*, EUR* (except for London, Scottish and Shannon FIRs) and MID* Regions: south of 71°N, west of 60°E FIR Santa Maria Oceanic*, régions EUR* (sauf les FIR London, Scottish et Shannon) et MID*: au sud de 71°N, ouest de 60°E Santa MariaOceanic*, EUR* (excepto las FIR London, Scottish y Shannon) y Regiones MID: sur del paralelo 71°N oestedelparalelo 60°E	Accra *Addis Ababa* Amilcar Cabral *Antananarivo* Brazzaville *Bujumbura* Dakar *Gran Canaria* Kano *Kigali* Kinshasa *Nairobi* Niamey N'Djamena Sal I.	DGAA *HAAB* GVAC *FMMI* FCBB *HBBA* GOOY *GCLP* DNKN *HRYR* FZAA *HKNA* DRRN FTTJ GVAC	Accra *Addis Ababa* *Antananarivo* Brazzaville *Bujumbura* Dakar *Gran Canaria* Kano *Kigali* Kinshasa *Nairobi* Niamey N'Djamena Robertsfield (Conakry) Sal I.	DGAA *HAAB* *FMMI* FCBB *HBBA* GOOY *GCLP* DNKN *HRYR* FZAA *HKNA* DRRN FTTJ GUCY GVAC

APPENDIX D: List of the Abbreviations and Code Words Used in SIGMET

ABV	Above
AND*	And
APRX	Approximate or approximately
AT	At *(followed by time)*
BLW	Below
BY*	By
CB	Cumulonimbus
CENTRE*	Centre *(used to indicate tropical cyclone centre)*
CLD	Cloud
CNL	Cancel *or* cancelled
CTA	Control area
DS	Dust storm
E	East *or* eastern longitude
ERUPTION*	Eruption *(used to indicate volcanic eruption)*
EMBD	Embedded in layer *(to indicate CB embedded in layer of other clouds)*
FCST	Forecast
FIR	Flight information region
FL	Flight level
FRQ	Frequent
FZRA	Freezing rain
GR	Hail
HVY	Heavy *(used to indicate intensity of weather phenomena)*
ICE	Icing
INTSF	Intensify *or* intensifying
ISOL	Isolated
KM	Kilometers
KMH	Kilometers per hour
KT	Knots
LINE*	Line
MOV	Move *or* moving *or* movement
MT	Mountain
MTW	Mountain waves
N	North *or* northern latitude
NC	No change
NE	North-east
NM	Nautical miles
NW	North-west
OBS	Observed
OBSC	Obscured
OCNL	Occasional
OF*	Of … *(place)*
RA	Rain
RDOACT	Radioactive
S	South *or* southern latitude
SE	South-east
SEV	Severe *(used e.g. to qualify icing and turbulence reports)*

SIGMET	SIGMET *(used to indicate SIGMET information)*
SQL	Squall line
SS	Sandstorm
STNR	Stationary
SW	South-west
TC	Tropical cyclone
TO	To … *(place)*
TOP	Cloud top
TS	Thunderstorm
TURB	Turbulence
UIR	Upper flight information region
VA	Volcanic ash
VALID*	Valid
W	West *or* western longitude
WI	Within
WID	Width
Z	Coordinated Universal Time *(used in meteorological messages)*

** not in the ICAO Doc 8400, ICAO Abbreviations and Codes*

APPENDIX E: Meteorological Phenomena to be Reported by SIGMET

Phenomenon	Description	Meaning
TS	OBSC[2] TS	Obscured thunderstorm(s)
	EMBD[3] TS	Embedded thunderstorm(s)
	FRQ[4] TS	Frequent thunderstorm(s)
	SQL[5] TS	Squall line thunderstorm(s)
	OBSC TSGR	Obscured thunderstorm(s) with hail
	EMBD TSGR	Embedded thunderstorm(s) with hail
	FRQ TSGR	Frequent thunderstorm(s) with hail
	SQL TSGR	Squall line thunderstorm(s) with hail
TC	TC (+ TC name)	Tropical cyclone (+ TC name)
TURB	SEV TURB[6]	Severe turbulence
ICE	SEV ICE	Severe icing
	SEV ICE FZRA	Severe icing due to freezing rain
MTW	SEV MTW[7]	Severe mountain wave
DS	HVY DS	Heavy duststorm
SS	HVY SS	Heavy sandstorm
VA	VA (+ volcano name, if known)	Volcanic ash (+ volcano name)

Notes:

1 Only one of the weather phenomena listed should be selected and included in each SIGMET

*2. Obscured (**OBSC**) indicates that the thunderstorm (including, if necessary, CB-cloud which is not accompanied by a thunderstorm) is obscured by haze or smoke or cannot be readily seen due to darkness*

*3. Embedded (**EMBD**) – indicates that the thunderstorm (including, if necessary, CB-cloud which is not accompanied by a thunderstorm) is embedded within cloud layers and cannot be readily recognized*

*4. Frequent (**FRQ**) indicates an area of thunderstorms within which there is little or no separation between adjacent thunderstorms with a maximum spatial coverage greater than 75% of the area affected, or forecasts to be affected, by the phenomenon (at a fixed time or during the period of validity)*

*5. Squall line (**SQL**) indicates thunderstorms along a line with little or no space between individual clouds*

*6. Severe (**SEV**) turbulence (**TURB**) refers only to:*
- *low-level turbulence associated with strong surface winds;*
- *rotor streaming;*
- *turbulence whether in cloud or not in cloud (CAT) near to jet streams.*

Turbulence is consideredsevere whenever the peak value of the cube root of EDR exceeds 0.7.

*7. A mountain wave (**MTW**) is considered severe – whenever an accompanying downdraft of 3.0 m/s (600 ft/min) or more and/or severe turbulence is observed or forecast.*

_____

APPENDIX F: Standard for Reporting Geographical Coordinates in SIGMET

When reporting geographical coordinates of points in SIGMET the following should apply:

1. Each point is represented by a latitude/longitude coordinates in whole degrees or degrees and minutes in the form:

N(S)nn[nn] W(E)nnn[nn]

Note: There is a space between the latitude and longitude value.

Examples:	**N0518 W00401**	*Abidjan*
	S0419 E01519	*Kinshasa*
	N1443 W01728	*Dakar*

2. In describing lines or polygons, the lat,lon values of the respective points are separated by the combination space-hyphen-space, as in the following examples:

N1334 W00739 – N1327 W01635 – N0932 W1340– N0518 W00401 (*Bamako, Banjul, Conakry, Abidjan)*

S05 E093 – N01 E095 – N12 E110 – S08 E103

Note: It is not necessary to repeat the first point when describing a polygon.

3. When describing a volcanic ash cloud approximate form and position, a limited number of points, which form a simplified geometric figure (a line, or a triangle, or quadrangle, etc.) should be used in order to allow for a straightforward interpretation by the user.

4. Reporting a phenomenon occupying two different geographical areas within the FIR. This is frequently the case with two (or more) separate TS formations occurring in different parts of the FIR at the same time. The question is whether a separate SIGMET should be issued for each formation, or, one SIGMET could include location description for two (or more) geographical areas. The current SIGMET format does not allow for reporting of more than one phenomenon or two different TS areas. Therefore, in cases like this, two separate SIGMETs should be issued. The main concern with issuing separate SIGMETs is that, in general, a new SIGMET for the same FIR would replace the previous one; this may lead to rejecting valid information in case as described above. It should be noted in this regard, that the current SIGMET format allows for using different sequence numbers and thus, for keeping more than one SIGMET at a time valid for the FIR concerned; for instance, a series A1, A2,… could be used for "phenomenon A" and B1, B2, … , for "phenomenon B".

_____

APPENDIX G: Examples

Note: Most examples are based on real SIGMETs. The real SIGMETs have been corrected in order to make them compliant with the Annex 3 format.

1. WS SIGMET

SIGMET for thunderstorms

WSCG31 FCBB 122305
FCCC SIGMET 9 VALID 122330/130230 FCBB-
FCCCBRAZZAVILLE FIR EMBD TS OBS N0241 E01250 – N0443 E01552 – N0200 E01630 – N0300 E01500 TOP FL400 STNR NC=

WSNT03 KKCI 032340
KZNY SIGMET C17 VALID 032345/040345 KKCI-
KZNY NEW YORK OCEANIC FIR FRQ TS OBS WI AREA N2400 W05500 - N2300 W04930 - N1845 W05645 - N2100 W05800 - N2400 W05500 TOP FL450 MOV E 15KT INTSF=

WSSG31 GOOY 091131
GOOO SIGMET 3 VALID 091140/091540 GOOY-
GOOODAKAR FIR SQL OBS 1130Z LINEN17W10 –N13 W07 – N07 W05MOV W 10KMH WKN=

WSUK31 EGGY 121120
EGTT SIGMET 01 VALID 121125/121525 EGRR-
EGTT LONDON FIR EMBD TSGR OBS AT 1115Z SE OF LINE N5130 E00200 - N5000 W00400 TOPS FL220 MOV NE 30KT NC=

1.2 SIGMET for severe turbulence

WSAU21 AMMC 280546
YBBB SIGMET BS02 VALID 280600/281200 YMMC-
YBBB BRISBANE FIR SEV TURB FCST WI S3900 E15100 - S4300 E15100 - S4300 E16000 - S4100 E16300 - S3700 E16300 - S3900 E16000 FL260/370 MOV E 20 KT NC=

WSZR31FZAA 280003
FZAA SIGMET 01 VALID 280002/280402 FZAA-
FZAA KINSHASA FIR SEV TURB OBS W OF MT KILIMANJARO BLW FL100 STNR NC=

1.3 SIGMET for severe icing

WSFR31 LFPW 280400
LFMM SIGMET 2 VALID 280500/280900 LFMM-
LFMM FIR MARSEILLE SEV ICE OBS AT 0400Z LIONGULF FL040/100 STNR NC=

WSIY31 LIIB 032152
LIMM SIGMET 07 VALID 032200/040200 LIMM-
LIMM MILANO FIR SEV ICE FCST OVER ALPS AND N PART APPENNINIAN AREA FL030/120 MOV E NC=

1.4 SIGMET for heavy duststorm

WSNR31 DRRN 160530
DRRR SIGMET 4 VALID 160600/161000 DRRN-
DRRR NIAMEY FIR HVY DS OBS N OF N1800 S OF N2300 W OF E01500 E OF E00600 MOV W 10KMH NC=

1.5 SIGMET for severe mountain wave

WSUK31 EGGY 150550
EGTT SIGMET 03 VALID 150600/151000 EGRR-
EGTT LONDON FIR SEV MTW FCST N OF N5100 FL090/140 STNR WKN=

2. VA SIGMET

2.1 VA SIGMET - full

WVPH01 RPLL 211110
RPHI SIGMET 2 VALID 211100/211700 RPLL-
RPHI MANILA FIR VA ERUPTION MT PINATUBO LOC S1500 E07348
VA CLD OBS AT 1100Z FL310/450 APRX 220KM BY 35KM S1500 E07348 – S1530 E07642 MOV SE 65KMH FCST 1700Z VA CLD APRX S1506 E07500 – S1518 E08112 – S1712 E08330 – S1824 E07836=

Note:The coordinates used in describing the VA cloud are fictitious.

2.2 "Short" first SIGMET (no FCST)

YUDD SIGMET 2 VALID 211100/211700 YUSO-
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL LOC S1500 E07348
VA CLD OBS AT 1100Z FL310/450 APRX 220KM BY 35KM S1500 E07348 – S1530 E07642 MOV SE 65KMH FCST 1700Z VA CLD APRX S1506 E07500 – S1518 E08112 – S1712 E08330 – S1824 E07836=

or

YUDD SIGMET 2 VALID 211100/211700 YUSO-
YUDD SHANLON FIR/UIR VA ERUPTION MT ASHVAL LOC S1500 E07348
VA CLD OBS AT 1100Z FL100/180 APRX 220KM BY 35KM S1500 E07348 – S1530 E07642=

WVFJ01 NFFN 090900
NFFF SIGMET 03 VALID 090915/091515 NFFN-
NFFF NADI FIR VA ERUPTION MT LOPEVI LOC S1630 E16820 VA CLD OBS AT 0330Z FL090 APRX 10NM BY 10NM MOV SE 25KT FCST 1515Z VA CLD APPRX S1630 E16820 - S1900 E17600 - S1930 E17030=

2.3 SIGMET for VA CLD in the FIR but the volcano information is unknown

YUDD SIGMET 2 VALID 211100/211700 YUSO-
YUDD SHANLON FIR/UIR VA CLD OBS AT 1100Z FL310/450 APRX 220KM BY 35KM S1500 E07348 – S1530 E07642 MOV SE 65KMH FCST 1700Z VA CLD APRX S1506 E07500 – S1518 E08112 – S1712 E08330 – S1824 E07836=

2.4 SIGMET for VA CLD forecast to affect the FIR

We assume that the responsible VAAC has issued an advisory at 0200Z with forecast positions of the VA CLD for 0800Z, 1400Z and 2000Z. From this forecast it is seen that the VA CLD will enter the YUDD FIR around 0800Z. The responsible MWO, YUSO receiving this advisory prepares a SIGMET for the expected penetration of the VA cloud in its FIR and this SIGMET is send at 0230Z.

WVXY01 YUSO 210230
YUDD SIGMET 2 VALID 210800/211400 YUSO-
YUDD SHANLON FIR/UIR VA CLD FCST FL310/450 APRX 220KM BY 35KM S1500 E07348 – S1530 E07642 MOV SE 65KMH FCST 1400Z VA CLD APRX S1506 E07500 – S1518 E08112 – S1712 E08330 – S1824 E07836=

Notes: 1. The forecast positions at 0800Z and 1400Z are taken from the VA advisory.

3. TC SIGMET

3.1. TC Graham – SIGMET issued by MWO Perth - Australia

WCOC31 APRF 280453
YBBB SIGMET PH01 VALID 280500/281100 YPRF-
YBBB BRISBANE FIR TC GRAHAM OBS AT 0400Z S1806 E12145 CB TOP FL450 WI 120NM OF CENTRE MOV SE 7KT INTSF FCST 1100Z TC CENTRE S1808 E12150=

3.2. SIGMET messages issued in July 2003 during the passage of TC Koni

WCSS20 VHHH 200240
VHHK SIGMET 2 VALID 200900/201500 VHHH-
VHHK HONG KONG CTA TC KONI OBS AT 0000Z N1618 E11506CB TOP FL500 WI 90NM OF CENTRE MOV NW 8KT NCFCST 1500Z TC CENTRE N1749 E11347=

Note: This SIGMET is issued before the TC Koni started affecting the Hong Kong CTA, as seen from the issuing time and the start of validity time

WCSS20 VHHH 201150
VHHK SIGMET 7 VALID 201200/201800 VHHH-
VHHK HONG KONG CTA TC KONI OBS AT 0900Z N1712 E11400 CB TOP FL500 WI 90NM OF CENTRE MOV NW 10KT NCFCST 1800Z TC CENTRE N1810 E11300=

WCSS20 VHHH 201450
VHHK SIGMET 10 VALID 201800/210000 VHHH-
VHHK HONG KONG CTA TC KONI OBS AT 1500Z N1730 E11330CB TOP FL500 WI 60NM OF CENTRE MOV NW 10KT NCFCST 2100Z TC CENTRE N1818 E11240=

APPENDIX H: WMO Headings for SIGMET Bulletins Used by AFIMeteorological Watch Offices (MWO)

EXPLANATION OF THE TABLE

Col 1: State and name of the MWO

Col 2: ICAO location indicator of the MWO

Col 3: $T_1T_2A_1A_2$ii group of the WMO heading for the WS SIGMET bulletin

Col 4: $T_1T_2A_1A_2$ii group of the WMO heading for the WC SIGMET bulletin (tropical cyclone)

Col 5: $T_1T_2A_1A_2$ii group of the WMO heading for the WV SIGMET bulletin (volcanic ash)

Col 6: ICAO location indicator of the FIR/CTA served by the MWO

Col 7: Remarks

WMO HEADINGS FOR SIGMET BULLETINS
USED BY AFI METEOROLOGICAL WATCH OFFICES

MWO Location	ICAO location indicator	WMO SIGMET Headings			FIR/ACC served	Remarks
		WS	WC	WV	ICAO location indicator	
1	2	3	4	5	6	7
ALGERIA ALGER/Baraki	DAAL	WSAL31		WVAL31	DAAA	
ANGOLA LUANDA/4 de Fevereiro	FNLU	WSAN31		WVAN31	FNAN	
BOTSWANA GABORONE/Sir SeretseKhama	FBSK	WSBC31	WCBC31	WVBC31	FBGR	
BURUNDI BUJUMBURA/Bujumbura	HBBA	WSBI31		WVB131	HBBA	
CANARYISLANDS (Spain) GRAN CANARIA/Gran Canary, Canary I	GCLP	WSCR31		WVCR31	GCCC	
CAPEVERDE SAL I/Amilcar Cabral	GVAC	WSCV31		WVCV31	GVSC	
CHAD N'DJAMENA/N'djamena	FTTJ	WSCD31		WVCD31	FTTT	
CONGO BRAZZAVILLE/Maya-Maya	FCBB	WSCG31		WVCG31	FCCC	
D.R.CONGO KINSHASA/N'Djili	FZAA	WSZR31	WCZR31	WVZR31	FZAA	
EGYPT CAIRO/Cairo International	HECA	WSEG31	WCEG31	WVEG31	HECC	
ETHIOPIA ADDIS ABABA/Bole Intl	HAAB	WSET31		WVET20	HAAA	
ERITREA ASMARA	HHAS	WSEI31		WVEI31	HHAA	
GHANA ACCRA/Kotoka Int'l	DGAA	WSGH31		WVGH31	DGAC	
KENYA KENYA/Jomo Kenyatta Int'l	HKJK	WSKN31	WCKN31	WVKN31	HKNA	
LIBERIA MONROVIA/Roberts Int'l	GLRB	WSLI31		WVSL31	GLRB	
LIBYAN ARAB JAMAHIRIYA TRIPOLI/Tripoli Int'l	HLLT	WSLY31		WVLY31	HLLL	
MADAGASCAR ANTANANARIVO/Ivato	FMMI	WSMG31	WCMG20	WVMG20	FMMM	
MALAWI LILONGWE/Lilongwe Int'l	FWLI	WSMW31	WCMG31	WVLI31	FWLL	

MWO Location	ICAO location indicator	WMO SIGMET Headings			FIR/ACC served	Remarks
		WS	WC	WV	ICAO location indicator	
1	2	3	4	5	6	7
MAURITIUS MAURITIUS/Sir SeewoosagurRamgoolam Int'l	FIMP	WSMA31	WCMG20	WVMA31	FIMM	
MOROCCO CASABLANCA/Anfa	GMMC	WSMC31		WVMC31	GMMM	
MOZAMBIQUE MAPUTO/Maputo Int'l	FQMA	WSMZ31	WCMZ20	WVMZ31	FQBE	
NAMIBIA WINDHOEK/Hosea Kutako	FYWH	WSNM31		WVNM31	FYWH	
NIGER NIAMEY/DioriHmaniInt'l	DRRN	WSNR31		WVNR31	DRRR	
NIGERIA KANO/MallamAminuKanoInt'l	DNKN	WSNI31		WVNI31	DNKK	
RWANDA KIGALI/GregoireKayibanda	HRYR	WSRW31		WVRW31	HRYR	
SENEGAL Leopold Sedar Senghor	GOOY	WSSG31		WVSG31	GOOO	
SEYCHELLES MAYE/Seychelles Int'l	FSIA	WSSC31	WCSC20	WVSC31	FSSS	
SOMALIA MOGADISHU/Mogadishu	HCMM	WSSI31		WVSI31	HCSM	
SOUTH AFRICA JOHANNESBURG/Johannesburg	FAJS	WSZA31	WCZA31	WVZA31	FACA FAJA FAJO	
SUDAN KHARTOUM/Khartoum	HSSS	WSSU31		WVSU31	HSSS	
TUNISIA TUNIS/Carthage	DTTA	WSTS31		WVTS31	DTTC	
UGANDA ENTEBBE/Entebbe Int'l	HUEN	WSUG31		WVUG31	HUEC	
UNITED REPUBLIC OF TANZANIA DAR-ES-SALAAM/Dar-es-Salaam	HTDA	WSTN31	WCTN31	WVTN31	HTDC	
ZAMBIA LUSAKA/Lusaka Int'l	FLLS	WSZB31		WVZB31	FLFI	
ZIMBABWE HARARE/Harare	FVHA	WSZW31	WCZW31	WVZW31	FVHA	

APPENDIX H1: OPERATIONAL UNITS

OPERATIONAL UNITS*/UNITES OPERATIONNELLES*

MWO, RODB, VAAC, TCAC AND ACC/FIC AFTN ADDRESSES OF THE AFI REGION

ADRESSES RSFTA DES CVM, BRDO, VAAC, TCAC ET CCR/CIV DE LA REGION AFI

MWO, RODB, VAAC, TCAC AND ACC/FIC Location	ICAO location indicator	AFTN Address/Adresse RSFTA			FIR/ACC served	Confirmation Date/ Date de confirmation
		MWO/CVM	ACC/CCR	FIC/CIV	ICAO location indicator	
1	2	3	4	5	6	7
ALGERIA ALGER/Houari Boumedienne	DAAG	**DAAGYMYX**	**DAAAZQZX**	**DAAAZQZX**	DAAA	
ANGOLA 4 de Fevereiro	FNLU	**FNLUYMYX**	**FNANZAZX**	**FNANZQZX**	FNAN	02/05/2008
BOTSWANA Gaborone/Sir Seretse Khama Int.	FBSK	**FBSKYMYX**	**FBGRZRZX**	**FBGRZRZX**	FBGR	18/03/2008
BURUNDI BUJUMBURA	HBBA	**HBBAYMYX**	**HBBAZQZX**	**HBBAZQZX**	HBBA	
CANARY ISLANDS GRAN CANARIA	GCLP	**GCLPYMYX**	**GCLPZQZX**	**GCLPZQZX**	GCCC	
CAPE VERDE SAL I/Amilcar Cabral	GVAC	**GVACYMYX**	**GVSCZQZX**	**GVSCZQZX**	GVSC	11/01/2008. Fax N° T/10-1009
CHAD N'Djamena/Hassan Djamous International	FTTJ	**FTTJYMYX**	**FTTTZQZX** **FTTTZRZX** **FTTTZUZX** **FTTTZFZX**	**FTTTZIZX** **FTTTZFZX** **FTTTZQZX**	FTTT	15/04/2009. Fax N° 2009/000119/ ASECNA/DEED/DEETT
CONGO BRAZZAVILLE/Maya-Maya	FCBB	**FCBBYMYX**	**FCCCZQZX** **FCCCZRZX** **FCCCZUZX** **FCCCZFZX**	**FCCCZQZX** **FCCCZFZX** **FCCCZIZX**	FCCC	15/04/2009. Fax N° 2009/000119/ ASECNA/DEED/DEETT
D.R. CONGO KINSHASA/N'Djili	FZAA	**FZAAYMYX**	**FZAAZQZX**	**FZAAZQZX**	FZAA	18/01/2008. E-mail from ASECNA HQ (Sougué)
EGYPT CAIRO	HECA	**HECAYMYX**	**HECAZQZX**	**HECAZQZX**	HECC	
ERITREA ASMARA	HHAS	**HHASYMYX**	**HHASZQZX**	**HHASZQZX**	HHAA	
ETHIOPIA ADDIS ABABA/Bole Int.	HAAB	**HAABYMYX**	**HAAAZQZX**	**HAAZQZX**	HAAA	07/03/2008
GHANA ACCRA/Kotoka International Airport	DGAA	**DGAAYMYX**	**DGACZQZX**	**DGACZQZX**	DGAC	24/12/2007. E-mail at 09:12 from Juati Ayilari-Naa
KENYA NAIROBI/Jomo Kenyatta	HKJK	**HKJKYMYX**	**HKNAZQZX**	**HKNAZQZX**	HKNA	10/03/2008

LIBERIA MONROVIA/Roberts International Airport	GLRB	**GLRBYMYX**	**GLRBZQZX**	**GLRBZQZX**	GLRB	
LIBYA TRIPOLI	HLLT	**HLLTYMYX**	**HLLTZQZX**	**HLLTZQZX**		
MADAGASCAR ANTANANARIVO/Ivato	FMMI	**FMMIYMYX**	**FMMIZTZX**	**FMMIZQZX**	FMMM	14/03/2008
MALAWI LILONGWE/Kamuzu Int.	FWKI	**FWKIYMYX**	**FWLLZQZX**	**FWLLZQZX**	FWLL	
MOROCCO CASABLANCA/Anfa	GMMC	**GMMCYMYX**	**GMMMZQZX**	**GMMMZQZX**	GMMM	E-mail du 30/03/2009
MAURITIUS MARITIUS/Sir Seewoosagur Ramgoolam Int.	FIMP	**FIMPYMYX**	**FIMMZQZX**	**FIMMZQZX**	FIMM	17/03/2008
MOZAMBIQUE MAPUTO/Maputo Intl	FQMA	**FQMAYMYX**	**FQBEZQZX**	**FQBEZIZX**	FQBE	07/03/2008
NAMIBIA WINDHOEK/Hosea Kutako	FYWH	**FYWHYMYX**	**FYNMZQZX**	**FYNMZQZX**	FYNM	06/03/2008
NIGER NIAMEY/Diori Hmani International Airport	DRRN	**DRRNYMYX**	**DRRRZQZX** **DRRRZRZX** **DRRRZUZX** **DRRRZFZX**	**DRRRZIZX** **DRRRZQZX** **DRRRZFZX**	DRRR	15/04/2009. Fax N° 2009/000119/ ASECNA/DEED/DEETT
NIGERIA KANO/Mallam Aminu Kano International Airport	DNKN	**DNKNYMYX**	**DNKNZQZX**	**DNKNZQZX**	DNKK	07/01/2008. E-mail at 14:08 from Rahim Adewara
RWANDA KIGALI/Gregoire Kayibanda	HRYR	**HRYRYMYX**	**HRYRZQZX**	**HRYRZQZX**	HRYR	
SENEGAL DAKAR/Leopold Sedar Senghor	GOOY	**GOOYYMYX**	**GOOOZQZX** **GOOOZRZX** **GOOOZUZX** **GOOOZFZX**	**GOOOZIZX** **GOOOZFZX** **GOOOZQZX** **GOOOZOZX**	GOOO	15/04/2009. Fax N° 2009/000119/ ASECNA/DEED/DEETT
SEYCHELLES MAHE/Seychelles Intl	FSIA	**FSIAYMYX**	**FSSSZQZX**	**FSSSZQZX**	FSSS	06/03/2008

SOMALIA MOGADISHU/Mogadishu	HCMM	**HCMMYMYX**	**HCSMZQZX**	**HCSMZQZX**	HCSM	
SOUTH AFRICA JOHANNESBURG/O.R.Tambo Int	FAJS	**FAJSYMYX**	**FACAZQZX**	**FACAZQZX**	FACA	06/03/2008
JOHANNESBURG/O.R.Tambo Int	FAJS	**FAJSYMYX**	**FAJAZQZX**	**FAJAZQZX**	FAJA	
JOHANNESBURG/O.R.Tambo Int	FAJS	**FAJSYMYX**	**FAJOZQZX**	**FAJOZQZX**	FAJO	
SUDAN KHARTOUM	HSSS	**HSSSYMYX**	**HSSSZQZX**	**HSSSZQZX**	HSSS	
TUNISIA TUNIS/Carthage	DTTA	**DTTAYMYX**	**DTTCZQZX** **DTTCZRZX**	**DTTCQZX** **DTTCZRZX**	DTTC	24/04/2009. Fax N° 01391 du 27 avril 2009
UGANDA ENTEBBE/Entebbe Int.	HUEN	**HUENYMYX**	**HUECZQZX**	**HUECZQZX**	HUEC	
UNITED REPUBLIC OF TANZANIA DAR-ES-SALAAM/Dar-es-Salaam	HTDA	**HTDAYMYX**	**HTDCZQZX**	**HTDCZQZX**	HTDC	
ZAMBIA LUSAKA/Lusaka Int.	FLLS	**FLLSYMYX**	**FLFIZQZX**	**FLFIZQZX**	FLFI	25/03/2008
ZIMBABWE HARARE/Harare	FVHA	**FVHAYMYX**	**FVHAZQZX**	**FVHAZQZX**	FVHA	
RODB/BRDO Dakar DAKAR/Leopold Sedar Senghor		**GOOYYZYZ**	**GOOYYZYZ**	**GOOYYZYZ**		15/04/2009. Fax N° 2009/000119/ ASECNA/DEED/DEETT
RODB/BRDO Pretoria Pretoria		**FAPRYMYX**	**FAPRYMYX**	**FAPRYMYX**		
VAAC Toulouse, France		**LFPWYMYX**				
TCAC La Réunion, France		**FMEEYMYX**	**FMEEYAYX**	**FMEEYAYX**	FMEE	

APPENDIX I: WMO Headings for Tropical Cyclone and Volcanic Ash Advisory Bulletins (FK And FV)Used by AFITCAC And VAAC

Explanation of Table

Col. 1: Name of the TCAC or VAAC

Col 2: ICAO location indicator used by the TCAC or VAAC

Col 3: WMO heading (TTAAii CCCC) of the FK or FV bulletin

Col 4: Remarks (e.g., Area of coverage of the advisory, or any other bulletin-specific information)

TCAC/VAAC (State)	**ICAO location indicator**	**WMO Heading TTAAii CCCC**	**Remarks**
1	2	3	4
TC Advisories (FK)			
Réunion (France)	FMEE	FKIO20 FMEE	
VA Advisories (FV)			
Toulouse (France)	LFPW	FVXX01LFPW 1st volcano in activity FVXX02LFPW 2ndvolcano in activity, FVXX03LFPW 3rdvolcano in activity FVXX04LFPW 4thvolcano in activity FVXX05LFPW usedfor VAAC TOULOUSE back up byLONDON	

J-1

APPENDIX J - AFI SIGMET Test Procedures

(Amendment 1 – May 2010)

1. Introduction

1.1 The MET Divisional Meeting (2002) formulated recommendation 1/12 b), *Implementation of SIGMET requirements,* which call, *inter alia,* for the relevant planning and implementation regional groups (PIRGs) to conduct periodic tests of the issuance and reception of SIGMET messages, especially those for volcanic ash.

1.2 Concerns by the users for the timely reception of SIGMET information has prompted the need to improve awareness on the critical and important nature of SIGMETs. In order to maintain the International Airways Volcano Watch (IAVW) and TC watch systems ready-for-action, regular exercises involving the advisory centres and the MWOs under their areas of responsibility should be performed.

1.3 The requirements for dissemination of SIGMET are specified in Annex 3, Appendix 6, 1.2. Regional guidance on the preparation and dissemination of SIGMET is provided in this *Regional SIGMET Guide*.

2. Purpose and Scope of SIGMET tests

2.1 The purpose of the tests is to check the awareness of the participating MWOs of the ICAO requirements for the issuance of SIGMET, and the adequacy of the existing telecommunication procedures for dissemination of the advisories and SIGMETs. Based on the results of the tests, the States will be provided with advice aimed at improving their practices and procedures.

2.2 In the case of SIGMET for tropical cyclones and volcanic ash clouds (referred hereafter as WC SIGMET and WV SIGMET respectively) the scope of the tests will involve issuance of test advisories by the VAACs and TCACs in the region, which will be disseminated to the corresponding MWOs and the Regional OPMET Data Banks (RODBs). The MWOs will have to issue a test SIGMET on receipt of a test advisory from the responsible VAAC or TCAC, and disseminate it according to the distribution list used for normal (non-test) SIGMETs.

2.3 The RODBs will record the reception of the test SIGMETs and the corresponding time and will provide a summary table to the VAAC or TCAC with a copy to the Regional Office.

2.4 A consolidated summary report will be prepared by the ICAO Secretariat and reported to the MET/SG and APIRG. The report will include recommendations for improvement of the SIGMET exchange and availability.

J-2

3. SIGMET test procedures

3.1 Procedures for WC and WV SIGMET TEST :

3.1.1 Operational Units:

3.1.1.1 Tropical Cyclone Advisory Centre (TCAC: **La Réunion**

3.1.1.2 Volcanic Ash Advisory Centre (VAAC): **Toulouse**

3.1.1.3 Regional OPMET Data Bank (RODB): **Dakar, Pretoria**

3.1.1.4 Meteorological Watch Office (MWO)

3.1.1.4.1 All MWOs listed in AFI FASID Table MET 3A and MET 3B, under the responsibility of Toulouse, VAAC and La Réunion, TCAC.

Note: The participation of MWOs of States, which do not belong to AFI region, should be coordinated through the relevant ICAO Regional Office.

3.1.2 **Test date and time**

3.1.2.1 ICAO Regional Office will set a date and time after consultation with the VAAC, TCAC and RODB. The information about the agreed date and time will be sent to all States concernedand copied to the States SIGMET Tests Focal Points.

3.1.3 Test messages

3.1.3.1 Each VAAC or TCAC prepares a simple TEST message in the form of VA or TC advisory. The formats of the said TESTsare given in **Attachment 1** to this Appendix.

3.1.3.2 The MWOs, upon receipt of the TEST VA/TC advisory, should prepare a TEST SIGMET for volcanic ash or tropical cyclone, respectively, and send it to the RODBs. The WMO heading and the first line of the SIGMET should be valid ones, while the body of the message should contain an explanatory text on the testsas show in **Attachment 1** to this Appendix.

3.1.3.3 The MWOs should issue a WV or WC TEST SIGMET within the 10-minute period following the issuance of VA or TC test message by the corresponding VAAC or TCAC.

3.2 Procedures for WS SIGMET Tests

3.2.1 WS SIGMET advisory Test should be initiated by Pretoria RODB in coordination with ICAO Regional Offices in Dakar and Nairobi. The information about the date and time will be sent to all States concerned and copied to the State's SIGMET Tests Focal Points.

J-3

3.2.2 Operational Units:

-AFI Regional OPMET data Banks: Dakar and Pretoria.

-Meteorological Watch Offices (MWO): All MWOs listed in FASID Table MET 3A and MET 3B of the AFI FASID.

3.3 Common Procedures Applicable to All Types of SIGMET

3.3.1 The AFTN addresses of the RODBs to which the test SIGMETs should be sent are as follows:

Dakar	:	GOOYYZYZ
Pretoria	:	FAPRYMYX

3.3.2 To avoid over-writing of a valid SIGMET, the test SIGMET may not be sent if there is a valid SIGMET for responsible area of the MWO. Such MWOs are strongly encouraged to notify the Regional Office via e-mail of their non-participation in the test due to the said reasons.

3.3.3 Test for different types of SIGMET should preferably be conducted on separate dates.

3.3.4 At least two SIGMET tests per year should be conducted.

3.4 Special procedure to avoid overwriting of a valid SIGMET

3.4.1 It is vital to ensure that TEST SIGMET is not confused with operational SIGMET and avoid overwriting a valid operational SIGMET in an automated system. In order to prevent this it is suggested that:

a) If at the time of the SIGMET test NO SIGMET is current for the FIR, the number of the Test SIGMET should follow the normal numbering sequence; e.g. if the last “normal” SIGMET before the test was number “03”,

b) the TEST SIGMET should be number “04”, and the first “normal” SIGMET after the test should be number “05”.If a SIGMET is VALID at the time of the test then the TEST SIGMET should be issued and the valid SIGMET should be repeated immediately after the TEST SIGMET. E.g., if the following SIGMET is issued at 0100 on the date of the test:

J-4

WSCG31 FCBB 250100
FCCC SIGMET 1 VALID 250100/250500 FCBB-
FCCC BRAZZAVILLE FIR SEV TURB FCST WI ….=

A SIGMET test is scheduled for 0200 UTC on the 25th. The TEST SIGMET is issued with the next consecutive sequence number as follows:

WSCG31 FCBB 250200
FCCC SIGMET 2 VALID 250200/250210 FCBB-
FCCC THIS IS A TEST SIGMET PLEASE DISREGARD=

The original SIGMET is then retransmitted immediately after this with the next consecutive sequence number and the validity period is amended accordingly:

WSCG31 FCBB 250200
FCCC SIGMET 3 VALID 250200/250500 FCBB-
FCCC BRAZZAVILLE FIR SEV TURB FCST WI … =

4. Dissemination of test SIGMETs and Advisories

4.1 All TEST SIGMETs and TC/VA advisories should be sent to the two AFI RODBs. The AFTN addresses to be used by the MWOs, TCACs and VAACs are as follows:

Dakar – GOOYYZ YZ
Pretoria – FAPRYMYX

4.2 SIGMET tests should be terminated within **2 hours** of the test start time.

4.3 Coordination with the ATS units

4.3.1 MWOs should inform the associated ATS units of the forthcoming SIGMET tests by a suitable advanced notice.

4.4 Processing of the test messages and results

4.4.1 The RODBs will be requested to file all incoming TEST advisories and SIGMETs and perform an analysis of the availability, timeliness of arrival for WV and WC SIGMETs and the correctness of the headers and meteorological content of WS SIGMET. A SIGMET TEST Summary Table as shown in **Attachment 4** to this Appendix should be prepared by each RODB and sent to the Rapporteur of the AFI OPMET Management Task Force (AFI OPMET MTF), and the contact given below with a copy to the ICAO Dakar and Nairobi Regional Office.

4.4.2 The Rapporteur and SIGMET test contact should prepare the final report of the test and present it to the AFI Regional Offices. A summary report should be submitted to the next AFI OPMET MTF meeting.

4.4.3 The current contact information for sending summary tables is as follows :

J-5

WS SIGMET summary table sent to :

Mr DiemeSaidou
Service Exploitation Météorologique ASECNA – Sénégal
Tél 221 33 869 22 03
Fax 221 33 820 06 00
E-mail : saidoudieme@yahoo.fr

WV/WC SIGMET summary table sent to :

Mrs G.E Khambule
South African Weather Service
Tel 27113909326
Fax 27113209332
Email : gaborekwe.khambule@weathersa.co.za

All Summary Tables and any enquires about SIGMET tests sent to :

ICAO Regional Office, Dakar
E-mail : icaoAFI@dakar.icao.int
Cc : aokossi@dakar.icao.int

And

ICAO Regional Office, Nairobi
Email : icao@icao.union.org
Cc: vitalis.ahago@icao.unon.org

J-6

Attachment 1 to Appendix J

AFI SIGMET TEST PROCEDURES

Format of VA Test advisories and SIGMETs

1. The format of VA and TC advisories are as in ICAO Annex 3:
   - **Table A2-1. Template for advisory message for volcanic ash**
   - **Table A2-2. Template for advisory message for tropical cyclones.**

Example of TEST Volcanic Ash Advisory

VA ADVISORY
DTG : YYYYMMDD/hhmm
VAAC: (name of VAAC
VOLCANO : TEST
PSN : UNKNOWN
AREA : (name of VAAC) VAAC AREA
SUMMIT ELEV : UNKNOWN
ADVISORY NR : YYYY/nn (actual number)
INFO SOURCE : NIL
AVIATION COLOUR CODE : NIL
ERUPTION DETAILS : NIL
OBS VA DTG : DD/0150Z
OBS VA DTG : ASH NOT IDENTIFIABLE FROM SATELLITE DATA
FCST VA CLD + 6HR : 01/ 0800 Z SFC/FL600 NO ASH EXP
FCST VA CLD + 12 HR : 01/1400 Z SFC/FL600 NO ASH EXP
FCST VA CLD + 18 HR : 01/2000 Z SFC/FL600 NO ASH EXP
RMK: THIS IS A TEST VA ADVISORY. MWO SHOULD NOW ISSUE A TEST SIGMET FOR VA, UNLESS THERE IS A VALID SIGMET FOR VA.
PLEASE REFER TO THE LETTER FROM ICAO AFI OFFICE DATED xxxxxx.
NXT ADVISORY : NO FURTHER ADVISORIES =

2. Example of Format of TEST Tropical Cyclone ADVISORY

TC ADVISORY

DTG : YYYYMMDD/hhmm
TCAC : (name of TCAC)
TC : TEST
NR : nn (actual number)
PSN : NIL
MOV : NIL
C: NIL
MAX WIND : NIL
FCST PSN + 06HR : NIL
FCST MAX WIND + 6HR : NIL

FCST PSN +12 HR : NIL
FCST MAX WIND +12HR : NIL
FCST PSN +18HR : NIL
FCST MAX WIND +18HR : NIL
FCST PSN + 24 HR : NIL
FCST MAX WIND +24HR : NIL

J-7

RMK : THIS IS A TEST TC ADVISORY. MWO SHOULD NOW ISSUE A TEST SIGMET FOR TC, UNLESS THERE IS VALID SIGMET FOR TC
PLEASE REFER TO THE LETTER FROM ICAO AFI OFFICE DATED XXXXXX
NXT MSG : NIL

3. Example of TEST SIGMET for Volcanic Ash

WVXXii CCCC YYGGgg
CCCC SIGMET n (nn) VALID YYGGgg/ YYGGggCCCC-
THIS IS A TEST SIGMET , PLEASE DISREGARD. TEST VA ADVISORY NUMBER xx

RECEIVED AT YY GGggz =

Example:

WVHK31 VHHH 180205
VHHK SIGMET 01 VALID 180205/180215 VHH-
THIS IS A TEST SIGMET, PLEASE DISREGARD. TEST VA DVISORY NUMBER 01
RECEIVED AT 180200Z =

4. Format of TEST SIGMET for Tropical Cyclone

WCXXii CCCC YYGGgg
CCCC SIGMET n (nn) VALID YYGGgg/YYGGgg CCCC-
THIS IS A TEST SIGMET, PLEASE DISREGARD. TEST VA DVISORY NUMBER xx
RECEIVED AT YYGGggZ=

Example :

WCHK31 VHHH 180205
VHHK SIGMET 01 VALID 180205/180215 VHHH-
THIS IS A TEST SIGMET, PLEASE DISREGARD. TEST TC ADVISORY NUMBER 01
RECEIVED AT 180200Z=

5. Format of TEST SIGMET for other weather phenomena
WSXXii CCCC YYGGgg
CCCC SIGMET n (nn) VALID YYGGgg/YYGGgg CCCC
THIS IS A TEST SIGMET, PLEASE DISREGARD =

Example :
WSHK31 VHH H180200

VHHK SIGMET 04 VALID 180200/ 180210 VHHH-
THIS IS A TEST SIGMET, PLEASE DISREGARD =

Note : 1) " x x " in the WMO heading to be used replaced by the respective WMO geographical designator
2) Actual number to be used in all TEST SIGMETS

J-8

6. AFI Volcanic ash test procedure

Format of the test VAA

a) The format for the TEST VAA that will be provided by the Toulouse VAAC can be seen below. DD is the day of the month, *HH* the hour of issuance.

FVAF01 LFPW ***DDHH****00*
VOLCANIC ASH ADVISORY
ISSUED: 200506***DD/HH***00Z
VAAC: TOULOUSE
VOLCANO: FICTITIOUS
LOCATION: NIL

AREA : NIL
SUMMIT ELEVATION : NIL
ADVISORY NUMBER : 2005/01
INFORMATION SOURCE: NIL
AVIATION COLOUR CODE: NIL
ERUPTION DETAILS : NIL
OBS ASH DATE/TIME : NIL
OBS ASH CL: NIL
FCST ASH CL+6H:NIL
FCST ASH CL+12H:NIL
FCST ASH CL+18H:NIL
NEXT ADVISORY: NO FURTHER ADVISORIES

REMARKS:

THIS IS A VAA TEST MESSAGE APPLICABLE TO THE WHOLE OF ICAO AFI REGION. EACH METEOROLOGICAL WATCH OFFICE, AREA CONTROL CENTRE AND FLIGHT INFORMATION CENTRE SERVING FLIGHT INFORMATION REGIONS WITHIN THE AFI REGION RECEIVING THIS MESSAGE SHOULD ISSUE AN ADMINISTATIVE MESSAGE USING THE WMO HEADER NOAF33 LFPW AND SEND IT TO THE AFTN ADDRESS LFZZMAFI TO ACKNOWLEDGE THE RECEPTION OF THIS VAA MESSAGE.

b) Template of the SIGMET (without meteorological content = acknowledgement of receipt) to be sent by the MWO/ACC/FIC to both RODBs:

TO: VAAC TOULOUSE, RODB DAKAR, RODB PRETORIA
WVFR31LFPW080200

LFFF SIGMET **1** VALID 080400/081000 LFPW-
LFFF PARIS FIR/UIR TEST TESTTESTTEST
ACK RECEP TEST VAA FROM VAAC TOULOUSE
VOLCANO UNKNOWN AREA ICAO AFI REGION

J-9

INFO SOURCE TEST VOLCAFI
DTG 20071127/0615Z RECEIVED AT 27/0621Z
TEST VA SIGMET PLEASE DISREGARD
TEST TESTTESTTESTTESTTESTTESTTESTTESTTESTTEST TEST=

Note : ***Parts of the SIGMET message (acknowledgement of receipt) highlighted, must be replaced with information about the Recipients, date, your MWO/ACC/FIC and corresponding FIR.***

J-10

Attachment 2 to Appendix J

EXEMPLE OF TCA TEST MESSAGE FORMAT FROM LA REUNION TCAC

KIO20 FMEE 100900
TC ADVISORY
DTG: 20090610/0900Z
TCAC: REUNION
TC: TEST
NR: 01
PSN: NIL
MOV: NIL
C: NIL
MAX WIND: NIL
FCST PSN +06HR: NIL
FCST MAX WIND +06HR: NIL
FCST PSN +12HR: NIL
FCST MAX WIND +12HR: NIL
FCST PSN +18HR: NIL
FCST MAX WIND +18HR: NIL
FCST PSN +24HR: NIL
FCST MAX WIND +24HR: NIL
RMK: THIS IS A TEST TC ADVISORY. MWO SHOULD NOW ISSUE A TEST SIGMET FOR TC, UNLESS THERE IS A VALID SIGMET FOR TC.
NXT MSG: NIL

J-11

Attachment 3 to Appendix J

SIGMET TEST PROCEDURES
- Examples of TEST advisories and SIGMETs -

1. Format of TEST SIGMET for Volcanic Ash

WVXXiiCCCCYYGGgg
CCCC SIGMET n(nn) VALID YYGGgg/YYGGgg CCCC−
THIS IS A TEST SIGMET PLEASE DISREGARD. TEST VA ADVISORY NUMBER XX RECEIVED AT YYGGggZ=

Example:

WVSG31 GOOY 180205
GOOO SIGMET 01 VALID 180205/180215 GOOY-
THIS IS A TEST SIGMET, PLEASE DISREGARD. TEST VA ADVISORY NUMBER 01 RECEIVED AT 180200Z=

2. Exemple of TEST SIGMET for Tropical Cyclone

WCXXiiCCCCYYGGgg
CCCC SIGMET n(nn) VALID YYGGgg/YYGGggCCCC−
THIS IS A TEST SIGMET PLEASE DISREGARD. TEST TC ADVISORY NUMBER XX RECEIVED AT YYGGggZ=

Example:

WCHK31 VHHH 180205
VHHK SIGMET 01 VALID 180205/180215 VHHH-
THIS IS A TEST SIGMET PLEASE DISREGARD. TEST TC ADVISORY NUMBER 01 RECEIVED AT 180200Z=

3. Exemple of TEST SIGMET for other weather phenomena

WSXXiiCCCCYYGGgg
CCCC SIGMET n(nn) VALID YYGGgg/YYGGggCCCC−
THIS IS A TEST SIGMET PLEASE DISREGARD=

Example:

WSCG31 FCBB 180200
FCCC SIGMET 04 VALID 180200/180210 FCBB-
THIS IS A TEST SIGMET PLEASE DISREGARD=

J-12

Attachment 4 to Appendix J

SAMPLE TABLE TO BE USED BY RODBS

AFI SIGMET TEST Summary (Reception time at RODBs)

Name of RODB : Dakar or Pretoria
Date of test : YYYY/MM/DD
Target : VA (Volcanic Ash)

VAA TTAAii	Header CCCC	YYGGgg	Received time (UTC)
FVXX01	LFPW	180200	18:00:27

SIGMET (UTC) TTAAii	Header CCCC	YYGGgg	MWO	FIR/UIR	Received time
WVSG31	GOOY	180235	GOOY	GOOO	18:06:02
WVCD31	FTTJ	180311	FTTJ	FTTT	18:07:58
WVNI31	DNKN	180255	DNKN	DNKK	18:17:55

Name of RODB : Dakar or Pretoria
Date of test : YYYY/MM/DD
Target : TC (Tropical Cyclone)

TCA TTAAii	Header CCCC	YYGGgg	Received time (UTC)
FKIO01	FMEE	180200	18:08:27

SIGMET (UTC) TTAAii	Header CCCC	YYGGgg	MWO	FIR/UIR	Received time
WCMG20	FMMI	180250	FMMI	FMMM18:02:55	
WCTN31	HTDA	180402	HTDA	HTDC	18:03:58
WCZA31	FAJS	180356	FAJS	FAJA	18:03:44
WCBC31	FBSK	180322	FBSK	FBGR	18:03:15

Appendix F - PROPOSED AMENDMENTS TO OPMET INFORMATION

FROM NON-AOP AERODROMES

	ICAO Location Indicator	SA	SP	FC	FT	SUG	Name	State	Region
1	DAAD	Yn		Yn		Yn	BOU-SAADA	Algeria	AFI
2	DAAS	Yn		Yn		Yn	SETIF	Algeria	AFI
3	DAAY	Yn		Yn		Yn	MECHERIA_AIRFROCE _BASE	Algeria	AFI
4	DABT	Yn		Yn		Yn	BATNA/MOSTEPHA_BEN_BOULAID	Algeria	AFI
5	DAFH	Yn		Yn		Yn	HASSI_RMEL	Algeria	AFI
6	DAOF	Yn		Yn		Yn	TINDOUF	Algeria	AFI
7	DAOI	Yn				Yn	ECH_CHELIFF	Algeria	AFI
8	DAOL	Yn	Yn			Yn	ORAN/TAFARAOUI	Algeria	AFI
9	DAOR	Yc	Yc	Yn		Yc	BECHAR	Algeria	AFI
10	DAOY			Yn		Yn	EL_BAYADH	Algeria	AFI
11	DATM	Yn		Yn		Yn	BORDJ_MOKHTAR	Algeria	AFI
12	DAUE	Yn		Yn		Yn	EL_GOLEA	Algeria	AFI
13	DAUL	Yn		Yn		Yn	LAGHOUT_AFB	Algeria	AFI
14	DGTK	Yn			Yn	Yn	TAKORADI	Ghana	AFI
15	DNGO	Yn			Yn	Yn	GOMBE	Nigeria	AFI
16	DNZA	Yn				Yn	ZARIA	Nigeria	AFI
17	DTNZ	Yn			Yn	Yn	ENFIDHA_/ZINE_EL_ABIDINE_BEN	Tunisia	AFI
18	DTTL	Yn				Yn	KILIBIA	Tunisia	AFI
19	DTTR	Yn		Yn		Yn	EL_BORMA	Tunisia	AFI
20	FAEL			Yn		Yn	EAST_LONDON	South_Africa	AFI
21	FAGG	Yn		Yn		Yn	GEORGE/P.O.BOTHA	South_Africa	AFI
22	FAHS			Yn		Yn	HOEDSPRUIT _AFB	South_Africa	AFI
23	FAKM			Yn		Yn	KIMBERLEY_(KIMBERLEY_AIRPORT)	South_Africa	AFI
24	FAKN	Yn		Yn		Yn	KRUGER_MPUMALANGA_INT	South_Africa	AFI
25	FALM	Yn		Yn		Yn	MAKHADO	South_Africa	AFI
26	FAPN			Yn		Yn	PILANESBERG	South_Africa	AFI
27	FAPP			Yn		Yn	POLOKWANE_INTERNATIONAL	South_Africa	AFI
28	FAUT			Yn		Yn	UMTATA	South_Africa	AFI
29	FAWB			Yn		Yn	PRETORIA/WONDERBOOM	South_Africa	AFI
30	FAWK			Yn		Yn	WATERKLOOF	South_Africa	AFI
31	FBFT	Yn		Yn		Yn	FRANCISTOWN	Botswana	AFI
32	FBKE	Yn		Yn		Yn	KASANE	Botswana	AFI
33	FBMN	Yn		Yn		Yn	MAUN	Botswana	AFI
34	FBSP	Yn		Yn		Yn	SELEBEI-PHIKWE	Botswana	AFI
35	FIMR	Yn			Yn	Yn	RODRIGUES/PALINE_CORAIL	Mauritius	AFI
36	FMCZ	Yn		Yn		Yn	DZAOUDZI	Comoros	AFI
37	FMEP	Yn		Yn		Yn	SAINT_PIERRE/PIERREFONDS	Reunion_(Fra	AFI
38	FMMS	Yn				Yn	SIANT_MARIE	Madagascar	AFI
39	FMNA	Yn			Yn	Yn	ANTSIRANANA	Madagascar	AFI
40	FMST				Yn	Yn	TOLIARA	Madagascar	AFI
41	FQCH				Yn	Yn	CHIMOI	Mozambique	AFI

	ICAO Location Indicator	SA	SP	FC	FT	SUG	Name	State	Region
42	FQIN				Yn	Yn	INHAMBANE	Mozambique	AFI
43	FQLC				Yn	Yn	LICHINGA	Mozambique	AFI
44	FQPB				Yn	Yn	PEMBA	Mozambique	AFI
45	FQVL					Yn	VILANKULO	Mozambique	AFI
46	FVCZ			Yn		Yn	CHIREDZI/BUFFAO_RANGE	Zimbabwe	AFI
47	FVKB			Yn		Yn	KARIBA	Zimbabwe	AFI
48	FVMV			Yn		Yn	MASVINGO	Zimbabwe	AFI
49	FVWN			Yn		Yn	HWANGE_NATIONAL_PARK	Zimbabwe	AFI
50	FYGF			Yn		Yn	GROORFONTEIN	Namibia	AFI
51	FYOA			Yn		Yn	ONDANGWA	Namibia	AFI
52	FYWE			Yn		Yn	WINDHOEK/EROS	Namibia	AFI
53	GCGM	Yn				Yn	LA_GOMERA	Canary_Island	AFI
54	GMMC	Yn				Yn	CASAMBLANCA/ANFA	Moroco	AFI
55	GMMH	Yn				Yn	DAKHILA	Moroco	AFI
56	GMML	Yc	Yc	Yn	Yc	Yc	LAAYOUNE/HASSAN_1ER	Moroco	AFI
57	GMTA	Yn				Yn	AL_HOCEIMA	Moroco	AFI
58	GOOK	Yn				Yn	KAOLACK	Senegal	AFI
59	GOTK	Yn				Yn	KEDOUGOU	Senegal	AFI
60	GVBA	Yn			Yn	Yn	RABIL/BOA_VISTA8ISLAND	Cape_Verde	AFI
61	HEAR				Yn	Yn	EL_ARISH	Egypt	AFI
62	HEBA				Yn	Yn	ALEXANDRIA/BORG_EL_ARAB	Egypt	AFI
63	HEPS	Yn			Yn	Yn	PORT_SAID	Egypt	AFI
64	HLGD				Yn	Yn	GARDABYA	Libyan_Arab_	AFI
65	HLKF				Yn	Yn	KUFRA	Libyan_Arab_	AFI
66	HLLM	Yn			Yn	Yn	TRIPOLI/MITIGA	Libyan_Arab_	AFI
67	HRZA	Yn			Yn	Yn	KAMEMBE	Rwanda	AFI

SA: METAR required

SP: SPECI required

FC: Short TAF required

FT: Long TAF required

SUG: SADIS User Guide

Yn: Yes - new requirements

Yc: Yes - current requirements

Appendix G - AMENDEMENT TO OPMET INFORMATION FROM NON-AOP AERODROMES

Note. - the nomenclature is based on the one provided by IATA; it does not reflect the official ICAO posisition in the regard

ICAO Location Indicator	SA	SP	FC	FT	FX	SUG	Name	State	Region
~~DATG~~	~~¥~~	~~¥~~	~~¥~~			~~¥~~	IN_GUEZZAM	Algeria	AFI
~~DIKO~~	~~¥~~	~~¥~~				~~¥~~	KORHOGO	Cote d'Ivoire	AFI
~~DIMN~~	~~¥~~	~~¥~~				~~¥~~	MAN	Cote d'Ivoire	AFI
~~DISP~~	~~¥~~	~~¥~~				~~¥~~	SAN_PEDRO	Cote d'Ivoire	AFI
~~FAAB~~	~~¥~~	~~¥~~				~~¥~~	ALEXANDER_BAY	South-Africa	AFI
~~FEFG~~	~~¥~~	~~¥~~				~~¥~~	BANGASSOU	Central-African- Republic	AFI
~~FOOD~~	~~¥~~	~~¥~~				~~¥~~	MOANDA	Gabon	AFI
~~FZAB~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	KINSHASHA/N'DOLO	Democratique _Republique of the Congo	AFI
~~FZBN~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	MALEBO	Democratique _Republique of the Congo	AFI
~~FZEA~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	MBANDAKA	Democratique _Republique of the Congo	AFI
~~FZOA~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	KINDU	Democratique _Republique of the Congo	AFI
~~FZOS~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	KASESE	Democratique _Republique of the Congo	AFI
~~FZRF~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	KALEMIE	Democratique _Republique of the Congo	AFI
~~FZSA~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	KAMINA	Democratique _Republique of the Congo	AFI
~~GLMR~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	MONROVIA/SPRIGGS_PAYNE	Liberia	AFI
~~GQNK~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	KAEDI	Mauritania	AFI
~~GUFH~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	FARANAH	Guinea	AFI
~~GUOK~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	BOKE/BARALANDE	Guinea	AFI
~~HKML~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	MALINDI	Kenya	AFI
~~HKNW~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	NAIROBI/WILSON	Kenya	AFI
~~HSDN~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	DONGOLA	Sudan	AFI
~~HTMW~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	MWANZA	United_Republique_of Tanzania	AFI
~~HTTG~~	~~¥~~	~~¥~~		~~¥~~		~~¥~~	TANGA	United_Republique_of Tanzania	AFI

SA: METAR required

SP: SPECI required

FC: Short TAF required

FT: Long TAF required

SUG: Listed in the SADIS User Guide

~~¥:~~ Information no more required by IATA

Appendix H

SUMMARY OF OPERATIONAL SHORTCOMINGS AND DEFICIENCIES IDENTIFIED

	Operational Shortcomings and Deficiencies	**VAAC, TCAC, RODBs or MWOs**
1	**2**	**3**
1	23 MWOs out of 35 in the AFI region (65,7%) did not issue any WV SIGMET during the Test period	**ESAF (18):** FNLU, FBSK, HBBA, HECA*, HAAB, HHAS, HKJK, HLLT*, FWLI, FQMA, FYWH, HRYR, FSIA*, HSSS*, HUEN, HTDA, FLLS, FVHA **WACAF (5):** DAAL*, GCLP*, GLRB, DTTA*, FZAA,
2	29 MWOs out of 35 in the AFI region (83%) did not issue any WS SIGMET during the Test period	**ESAF (23):** FBSK, HBBA, HECA*, HAAB, HHAS, HKJK, HLLT*, FMMI, FWLI, FIMP, GMMC, FQMA, FYWH, HRYR, FSIA*, HCMM, FAJS, HSSS*, HUEN, HTDA, FLLS, FVHA **WACAF (6):** DAAL*, GCLP*, FZAA, DGAA, GLRB, DTTA*
3	The listed 21 MWOs (60%) have never issued any SIGMET during AFI SIGMET Tests	**ESAF (17):** FNLU, HBBA, HECA*, HAAB, HHAS, HKJK, HLLT*, FWLI, FQMA, FYWH, HRYR, FSIA*, HSSS*, HUEN, HTDA, FLLS, FVHA **WACAF (4):** DAAL*, GCLP*, FZAA, GLRB,
4	6 MWOs out of 10 TC-MWOs in the AFI region (60%) did not issue any WC SIGMET during the Test period	**ESAF**: FWLI**,** FIMP, FQMA, FSIA*, HTDC, FVHA
5	5 MWOs used GG priority indicator to disseminate WS and WV SIGMET, instead of the FF indicator	DNKK, HCMM, FTTJ, GVAC, GMMC
6	4 MWOs issued a WC SIGMET while it is not required	GMMC, DNKN, GOOY, GVAC
7	WC SIGMETs from 3 MWOs were received late at the RODBs, more than 10 mn after the advisory was issued by FMEE.	FAJS, FBSK, HKJK
8	WV SIGMETs from 11 MWOs were received late at the RODBs, more than 10 mn after the advisory was issued by LFPW	FMMI, GMMC, DNKN, DRRN, FCBB, GVAC, FIMP, FAJS, DGAA, HCMM, FTTJ
9	A real V SIGMET from RJTD received at Pretoria RODB, was confused with a WV SIGMET Test message	Pretoria RODB
10	16 SIGMET Tests were repeated at Dakar RODB during the tests	Dakar RODB
11	6 MWOs issued a SIGMET with incorrect validity period	FAJS HKJK DGAA FCBB GOOY DNKN FIMP HCMM FTTJ GVAC
12	7 MWO issued SIGMETs with an incorrect weather phenomena description	FAJS GOOY DNKN FCBB FTTJ DRRN GVAC
13	6 MWOs issued SIGMET test messages without including a line of 12 “TEST” at the end of the SIGMET message	FAJS FBSK GMMC FIMP DRRN GOOY
14	6 MWOs issued SIGMETs without including the ICAO indicator of the corresponding FIR at the beginning of the main text of the SIGMET	FBSK HKJK DGAA FAJS FIMP HCMM
15	6 MWOs issued SIGMETs without including any hyphen at the end of the line containing the validity period	HKJK DGAA GMMC FIMP HCMM GVAC
16	3 MWOs issued SIGMETs without including the MWO ICAO indicator just after the validity period	HKJK FIMP GVAC
17	1 MWO issued a SIGMET without including the word “VALID” just before the validity period	HCMM

*: MWOs in the AFI region but not accredited to ESAF and to WACAF

Appendix I: Deficiencies in the Meteorology Field

(REF. Air Navigation Plan - Africa-Indian Ocean region (Doc 7474)
Part IV - Meteorology (MET)

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
ANGOLA	Requirement to provide aerodrome forecasts (AFI FASID Table MET 1A)	Angola/Luanda 4 de Fevereiro Associated MET Office	TAF of Luanda not regularly available	2003	Advice given by correspondence	Improve reliability of telecomm	INAMET and ENANA	As soon as possible	A
BURUNDI	Requirement to provide automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure at Busumbura aerodrome with a runway intended for Category II instrument approach and landing operations in accordance with ICAO Annex 3, Chap 4, para. 4.1.5 and 4.6.3.1	Burundi/ Busumbura International Airport	MET station located very far from the runway and among buildings	2006	Data observed not representative of weather conditions along the runway. Unreliable exchange of data to users	Install an automatic weather observing system with sensors appropriately located. Install a MET message distribution system.	Meteorological Services Department	2007	U
CAMEROON	Requirement to provide runway visual range (RVR) assessments at the touchdown zone and the mid-point of the runway at N'Djamena International Airport, intended for Category II (ILS) instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b) and Cameroon AIP	Cameroon, Douala International Airport	Airport fence damaged resulting in vandalism of visibility, RVR and cloud base height sensors. No RVR sensor at the touchdown zone	08/2010	Advice given during the mission	1. Repairs to the fence and replacement of visibility, RVR and height of cloud base sensors. 2. Installation of new sensors RVR area of the midpoint of the runway	ASECNA	1. Juin 2011 2. Décembre 2011	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
CAMEROON	Requirement to provide meteorological information to aerodrome control tower, approach control unit and flight information centre in accordance with ICAO Annex 3, App. 9, para. 1.1, 1.2 and 1.3	Cameroon, Douala International Airport	Aerodrome Warning (AD WRNG) and wind shear (WS WRNG) reports issued by Douala Aerodrome MET Office do not reach ATS units and ADC-SA premises.	08/2010	Advice given during the mission	Display warning reports (AD WRNG and WS WRNG) in the premises of ADC- SA	ADC- SA and ASECNA	December 2011	U
	Requirement to report the information related to pre-eruption volcanic activity, or a cessation thereof and/or volcanic ash in the atmosphere and send this information as quickly as practicable to its associated Douala ACC, Brazzaville MWO and Toulouse VAAC: ICAO Annex 3, para. 3.6	Cameroon, Douala International Airport	No letter of agreement has been established between the CCAA, ASECNA and the Observatory of the Institute of Geological and Mining Research (IRGM) in order to collect and send information relating to volcanic eruptions to the Brazzaville MWO and Toulouse VAAC on time.	08/2010	Advice given during the Mission	Arrange for a letter of agreement to be signed between the CCAA, ASECNA and the Volcano Observatory of the Institute of Geological and Mining Research (IRGM)	CCAA, ASECNA, IRGM/ Volcano Observatory	December 2011	U
CAPE VERDE	Requirement to provide automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure at Sal aerodrome with a runway intended for Category II instrument approach and landing operations in accordance with ICAO Annex 3, Chap 4, para. 4.1.5 and 4.6.3.1	Cape Verde/Sal International Airport.	Visibility data, RVR, cloud base height, air temperature, dew point and pressure are not provided by an automatic weather observing system at Sal International airport equipped with an ILS	09/2009	Advice given during CODEVMET Mission	Install an automated weather observing system with sensors appropriately located.	INMG/ ASA	2011	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
CAPE VERDE	Requirements for Surface wind, RVR and air pressure displays relating to each sensor to be located in the meteorological station with corresponding displays in the appropriate air traffic services units. The displays in the meteorological station and in the air traffic services units to be related to the same sensors in accordance with ICAO Annex 3. para. 4.1.5 and App. 3 para. **4**.1.2.1, 4.3.3.1 and 4.7.1	Cape Verde/Sal International Airport	The meteorological parameters displayed in the control tower and those displayed in the aerodrome meteorological centre and used for issuance of observation messages METAR, MET REPORT, SPECI and SPECIAL are from two different sources of observations: the Meteorological observation station and an automatic observing system under demonstration.	09/2009	Advice given during CODEVMET Mission	Use the same sensors for the measurement of meteorological parameters to be displayed in ATS units and the aeronautical meteorological station	INMG/ ASA	2011	U
	Requirements to use local routine and special reports MET REPORT and SPECIAL in the meteorological information used pour l'ATIS in accordance with Annex 11, chap. 4, para. 4.3.6.1, g) and Annex 3, Chap. 4 para. 4.3.2 and 4.4.2	Cape Verde/Sal International Airport	Meteorological information used to issue ATIS are not the local routine and special reports MET REPORT and SPECIAL	09/2009	Advice given during CODEVMET Mission	Use local routine and special meteorological reports to issue ATIS information (ATIS voice and D-ATIS)	ASA INMG	2011	A
CHAD	Requirement to provide meteorological information to aerodrome control tower, approach control unit and flight information centre in accordance with ICAO Annex 3, App. 9, para. 1.1, 1.2 and 1.3	Chad, N'Djamena International Airport	Aerodrome Warning (AD WRNG) and wind shear (WS WRNG) reports are not displayed in the control tower and at the ATS units.	02/2010	Advice given during Sate Mission	Display warning reports (AD WRNG and WS WRNG) at the control tower and in the premises of the airport manager.	ASECNA	2011	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for implementation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
CHAD	Requirement to provide runway visual range (RVR) assessments at the touchdown zone and the mid-point of the runway at N'Djamena International Airport, intended for Category II (ILS) instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b)	Chad, N'Djamena International Airport	Even though N'Djamena International Airport is intended for Category II (ILS) instrument approach and landing operations, RVR assessments are not provided at the mid-point of the runway.	02/2010	Advice given during Sate Mission	Install RVR sensor at the mid-point of the runway..	ASECNA	2010	A
	Requirement to collect, process and relay special air reports in accordance with Annex 3 Chapter 5, para 5.1, 5.2-b), 5.5, 5.8 and 5.9	Chad, N'Djamena International Airport	special aircraft observations and reports are not collected, processed and redistributed	02/2010	Advice given during Sate Mission	- Update and implement the provisions of the ATS/MET service agreement - Encourage ATS/MET/pilots coordination meetings	ADAC et ASECNA	2011	B
COMOROS	Requirement to provide automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure at Sal aerodrome with a runway intended for Category II instrument approach and landing operations in accordance with ICAO Annex 3, Chap 4, para. 4.1.5 and 4.6.3.1	Comoros/ Prince Said Ibrahim International Airport of Moroni	Moroni International Airport equipped with a category II approach and landing operations instrument, is not using a proper automated equipment for measuring, assessing, monitoring and remote indicating of MET parameters	09/ 2009	Advice given during Sate Mission	Install an automated aerodrome weather observing system with sensors and display located at required places for the provision of operational MET information	ASECNA	December 2010	U
	Requirement to provide runway visual range (RVR) assessments at the touchdown zone and the mid-point of the runway of Prince Said Ibrahim International Airport of Moroni, intended for Category II instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b)	Comoros/ Prince Said Ibrahim International Airport of Moroni	Runway visual range (RVR) assessments are not representative of the touchdown zone and the mid-point of the runway intended for Category II instrument approach and landing operations	09/ 2009	Advice given during the mission	1°) Introduce manual assessment of RVR in accordance with ICAO Doc. 9328. Install RVR sensor at the touchdown zone and the mid-point of the runway	ASECNA	December 2010	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
COMOROS	Requirement to provide aerodrome forecasts (TAF) in accordance with AFI FASID MET Table 1A	Comoros/ Prince Said Ibrahim International Airport of Moroni	Only three TAF are issued every day, the TAF expected at 16:00 is not issued	09/ 2009	Advice given during the mission	Issue four TAF every day	ASECNA	December 2010	U
CONGO	Requirement to provide runway visual range (RVR) assessments at the touchdown zone and the mid-point of the runway of Brazzaville International Airport, intended for Category II instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b)	Congo, Brazzaville International Airport	Runway visual range (RVR) is not assessed at the mid-point of the runway of Brazzaville International Airport, intended for Category II instrument approach and landing operations	08/2008	Advice given during the mission	Install RVR sensor at the mid-point of the runway.	ASECNA	2009	U
	Requirement to provide VOLMET broadcast at Brazzaville International Airport (VOLMET), in accordance with ICAO Doc 7474 Volume II, Part V, Table ATS 2A..	Congo, Brazzaville International Airport	The VOLMET broadcast service is not operational	08/2008	Deficiency identify during ICAO WACAF mission	Re-establish the VOLMET broadcast service in the Brazzaville FIR	ASECNA	2009	U
	Requirement to collect, process and relay special air reports in accordance with Annex 3 Chapter 5, para 5.1, 5.2, 5.3.2, 5.4.1, 5.5, 5.7, 5.8 and 5.9	Congo, Brazzaville International Airport	Aircraft observation and reports are not collected, processed and relayed	08/2008	Advice given during the mission	Necessary arrangements between the MET authority and the appropriate ATS authority be made.	ANAC, ASECNA, Airlines	2009	U
	Requirement to provide Automatic Terminal Information Service (ATIS) in accordance with ICAO Doc 7474 Volume II, FASID AFI, Part III - Tableau AOP 1.	Congo, Brazzaville International Airport	The ATIS service is not implemented at Brazzaville International Airport	08/2008	Deficiency identify during ICAO WACAF mission	Install and implement an operational ATIS system	ASECNA	2009	B

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for implementation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
DJIBOUTI	Requirement to provide automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure at Sal aerodrome with a runway intended for Category II instrument approach and landing operations in accordance with ICAO Annex 3, Chap 4, para. 4.1.5 and 4.6.3.1	Djibouti/ Djibouti International Airport	Djibouti International Airport equipped with a category II approach and landing operations instrument, is not using an automated equipment for measuring, assessing, monitoring and remote indicating of MET parameters	09/ 2009	Advice given during the mission	Install an automated aerodrome weather observing system with sensors and display located at required places for the provision of operational MET information	AID-DPW	December 2010	U
	Requirement to provide runway visual range (RVR) assessments at the touchdown zone and the mid-point of the runway of Djibouti International Airport of Moroni, intended for Category II instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b)	Djibouti/ Djibouti International Airport	Runway visual range (RVR) assessments are not representative of the touchdown zone and the mid-point of the runway intended for Category II instrument approach and landing operations	09/ 2009	Advice given during the mission	1°) Introduce manual assessment of RVR in accordance with ICAO Doc. 9328. Install RVR sensor at the touchdown zone and the mid-point of the runway	AID-DPW	December 2010	U
	Requirement to issue local routine and special reports in accordance with Annex 3, chap. 4, para. 4.3.1, 4.3.2 a) et 4.4.2 a)	Djibouti/ Djibouti International Airport	Local routine and special reports (MET REPORT) and SPECIAL) are not issued	09/ 2009	Advice given during the mission	Issue local routine and special reports (MET REPORT) and SPECIAL)	AID-DPW	June 2010	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
DJIBOUTI	Requirement to issue aerodrome and wind shear warnings and wind shear alert in accordance with Annex 3, chap. 7, para. 7.3 et 7.4 et App. 6 Table A6-2 et A6-3	Djibouti/ Djibouti International Airport	Aerodrome and wind shear warnings (AD WRNG, WS WRNG) and wind shear alert are not issued at Djibouti International Airport	07/ 2009	Advice given during the mission	1. sensitize forecasters and observers in the issuance and dissemination of messages and WS WRNG AD WRNG 2. issue and disseminate WS WRNG and AD WRNG information and wind shear alert; 3. develop and enforce a letter of service agreement between the MET and ATS (TWR, CCR, Office of the runway, ..) in order inter alia to promote the regular routing of aircraft reports on wind shear at landing or take off, to assess RVR, etc. .. 4. consider the possibility of installing, after a survey with users, at Djibouti Airport, a wind shear detecting system	1. AID-DPW 2. AID-DPW 3. DACM et AID-DPW 4. DACM et AID-DPW	1. June 2010 2. June 2010 3. June 2010 End 2010	U U U A
	Requirement to provide flight documentation in accordance with AFI FASID Table MET 7 (Doc 7474 Volume II, FASID AFI)	Djibouti/ Djibouti International Airport	Flight documentation is provided from a public non-secured website ADDS	07/2009	Advice given during the mission	In the short term, a SADIS FTP service shall be accessed from the WAFC London to extract required data for the provision of flight documentation. Access procedures are described on the following Website http://www.icao.int/anb/sadisopsg/sadis%20ftp%20service%20v4.0.pdf In the medium term, install a SADIS VSAT station with the required SADIS workstation software:	AID-DPW	- SADIS FTP : avant fin juin 2010 -Station VSAT SADIS 2G : fin 2010	A

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
THE GAMBIA	Requirement to provide runway visual range (RVR) for runway intended for non-precision or Category I approach and landing Operations (Annex 3, Chapter 4, para. 4.6.3. 4 a), 4.6.3.5 and Appendix 3, para.4.3.6.4).	The Gambia/ Banjul/ Yundum International Airport.	Runway visual range (RVR) is not assessed and reported during periods of reduced visibility.	30/07/2007	Reported by the State concerned from a survey questionnaire, advice given during State mission, further advice given CODEVMET 9/2009.	**In the short term:** Training of MET personal for manual assessment and reporting of RVR, or **In the medium term:** Installation of a RVR measurement, assessment and reporting equipment recommended.	Civil Aviation Authority and MET, The Gambia.	2009 2012	U
	Requirement to report visibility along the runway in local routine and special reports: Annex 3, Appendix 3 para; 4.2.4.2.	The Gambia, Banjul/ Yundum International Airport.	MET station located very far from the runway and behind a tree.	07/2007	Data observed not representative of weather conditions along the runway. Advice given during State Mission and CODEVMET Project 9/2009.	Install an automatic weather observing system with sensors appropriately located.	GCAA (Gambia Civil Aviation Authority).	2012	U
	Requirement to relay air reports: Annex 3 Chapter 5, para.5.8.	The Gambia, Banjul/ Yundum International Airport.	Aircraft observations and reports are not collected, processed and disseminated.	07/2007	Advice given during State Mission.	Necessary arrangements between the MET authority and the appropriate ATS authority be made.	GCAA (Gambia Civil Aviation Authority).	2010	B
	Requirement to measure and report wind direction and speed Annex 3 Chapter 4 para.4.6.11.	The Gambia, Banjul/ Yundum International Airport.	Wind direction and speed are estimated due to breaking of wire around the runway.	16/09/2009	Reported to CODEVMET Mission, advice given for immediat solution.	<u>Short Term:</u> Purchase wire and connect at the selected point to restore measurement and reading at MET and controlo Tower. <u>Medium Term:</u> Installation of automatic weather observing system.	GCAA and MET the Gambia.	11//2009 2012	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
THE GAMBIA	Requirement to issue aerodrome warnings (AW) and wind shear warning Annex 3 Chapter 7 para.7.3, 7.4 App.6 Table A6.2 and A6.3.	The Gambia, Banjul/ Yundum International Airport.	No provision for issuance of AW.	16/09/ 2009	Deficiency assessed during CODEVMET mission, advice given.	Short term, write procedures for issuance of AD and implement immediately.	GCAA and MET The Gambia.	When required starting from 11/2009	U
	Requirement to issue trend forecasts as contained in AFI FASID Table MET 1 A.	The Gambia, Banjul/ Yundum International Airport.	No provision to issue trend forecast.	16/09/2 009	Deficiency assessed during CODEVMENT Project, advice given.	Writing required procedures to follow for issuance of Trend forecasts.	GCAA and MET The Gambia	12/2009	A
	Requirement to provide MET Reports to ATS Units Annex 3 Chapter 10 para. 10.1.1.	The Gambia, Banjul/ Yundum International Airport.	Provision of MET reports to ATS Units deficient, messages carried by hand and no wind display at Control Tower.	16/09/2 009	Deficiency assessed during CODEVMET Project, advice given.	Repair the internal communication system and the wind measurement system. Medium Term Acquisition of new internal communication system.	GCAA and MET the Gambia GCAA and MET	12/2009 2011	U
GHANA	Requirement to disseminate SIGMET information in accordance with the provisions in the AFI FASID Table 2B.	Ghana, Accra Kotoka International Airport (KIA	SIGMET information issued by Accra MWO is not disseminated properly and the AMBEX procedures are not well known by the telecommunication staff for the dissemination of OPMET information	March 2010	Advice given during State Mission and a new version of the AMBEX Scheme was provided	Disseminate SIGMET information in accordance with AMBEX scheme and AFI FASID Table 2B.	GMet	12/2010	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
GHANA	Requirement to provide meteorological parameters affecting landing and take-off operations as surface wind, visibility, runway visual range (RVR), height of cloud base, air and dew-point temperatures and atmospheric pressure from an integrated automatic system for acquisition, processing, dissemination and display in real time: ICAO Annex 3, Chap. 4, para. 4.1.5	Ghana, Accra Kotoka International Airport (KIA)	Surface wind, visibility, runway visual range (RVR), height of cloud base, air and dew-point temperatures and atmospheric pressure are not provided from an integrated automatic system for acquisition, processing, dissemination and display in real time at Accra International Airport	March 2010	Procurement for the purchase of an integrated automatic system underway (Letter N° PPA/CEO/ 436/10 of 22 February 2010 from the Public Procurement Authority)	Install an automatic integrated observing system on AKIA runway (ILS Cat 2) with sensors appropriately sited in accordance with the provision in ICAO Annex 3, Chap 4, para 4.1.5 and 4.6.3.1 and Appendix 3 para; 4.2.4.2	GMet (Ghana Meteorological Agency)	12/2010	U
	Requirement to provide runway visual range (RVR): Annex 3, Chapter 4, para. 4. 6 .3	Ghana, Accra Kotoka International Airport (KIA	Runway visual range (RVR) is not assessed and reported	March 2010	Advice given during State Mission	Install a RVR assessment and reporting system	GMet	12/2010	U
	Requirement to issue compliant local routine report (MET REPORT) and local special report (SPECIAL) in accordance with provisions in ICAO Annex 3, Table 3-1	Ghana, Accra Kotoka International Airport (KIA	MET REPORT and SPECIAL are not compliant with Annex 3, Table 3-1	March 2010	Advice given during the mission	Issue compliant local routine and special reports and display them at the MET Office and at all ATS units	GMet	12/2010	U
GUINEA	Requirement to provide automated equipment for measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure at Sal aerodrome with a runway intended for Category II instrument approach and landing operations in accordance with ICAO Annex 3, Chap 4, para. 4.1.5 and 4.6.3.1	Republic of Guinea, Conakry International Airport.	Conakry International Airport equipped with a category II approach and landing operations instrument, is not using an automated equipment for measuring, assessing, monitoring and remote indicating of MET parameters	09/2009	Advice given during CODEVMET mission	Install an automatic integrated observing system on Conakry International Airport runway (ILS Cat 2) with sensors appropriately sited in accordance with the provision in ICAO Annex 3, Chap 4, para 4.1.5 and 4.6.3.1 and Appendix 3 para; 4.2.4.2	DNAC and DNM	December 2011	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
GUINEA	Requirement to issue compliant local routine report (MET REPORT) and local special report (SPECIAL) in accordance with provisions in ICAO Annex 3, Table 3-1	Republic of Guinea, Conakry International Airport.	MET REPORT and SPECIAL are not compliant with Annex 3, Table 3-1	09/2009	Advice given during CODEVMET mission	Issue compliant local routine and special reports and display them at the MET Office and at all ATS units	DNM	Before December 2010	U
	Requirement to provide meteorological information to aerodrome control tower, approach control unit and flight information centre in accordance with ICAO Annex 3, App. 9, para. 1.1, 1.2 and 1.3	Republic of Guinea, Conakry International Airport.	Aerodrome Warning (AD WRNG) and wind shear (WS WRNG) reports are not displayed in the control tower and at the ATS units	09/2009	Advice given during CODEVMET mission	Display warning reports WRNG AD and WS WRNG in the existing system for display of weather information of the control tower of N'djamena.	DNM	Before December 2010	A
	Requirement to provide flight documentation in accordance with AFI FASID Table MET 7 (Doc 7474 Volume II, FASID AFI)	Republic of Guinea, Conakry International Airport..	Flight documentation is provided from a public non-secured website ADDS	09/2009	Advice given during CODEVMET mission	In the short term, a SADIS FTP service shall be accessed from the WAFC London to extract required data for the provision of flight documentation. Access procedures are described on the following Website http://www.icao.int/anb/sadisopsg/sadis%20ftp%20service%20v4.0.pdf In the medium term, install a SADIS VSAT station with the required SADIS workstation software:	DNAC, DNM, ANA, FIR Roberts, SOGEAC	- SADIS FTP before December 2010 - VSAT SADIS before Decembre 2011	A
	Requirement to issue OPMET information from the following AOP aerodromes Kankan, Labé, N'Nzérékoré in accordance with ICAO Doc 7474 Volume II, FASID AFI, Part III - Tableau AOP 1.	Republic of Guinea, Conakry International Airport..	OPMET information from AOP aerodromes Kankan, Labé, N'Nzérékoré is not issued 24h a day	09/2009	Advice given during CODEVMET mission	issue METAR and SPECI from AOP aerodromes Kankan, Labé and N'Nzérékoré	DNAC, DNM and ANA	Before December 2015	B

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
GUINEA BISSAU	Requirement to measure and report wind in accordance with provisions contained in Annex, Chapter 4 para 4.6.1.1..2	Guinée Bissau, Osvaldo Vieira International Airport	The wind sensors are installed on the top of the control tower and wind information is not representative of the condition along the runway.	10/2009	Advice given during CODEVMET mission	Install wind sensors at the touch down zone	ASECNA MET Administration	2011	U
	Requirement to issue aerodrome warnings (AD WRNG) and Wind Shear warnings (WS WRNG) as contained in provisions of Annex 3 Chapter 7 para 7.3.1 and 7.4.1 and App. 6 Table A6.2, A6.3	Guinée Bissau, Osvaldo Vieira International Airport	AD WRNG and WS WRNG are not issued at Osvaldo Vieira International Airport	10/2009	Advice given during CODEVMET mission	**Short term**: Writing of procedures for issuance of AW and WS Warnings and implement immediately. **Medium term:** Acquisition of MET Radar and wind shear detection equipment	AAC, ASECNA, Administration MET	12/2009 2013	U
	Implementation of MET facilities and services AFI/7 Rec. 14/10	Guinée Bissau, Osvaldo Vieira International Airport	Lack of personnel to ensure METY services to aviation properly	10/2009	Advice given during CODEVMET mission	Provide sufficient number of MET personnel	ASECNA et MET	2011	A
	Requirement to issue aerodrome forecasts (TAF) at Osvaldo Vieira International Airport:Annex 3 Chap. 9, para 9.13a)	Guinée Bissau, Osvaldo Vieira International Airport	TAF of Bissau issued by Dakar aerodrome meteorological Office in accordance with a bilateral agreement resulting in a lack of qualified MET personnel	1995 et 10/2009	Advice given during CODEVMET mission	Provide sufficient number of MET personnel	ASECNA , ACC, ENAG and MET	2012	A
LESOTHO	Implementation of MET facilities and services AFI/7 Rec. 14/10	Lesotho/Maseru/Moshoeshoe	Anemometer on RWY 04 has been unserviceable for many months	2003	Advice given through mission	Install a new sensor with displays at appropriate ATC and MET positions	Lesotho	As soon as possible but not later than 2007	A

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
LIBERIA	Requirement to re-establish the Meteorological Watch Office (MWO) of Robertsfield in accordance with Annex 3, Chap. 3, para. 3.4.1 and ICAO Doc 7474, Volume II, AFI FASID Table MET 1B.	Liberia/ Robertsfield International Airport.	The meteorological watch office (MWO) has not been re-established and the Liberian Administration has not arranged for another contracting State to provide SIGMET.	10/2009	Advice given during the mission and a draft Agreement provided for the issuance of SIGMET by an adjacent MWO	Reach an agreement with the nearest MWO for the provision of meteorological watch services including SIGMET for an interim period of time. Re-establish the MWO in the medium term	LCAA and MET Authority	-Short term: End November 2009 -Medium term: 2012	U
	Requirement to provide runway visual range (RVR) assessments at the touchdown zone and the mid-point of the runway of Robertsfield International Airport intended for Category II instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b)	Liberia/ Robertsfield International Airport.	Runway visual range (RVR) is not assessed and reported during periods of reduced visibility.	10/2009	Advice given during the mission.	**In the short term:** Training of MET personal for manual assessment and reporting of RVR, and **In the medium term:** Installation of a RVR measurement, assessment and reporting equipment recommended.	LCAA, Meteorological Authority and RIA	-Short term: November 2009 -Medium term: 2012	U
	Requirement to provide appropriate sensors of the automated equipment for measuring, assessing, monitoring and remote indicating visibility, runway visual range (RVR) and height of cloud base at the required in accordance with Annex 3, Chap 4, para. 4.1.5 and 4.6.3.1 and App. 3 para; 4.2.4.2	Liberia/ Robertsfield International Airport.	Except the wind sensor, the other required sensors of the automatic weather observing system, are not installed to support approach, landing and take-off operations.	10/2009	Advice given during the mission.	Install the required sensors of the automatic weather observing system at appropriate location	LCAA, Meteorological Authority and RIA	End of April 2010	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
LIBERIA	Requirement to provide briefing, consultation and flight documentation to flight crew members and/or other flight operations personnel in accordance with Annex 3, Chap. 3, para. 3.3.2 d) and Chap. 9, para. 9.3	Liberia/ Robertsfield International Airport.	Briefing, consultation and flight documentation are not provided to flight crew members and/or other flight operations personnel.	10/2009	A draft statement on the re-establishment of the AMO and the MWO established.	Provide briefing, consultation and flight documentation to flight crew members and other flight operations personnel, and equip the AMO and the future MWO with a high speed Internet access and required MET systems listed in Annex 3 Chap. 9 para. 9.1.3 h) and i). The AMO/MWO should be installed in a suitable room having a direct access to the AIS Office itself having direct access to the apron	LCAA, MET Authority, RIA and RFIR	End of April 2011	A
	Requirement to collect, processed and disseminated aircraft observations and reports (AIREP) in accordance with Annex 3, para. 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8 and 5.9	Liberia/ Robertsfield International Airport.	Aircraft observations and reports (AIREP) are not collected, processed and disseminated at Roberts MWO.	10/2009	Advice given during the Mission.	Develop and implement a service agreement for air traffic services, aeronautic information services and aeronautical MET services at Robertsfield International Airport in accordance with ICAO DOC 9377; Initiate regular meetings between the MET authorities, ATS units and appropriate local airlines.	LCAA, RFIR, RIA	Februar y 2010	A
	Requirement to provide reliable data source for the preparation of aviation weather forecasts in accordance with Annex 3, Chap. 9, para. 9.1.3 c), e), g), h) and i).	Liberia/ Robertsfield International Airport.	Reliable data sources are not available for the preparation of aviation weather forecasts such as SIGMET, aerodrome warnings, Trend forecast, TAFs, flight documentation, etc..	10/2009	Advice given during the Mission.	Supply the meteorological information to operators and flight crew members in accordance with the provisions contained in ICAO Annex 3, Chap. 9, para. 9.1.3 c), e), g), h) and i).	LCAA, MET Authority and RIA	2010	B
	Requirement to use forecasts issued by the WAFCs in the preparation of flight documentation, whenever these forecasts cover the intended flight path in respect of time, altitude and geographical extent, .. in accordance with Annex 3, App. 2, para. 2.1.1	Liberia/ Robertsfield International Airport.	The Roberts AMO does not receive any WAFS products for the provision of flight documentation.	10/2009	Advice given during the Mission.	Short Term: Use SADIS FTP service. Access procedures are described on the following Website: http://www.icao.int/anb/sadisopsg/SADIS%20FTP%20Service%20V4.0.pdf Medium Term: Provide AMO/MWO with SADIS 2G VSAT equipment and compliant SADIS workstation software in accordance with SADISOPSG/9 conclusion 9/15 and SADISOPSG/10 conclusion 10/4..	MET Authority and RIA	11//2009 2012	B

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
MAURITANIA	Requirements for safety oversight in the area of meteorological service for air navigation in Islamic Republic of Mauritania, (USOAP, 2008)	Islamic Republic of Mauritania, Nouakchott, Nouadhibou, Atar, Nema and Zoueratt Airports	ANAC has not established and implemented a system to ensure effective safety oversight of MET services suppliers. In addition, inspection procedures applicable to ensure effective implementation of safety oversight system as well as verification checklists and inspection schedules are not yet developed (*corrective action planned in November 2010*)	02/2011	Advice given during the Mission.	Recruit MET inspectors to monitor operational requirements	ANAC	November 2011	U
	Requirement to implement MET service for air navigation in three aerodromes listed in AFI Plan (AFI FASID MET Table 1A).	Islamic Republic of Mauritania, Nouakchott, Nouadhibou, Atar, Nema and Zoueratt Airports	FASID MET Table 1A of the AFI Air Navigation Plan, is not implemented in three aerodromes listed in the plan: Atar, Nema and Zoueratt	02/2011	Advice given during the Mission.	Develop human and material resources necessary for the issuance and dissemination of OPMET from three aerodromes (Atar, Nema and Zoueratt).	ANAC/ ONM/	August 2012	B
	Requirement to establish and implement from 15 November 2012, a properly organized quality system comprising procedures, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the users (ICAO Annex 3, para 2.2.3.)	Islamic Republic of Mauritania, Nouakchott, Nouadhibou, Atar, Nema and Zoueratt Airports	The quality management system (QMS) for MET service is not yet implemented by ANAC, the National Meteorological Office (ONM) and ASECNA	02/2011	Advice given during the Mission.	Train local trainers in QMS and implement the QMS before November 15, 2012	ANAC (oversight) ONM (Service provider) ASECNA (Service provider)	November 2012	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
MAURITANIA	Requirement to provide runway visual range (RVR) assessments at the touchdown and the mid-point zones of the runway at Nouakchott International Airport, intended for Category II (ILS) instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b) and Mauritania AIP	Islamic Republic of Mauritania, Nouakchott	RVR is not provided at the midpoint zone of the runway intended for operations in Nouakchott approach and instrument landing in Category II (ILS) in accordance with AIP Mauritania (GQNN AD 2.19 of 06/05/2010).	02/2011	Advice given during the Mission.	Install a system for assessing RVR in the midpoint zone of the at Nouakchott runway.	ASECNA	Before November 2011	A
NIGER	Requirement to provide runway visual range (RVR) assessments at the touchdown zone and the mid-point of the runway at Niamey International Airport, intended for Category II (ILS) instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b)	Niger, Niamey International Airport	Even though NiameyInternational Airport is intended for Category II (ILS) instrument approach and landing operations, RVR assessments are not provided at the mid-point of the runway..	03/2010	Advice given during Sate Mission	Install RVR sensor at the mid-point of Niamey runway.	ASECNA	Before December 2010	A
	Requirement to collect, process and relay special air reports in accordance with Annex 3 Chapter 5, para 5.1, 5.2-b), 5.5, 5.8 and 5.9.	Niger, Niamey International Airport	special aircraft observations and reports are not collected, processed and redistributed	03/2010	Advice given during Sate Mission	- Update and implement the provisions of the ATS/MET service agreement - Encourage ATS/MET/pilots coordination meetings	DAC and ASECNA	Before December 2010	B

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for implementation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
NIGERIA	Requirement to provide measurement of MET elements representative of conditions prevailing on the Runmay – Annex 3, Appendix 3 – Part 4 observing and reporting of MET element	Nigeria / Kano MA	Observing and reporting of MET elements deficient, Site of measurement about 2 kms from touchdown zone	25/09/09	Advice given by CODE VMET Phase 1 mission	Relocation of site of measurement of MET elements at a distance of 120 m or less from touchdown zone install an automatic observing system already available (NIMET Source)	NIMET NCAA and NAMA	2010 2010	U
	Requirement to measure and report RVR for runway intended for category II instrument approach and landing operations – Annex 3 Chapter 4 – Para. 4.6.3.4, 4.6.3.5 – appendix 3 – Para 4.3.6.4.	Nigeria / Kano MA	RVR not measured and reported for runway intended for category II instrument approach and landing operations	25/09/09	Advice given by CODE VMET – Phase I mission	**Short term:** Manuel measurement and reporting as immediate solution **Medium term :** install automatic observing system which is available	NIMET and NAMA	2010	U
	Requirement to assess and report wind shear in accordance with Annex 3 chapter 7 para. 7.4.1 and relevant provisions contained in low level wind shear Manuel 9817	Nigeria / Kano M.A.	Kano Airport affected by WS, no system of detection except for information received from pilots	25/09/09	Advice given by CODE VMET Phase I mission	NIMET, NAMA and NCAA to study possibility of installing WS detection system	NIMET NAMA and NCAA	2011	U
	Requirement to use WAFS products for flight documentation as in provisions contained in Annex 3 Chapter 9 para 9.4.3 and 9.1.6	Nigeria/ Kano AM	Use of other non WAFS products for coverage of flights departing Kano	25/09/2009	Advice given during CODE VMET Phase I mission	NIMET and NAMA to provide a SADIS station to Kano MET centre	NIMET and NAMA	2012	A
DEMOCRATIC REPUBLIC OF	Requirement to arrange that selected volcano observatory of Goma, observes: a) significant pre-eruption volcanic activity, or a cessation thereof; b) a volcanic eruption, or a cessation thereof; and/or c) volcanic ash in the atmosphere and send this information as quickly as practicable to its associated ACC, MWO and VAAC: ICAO Annex 3, para. 3.6	Democratic Republic of Congo (DRC), Volcano Observatory of Goma.	Volcanic activity information are not provided to air navigation units because of the lack of communication means between the observatory and MWO, ACC and FIC	09/ 2009	Advice given during Sate Mission	Improve communication means between Goma and Djili	Goma Observatory / METELSAT/ RVA	Before December 2011	U
	Requirement to provide automated equipment for	Democratic	Except the wind sensor, the other		Advice	Install an automatic		Before	

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for imple-mentation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
	measuring or assessing, as appropriate, and for monitoring and remote indicating of surface wind, visibility, runway visual range, height of cloud base, air and dew-point temperatures and atmospheric pressure at Djili aerodrome with a runway intended for Category II instrument approach and landing operations in accordance with ICAO Annex 3, Chap 4, para. 4.1.5 and 4.6.3.1	Republic of Congo (DRC), N'Djili International Airport.	required sensors of the automatic weather observing system, are not installed to support approach, landing and take-off operations.	09/ 2009	given during Sate Mission	weather observing system with sensors appropriately located. Install a MET message distribution system..	METELSAT/ RVA	december 2010	U

	Identification		Deficiencies				Corrective action		
STATE	**Requirements**	**Facilities or services**	**Description of Deficiency**	**Date first reported**	**Comments on deficiency**	**Description of corrective action**	**Executing body**	**Target date for implementation**	**Priority for action**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
DEMOCRATIC REPUBLIC OF CONGO	Requirement to issue aerodrome and wind shear warnings and wind shear alert in accordance with Annex 3, chap. 7, para. 7.3 et 7.4 et App. 6 Table A6-2 et A6-33	DRC, N'Djili International Airport.	Aerodrome and wind shear warnings (AD WRNG, WS WRNG) and wind shear alert are not issued at N'Djili International Airport	09/2009	Advice given during Sate Mission	1. issue and disseminate WS WRNG and AD WRNG information and wind shear alert; 2. develop and enforce a letter of service agreement between the MET and ATS (TWR, CCR, Office of the runway, ..) in order inter alia to promote the regular routing of aircraft reports on wind shear at landing or take off, to assess RVR, etc. .. 3. consider the possibility of installing, after a survey with users, at Djibouti Airport, a wind shear detecting system	METELSAT/ RVA	Before March 2010	U
	Requirements to use local routine and special reports MET REPORT and SPECIAL in the meteorological information used pour l'ATIS in accordance with Annex 11, chap. 4, para. 4.3.6.1, g) and Annex 3, Chap. 4 para. 4.3.2 and 4.4.2	DRC, N'Djili International Airport	Meteorological information used to issue ATIS are not the local routine and special reports MET REPORT and SPECIAL	09/2009	Advice given during Sate Mission	Use local routine and special meteorological reports to issue ATIS information (ATIS voice and D-ATIS)	METTELSAT RVA	July 2010	A
SAO TOME	Requirement to issue aerodrome and wind shear warnings and wind shear alert in accordance with Annex 3, chap. 7, para. 7.3 et 7.4 et App. 6 Table A6-2 et A6-33	Sao Tome, and Principe, Sao Tome International Airport (STIA).	Aerodrome and wind shear warnings (AD WRNG, WS WRNG) and wind shear alert are not issued at Sao Tome International Airport	09/ 2009	Advice given during CODEVMET Mission	1. issue and disseminate WS WRNG and AD WRNG information and wind shear alert; 2. develop and enforce a letter of service agreement between the MET and ATS (TWR, CCR, Office of the runway, ..) in order inter alia to promote the regular routing of aircraft reports on wind shear at landing or take off, to assess RVR, etc. .. 3. consider the possibility of installing, after a survey with users, at Djibouti Airport, a wind shear detecting system	INM, ENASA	Before June 2010	U
	Requirement to issue local routine and special reports in accordance with Annex 3, chap. 4, para. 4.3.1, 4.3.2 a) et 4.4.2 a)	Sao Tome, and Principe, (STIA)..	Local routine and special reports (MET REPORT) and SPECIAL) are not issued	09/ 2009	Advice given during CODEVMET Mission	Issue local routine and special reports (MET REPORT) and SPECIAL)	INM/ ENASA	Before december 2010	A
	Requirements to issue METAR, SPECI) and TAF on 24h Sao Tome International Airport: FASID AFI, Tableau MET 1A	Sao Tome, and Principe, (STIA).	METAR and SPECI are not issued on 24h basis	09/2009	Advice given during CODEVMET Mission	Issue METAR and SPECI on 24h basis	INM et ENASA	Before June 2010	A

	Identification		Carences			Action Corrective			
ETAT	**Besoins**	**Etat/ Installations**	**Description de la Carence**	**Date d'identi-fication**	**Observations sur la carence**	**Description de la mesure corrective**	**Organe exécutif**	**Date de Mise en Œuvre**	**Priorité**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
SAO TOME	Requirement to provide flight documentation in accordance with AFI FASID Table MET 7 (Doc 7474 Volume II, FASID AFI)	Sao Tome, and Principe, Sao Tome International Airport..	Flight documentation is provided from a public non-secured website ADDS	09/2009	Advice given during CODEVMET Mission	In the short term, a SADIS FTP service shall be accessed from the WAFC London to extract required data for the provision of flight documentation. Access procedures are described on the following Website http://www.icao.int/anb/sadisopsg/sadis%20ftp%20service%20v4.0.pdf In the medium term, install a SADIS VSAT station with the required SADIS workstation software:	INM/ ENASA	Before December 2010	B
SÉNÉGAL	Requirement to provide runway visual range (RVR) assessments at the touchdown zone and the mid-point of the runway of Dakar International Airport, intended for Category II instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b)	Senegal/ Leopold Sedar Senghor International Airport or Dakar	Runway visual range (RVR) assessments are not representative of the touchdown zone and the mid-point of the runway intended for Category II instrument approach and landing operations	02/ 2009	Deficiency identify during ICAO WACAF visit	Install RVR sensor at the mid-point of the runway	AID-DPW	December 2010	U
	Requirement to collect, process and relay air reports in accordance with Annex 3 Chapter 5, para 5.1, 5.2, 5.3.2, 5.4.1, 5.5, 5.7, 5.8 and 5.9	Senegal/ Leopold Sedar Senghor International Airport or Dakar	Aircraft observation and reports are not collected, processed and relayed	02/2009	Deficiency identify during ICAO WACAF visit	Necessary arrangements between the MET authority and the appropriate ATS authority be made.	ANACS and ASECNA	December 2009	B
	Requirement to report visibility along the runway in local routine and special reports in accordance with Annex 3, Appendix 3 para; 4.2.4.2	Senegal/ Leopold Sedar Senghor International Airport or Dakar	Many obstacles (2 control towers, airlines hangars, etc ...) around the visibility estimation platform of the aeronautical meteorological station (SMA), does not allow to estimate the visibility along the runway .	02/2009	Deficiency identify during ICAO WACAF visit	Install visibility sensors along the runway Or Relocate the SMA at a location enabling the observer to estimate the visibility along the entire length of the runway.	ASECNA	June 2010	A

	Identification		Carences			Action Corrective			
ETAT	**Besoins**	**Etat/ Installations**	**Description de la Carence**	**Date d'identi - fication**	**Observa tions sur la carence**	**Description de la mesure corrective**	**Organe exécutif**	**Date de Mise en Œuvre**	**Priorité**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
SÉNÉGAL	Requirement to provide Automatic Terminal Information Service (ATIS) in accordance with ICAO Doc 7474 Volume II, FASID AFI, Part III - Tableau AOP 1.	Senegal/ Leopold Sedar Senghor International Airport or Dakar	The ATIS service is not implemented at Brazzaville International Airport	02/2009	Deficiency identify during ICAO WACAF visit	Install and implement an operational ATIS system	ASECNA	June 2010	A
SIERRA LEONE	Requirement to measure and report wind in accordance with provisions contained in Annex, Chapter 4 para 4.6.1.1.	Sierra Leone/ Freetown Lungi Airport	Wind measurement system old and deficient	1994	Advice given during mission CODEVMET Phase I 10/2009	Installation of new wind measurement equipment	SLAA and MET Department	2010	U
	Requirement to measure and report RVR for runway intended for Category II instrument approach and landing operations	Sierra Leone/ Freetown Lungi Airport	In case of reduced visibility RVR not measured and reported	29/09/ 2009	Advice given during mission CODEVMET Phase I	**Short term :** manual measurement **Long term :** Installation of RVR measurement, assessment and reporting equipment	MET Department and SLAA	10/2009 2013	U
	Requirement to issue aerodrome warnings (AW) and Wind Shear warnings (WS) as contained in provisions of Annex 3 Chapter 7 para 7.3.1 and 7.4.1 and App. 6 Table A6.2, A6.3	Sierra Leone/ Freetown Lungi Airport	AW and WS are not issued at Lungi Airport	29/09/ 2009	Advice given during mission CODEVMET Phase I	**Short term**: Writing of procedures for issuance of AW and WS Warnings and implement immediately. **Medium term:** Acquisition of MET Radar and wind shear detection equipment	MET Department and SLAA	11/2009 2013	U
	Requirement to observe and report MET elements in accordance with Anne 3, para 4.6	Sierra Leone/ Freetown Lungi Airport	Not in compliance with recommended practices on observing and reporting of MET elements	29/09/ 2009	Advice given during mission CODEVMET Phase I	Relocate measurement site and acquire automated observing system	MET Department SLAA and SLCA	2012	A
	Requirement to provide MET information to ATS units Annex 3 Chapter 10 para 10.1.5 Appendix 9 para 1.1.a)	Sierra Leone/ Freetown Lungi Airport	MET messages MET report, METAR, SPECIAL are hand carried to control TWR Lack of commu- nication system	29/09/ 2009	Deficiency reported during mission CODEVMET Phase I	Repair the communication system and install reliable display system to ATS	SLAA Roberts FIR and MET Department	2010 2012	A
	Requirement to implement MET facilities and services AFI/7 Rec. 10/14	Sierra Leone/ Freetown Lungi Airport	Insufficient number of forecasters and observers at Lungi MET centre	29/09/ 2009	Deficiency assessed during mission CODEVMET Phase I	Provide MET centre with required number of qualified personnel	MET Department SLAA Roberts FIR	2012	A

	Identification		Carences			Action Corrective			
ETAT	**Besoins**	**Etat/ Installations**	**Description de la Carence**	**Date d'identi - fication**	**Observa tions sur la carence**	**Description de la mesure corrective**	**Organe exécutif**	**Date de Mise en Œuvre**	**Priorit é**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
SIERRA LEONE	Requirement to use qualify WAFS products for flight documentation in accordance with provision contained in Annex 3 Chapter 9 para 9.1.3, 9.1.6 and 9.1.6 and FASID Table MET7	Sierra Leone/ Freetown Lungi Airport	No SADIS station at Lungi Airport	29/09/ 2009	Deficiency assessed during mission CODEVMET Phase I	**Short Term:** Use FTP to acquire WAFS data Acquisition of SADIS station	MET Department SLAA Roberts FIR SLAA MET Roberts FIR	10/2009 2012	A
SOMA LIA	Situation unknown	FIR Mogadishu							
SWAZI LAND	Requirement to provide MET reports to ATS Units (Annex 3, Chapter 10, para 10.1.1)	Swaziland/Man zini Matsapha Airport Associated MET Office	Provision of MET reports to ATS units deficient. No wind displays in control tower	2004	Advice was given on mission	Install a display system for MET data and information at ATS units	DCA and MET Department	As soon as possible	U
TOGO	Requirement to provide meteorological information to ATS units and airport managers in accordance with ICAO Annex 3, App. 9, para. 1.1, 1.2 and 1.3	Togo, Lomé International Airport	Aerodrome and wind shear warnings (AD WRNG and WS WRNG) reports are not displayed at ATS units and at SALT.	08/2010	Advice given during the mission	Display the warning reports AD WRNG and WS WRNG at ATS units and at the SALT premises	ASECNA and SALT	December June 2010	U
	Requirement to provide runway visual range (RVR) assessments at the touchdown and the mid-point zones of the runway at Lomé International Airport, intended for Category II (ILS) instrument approach and landing operations in accordance with Annex 3, Chap. 4, para. 4.6.3.4 b) and Togo AIP	Togo, Lomé International Airport	Although the runway in Lomé is equipped with a Category II ILS, RVR measurements are not provided at the midpoint zone of the runway. In addition, the existing RVR and cloud base height sensors, are not operational	08/2010	Advice given during the mission	Install RVR assessment system at the mid point zone of Lomé runway; And repair existing RVR and cloud base height sensors.	ASECNA	Before December 2011 Before June 2011	A U

	Identification		Carences			Action Corrective			
ETAT	**Besoins**	**Etat/ Installations**	**Description de la Carence**	**Date d'identi-fication**	**Observa tions sur la carence**	**Description de la mesure corrective**	**Organe exécutif**	**Date de Mise en Œuvre**	**Priorité**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
TOGO	Requirement to report and issue surface wind observation period averaging in accordance with Annex 3, App. 3 para. 4.1.3.1	Togo, Lomé International Airport	The direct reading of wind at the control tower, provides instantaneous observations of wind and the average speed and wind direction over periods of 10 minutes and 2 minutes	08/2010	Advice given during the mission	Arrange for the calibration of the wind direct display systems in order that the period of surface wind observations averaging is 2 minutes on the displays of the control tower and for MET REPORT/SPECIAL messages, and 10mn in METAR/SPECI	ASECNA	Before June 2011	U
ZAMBIA	1)Implementation of MET facilities and services (Annex 3, para 4.1.6)	Zambia/Lusaka International Airport	Inadequate level of equipment maintenance	2002 and missions of 2004 and 2007	Equipment remain unserviceable for a long time due to lack of spare parts	Provide financial resources including use of air navigation charges which currently is not fully available to the MET Department.	Zambia MET Department and NACL	As soon as possible	U
	2)Requirement to provide MET reports to ATS Units (Annex 3, Chapter 10, para 10.1.1)	Zambia/Lusaka Meteorological Office	Provision of MET reports to ATS Units deficient	2002 and missions of 2004 and 2007	Advice given during mission by correspondence	Install display system of MET data to ATS units	MET Department	As soon as possible	U
	3)Requirement to provide meteorological data and forecasts in form of flight documentation (Annex 3, Chapter 3, para 3.3.2).	Zambia/Lusaka Meteorological Office	Provision of MET reports to ATS Units deficient	2002 and missions of 2004 and 2007	Advice given during mission and by correspondence	Install appropriate telecomms equipment to receive OPMET information and appoint adequate trained personnel	MET Department	As soon as possible	U
	4) Requirements for SIGMET information (Annex 3 para 3.4.2 b, c, d and add para. 7.1.1	Zambia/Lusaka Meteorological watch office (MWO)	SIGMET not issued	2007	Advice given on mission	Immediately provide training and issue SIGMET	MET Department	As soon as possible	U

EXPLANATORY NOTES FOR APPENDICES ON DEFICIENCIES

Requirement identified at a given meeting through a recommendation; name of the meeting and the related recommendation number

Name of the State or States involved and/or the name of the facilities such as name of airport, FIR, ACC, TWR, etc.

1. Brief description of the deficiency :

2. Date deficiency was first reported :

3. Comments.

4. Brief description of the corrective actions to be undertaken.

5. Identification of the executing body.

6. Target date for completion of the corrective action.

7. Priority and classification.

8. Target date for implementation.

9. Priority for Action.
10.

"U" priority = **Urgent** requirements having a **direct** impact on **safety** and requiring i**mmediate** corrective actions.

Urgent requirements consisting of any physical, configuration, material, performance, personnel or procedures specifications, the application of which is urgently required for air navigation safety.

"A" priority = **Top priority** requirements **necessary** for air navigation **safety**.

Top priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation safety.

"B" priority = **Intermediate** requirements **necessary** for air navigation **regularity**.

Intermediate priority requirement consisting of any physical, configuration, material, performance, personnel or procedures specification, the application of which is considered necessary for air navigation regularity and efficiency.

APPENDIX J

TERMS OF REFERENCE OF THE AFI ATM/MET TASK FORCE

1. Terms of Reference

Under guidance from ICAO Secretariat:

a) Evaluate the current and future requirements for MET in support of ATM in the AFI Region and update Regional Air Navigation Plan accordingly and provide guidance material to assist States to develop MET services to meet these requirements;

b) Assess aviation meteorological services, systems and architecture in the region and how they can integrate weather information into decision support tools;

c) Review and update the AFI Volcanic Ash Contingency Plan ;

d) Investigate sub-regional exchange of MET information and associated agreements that facilitate ATM operations particularly over busy routes that overlap different FIRs;

e) Promote coordination between MET and ATM communities in the AFI Region to enhance the level of understanding of MET requirements and capabilities in support of ATM;

f) Monitor global policy associated with source data and delivery of MET products for ATM;

g) Coordinate with MET/SG and ATM/AIS/SAR/SG on framework for contingency plan for specific phenomenon including volcanic ash, radioactive cloud, tropical cyclone and Tsunami with reference to developments made WMO scientific steering committee;

h) Report to the MET/SG Sub-group of APIRG for further co-ordination through the ICAO Secretariat with other relevant bodies.

The objective being to improve efficiency of ATM and airlines by providing tailored regional MET products needed to optimize flight routes in all weather conditions.

The Benefits will be to increase efficiency – save time and fuel as well as reduce carbon emissions.

1. Work Programme

The work to be addressed by the AFI ATM/MET Task Force includes:

a) Develop regional MET requirements for ATM by:
- ✓ conducting MET/ATM meetings (TF meetings, Seminars) to contribute in developing MET requirements for ATM;
- ✓ analyzing existing ATM/MET surveys and develop new surveys, when necessary, to determine regional ATM requirements for MET;
- ✓ recommending regional MET requirements for ATM to MET/SG Meetings;
- ✓ Determining regional MET requirements for ATM.

b) Developing methods to use weather information in decision support tools by:
- ✓ Developing methods to use weather information in decision support tools

c) Review and update the AFI Volcanic Ash Contingency Plan (VACP) by:

- ✓ Regularly updating the VACP through new requirements from the IAVWOPSG
- ✓ Conducting annual VACP exercises or AFI ATM/MET Volcanic Ash Exercises (VAEX/AFI);
- ✓ reporting on annual VAEX/AFI to MET/SG meetings.

d) Develop sub-regional exchange of MET information to facilitate ATM operations by:

- ✓ Encouraging States develop agreements on the exchange of MET information that provides benefits to ATM operations on sub-regional level;
- ✓ Encouraging States report developments to MET/ATM TF and MET/SG meetings;
- ✓ Developing sub-regional exchange of MET information to facilitate ATM operations in busy routes.

e) Develop regional implementation plan for Meteorological Service for Terminal Area (MSTA) by:

- ✓ Monitoring developments of MSTA (pending approval at conjoint ICAO/WMO Divisional meeting 2014);
- ✓ Monitoring ICAO Annex 3 developments (requirements for MSTA);
- ✓ Developing regional implementation plan for MSTA ;
- ✓ Monitoring regional implementation of MSTA;
- ✓ Reporting implementation progress to MET/SG.
- ✓ Developing regional implementation plan for Meteorological Services for the Terminal Area.

f) Monitor global policies associated with source data and delivery of MET products for ATM by:

- ✓ monitoring global policies associated with source data and delivery of MET products for ATM ;
- ✓ reporting results to MET/SG meetings;
- ✓ monitor global policies associated with source data and delivery of MET products for ATM.

2. Composition

3.1 The Task Force is composed of experts from:

a) South Africa, Senegal, France, Kenya, The Gambia, Morocco, Cameroon, Tanzania, Botswana, DRC, ……

b) Representatives of VAAC Toulouse, ASECNA, ARMA, IATA, IFALPA, IFATCA and WMO are expected to participate in the work of the Task Force.

INTERNATIONAL CIVIL AVIATION ORGANIZATION

VOLCANIC ASH CONTINGENCY PLAN

AFI REGION

First Edition - April 2011

THIS DOCUMENT IS ISSUED BY THE WACAF AND NAIROBI OFFICES OF ICAO
UNDER THE AUTHORITY OF THE APIRG

TABLE OF CONTENTS

1. FOREWARD 3

2. TERMINOLOGY 4

2.1 Areas of Contamination 4

2.2 Phases of an Event 4

3. PRE-ERUPTION PHASE 5

3.1 General 5

3.2 Originating Area Control Centre (ACC) Actions (eruption in its own flight information region (FIR)) 5

3.3 Adjacent ACC Actions 7

4. START OF ERUPTION PHASE 7

4.1 General 7

4.2 Originating ACC Actions (eruption in its own FIR) 7

4.3 Adjacent ACC Actions 8

5. ONGOING ERUPTION PHASE 8

6. RECOVERY PHASE 9

7. AIR TRAFFIC CONTROL PROCEDURES5 9

ATTACHMENT A - GENERAL GUIDANCE FOR THE DEVELOPMENT OF ATM CONTINGENCY PLANS FOR VOLCANIC ASH 11

ATTACHMENT B - ANTICIPATED PILOT ISSUES WHEN ENCOUNTERING VOLCANIC ASH 13

ATTACHMENT C - REPORTING [Editorial Note: Awaiting input from IVATF task TF-ATM03] 14

ATTACHMENT D- ACTION TAKEN BY METEOROLOGICAL WATCH OFFICES (MWO) 15

ATTACHMENT E: ACTION TO BE TAKEN BY THE AFI VAAC IN THE EVENT OF A VOLCANIC ERUPTION 16

ATTACHMENT F - PROCEDURES FOR THE PRODUCTION OF MODELLED ASH CONCENTRATION CHARTS 17

ATTACHMENT G RECOMMENDED ACTIONS BY STATES OF THE OPERATOR/REGISTRY WITH REGARDS TO AIRCRAFT OPERATIONS IN THE EVENT OF A VOLCANIC ERUPTION..... 18

ATTACHMENT H EXAMPLE SAFETY RISK ASSESSMENT PROCESS 19

ATTACHMENT I EXAMPLE TABLE OF CONSIDERATIONS FOR PLANNED OPERATIONS IN AIRSPACE OR TO/FROM AERODROMES WHICH MAY BE CONTAMINATED BY VOLCANIC ASH. 21

ATTACHMENT J EXAMPLE OF A HAZARD LOG (RISK REGISTER) 24

ATTACHMENT K - EXAMPLE SIGMET, NOTAM, ASHTAM 25

ATTACHMENT L – MAJOR VOLCANOES IN THE AFI REGION 27

1. FOREWARD

1.1 Within and adjacent to the Africa and Indian Ocean (AFI) Region there are areas of volcanic activities which are likely to affect flight in the AFI Region. The major volcanoes in the region are located in the following States: Algeria, Cameroon, Cape Verde Islands, Chad, Comoros Island, Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, France (Reunion Island), Kenya, Madagascar, Mali, Niger, Nigeria, Rwanda, Sao Tome and Principe, Spain (Canary Islands, Madeira), Sudan, Tanzania and Uganda. The names of the concerned volcano are listed in **Attachment L** (source: Smithsonian Institution).

1.2 The AFI Air Traffic Management (ATM) Volcanic Ash Contingency Plan sets out standardised guidelines for the alerting of aircraft when eruptions occur, and procedures to be followed. Volcanic contaminations, of which volcanic ash is the most serious, may be a hazard for flight operations; the issue cannot be resolved in isolation but through collaborative decision-making (CDM) involving all entities concerned. During an eruption volcanic contamination can reach and exceed the cruising altitudes of turbine-powered aeroplanes within minutes and spread over vast geographical areas within a few days. Encounters with volcanic ash may result in one or more of the following and other problems:

- the malfunction, or failure, of one or more engines leading not only to reduction, or complete loss, of thrust but also to failures of electrical, pneumatic and hydraulic systems;
- blockage of pitot and static sensors resulting in unreliable airspeed indications and erroneous warnings;
- windscreens to be rendered partially or completely opaque;
- smoke, dust and/or toxic chemical contamination of cabin air requiring crew use of oxygen masks, thus impacting communications; electronic systems may also be affected;
- erosion of external and internal aircraft components;
- reduced electronic cooling efficiency leading to a wide range of aircraft system failures;
- aircraft to be manoeuvred in a manner that conflicts with other aircraft;
- deposits of volcanic ash on a runway degrading braking performance, most significantly if the ash is wet; in extreme cases, this can lead to runway closure.

1.3 Operators are required by ICAO Annex 6 – *Operation of Aircraft* to assess the risk of operation in volcanic ash and to implement appropriate mitigation measures in accordance with their safety management system (SMS) as approved by the State of the Operator/Registry, as appropriate. The suggested actions outlined in this document are based on the assumption that the ICAO requirements regarding safety management systems have been implemented by the operators. Detailed guidance on Safety Risk Assessments for flight operations with regard to volcanic contamination is available at .... (ICAO Doc####)

1.4 It should be noted that this document is an ATM contingency plan including its interfaces with supporting services such as Aeronautical Information Service (AIS) and Meteorological (MET) services and that the plan therefore primarily addresses the provider States. Where distinct actions by the Meteorological Watch Offices (MWOs) are described, these are additional procedures to be considered by MWOs. Where actions by Volcanic Ash Advisory Centres (VAACs) and operators are described, these are for clarification only. As volcanic events also affect people and industries that are not related to aviation, it is highly likely that contingency plans of a more generic ―disaster response‖ nature exist in many States. Since they too rely on information sources, such as Volcanological Observatories, it is advisable to make arrangements to share information with institutions.

1.5 Volcanic Ash can also affect the operation of aircraft on aerodromes. In extreme cases, aerodromes might no longer be available for operation at all, resulting in repercussions on the ATM system; e.g. diversions, revised traffic flow, etc.

1.6 These suggested procedures are not intended to establish or confirm a safe level of volcanic contamination. Operation through any area where volcanic ash is present or forecast is at the discretion of the operator. In this context it should be noted that some aircraft types or engine technologies are more vulnerable to volcanic contaminants; any specific measures to be applied would therefore have to take into account these variances. Considering that a commercial aircraft will travel about 150 km (80 NM) in 10 minutes and that volcanic ash can rise to flight levels

commonly used by turbine-engine aeroplanes in half that time, a timely response to reports of volcanic ash is essential.

1.7 It is imperative that information on the volcanic activity is disseminated as soon as possible. In order to assist staff in expediting the process of originating and issuing relevant messages (VA SIGMET, NOTAM, and ASHTAM), a series of templates should be available for different stages of the volcanic activity. Examples of VA SIGMET, NOTAM and ASHTAM announcing operational measures and volcanic activities in the different stages and are contained in **Attachment K**. A list of ICAO registered volcanoes should be available at the international NOTAM office with volcano name, number and nominal position. In order to ensure the smooth implementation of the contingency plan in case of an actual volcanic eruption, annual AFI ATM/MET Task Force Volcanic Ash Exercises (VAEX/AFI) should be conducted.

2. TERMINOLOGY

2.1 Areas of Contamination

2.1.1 Areas of volcanic ash contamination are provided by means of volcanic ash advisories (VAAs) in accordance with the *Meteorological Service for International Air Navigation* (Annex 3). In the AFI region, contamination levels are provided by the associated MWO of AFI Volcanic Ash Advisory Centre (VAAC) actually located in Toulouse, France, by means of ash concentration forecasts/charts in order to support operators in establishing their safety risk assessment (SRA) for flight operations in known or forecast volcanic ash contamination. Whenever ash products are mentioned in this document this means variously VAA or VAG and in volcanic ash concentration charts.

2.2 Phases of an Event

2.2.1 The response to a volcanic event that affects air traffic has been divided into four distinct phases (Pre-Eruption Phase, Start of Eruption Phase, Ongoing Eruption Phase, and Recovery Phase) as described briefly below. The four phases cover an actual event only and do not describe activities that need to be performed before or after a volcanic event. However, it would be prudent to train all ATS personnel and to have regular exercises in how to deal with volcanic contaminations. In addition, following a volcanic event it would be good practice to perform a review of the actions, to identify lessons learnt, which should be taken into account in an update of the contingency plan. Volcanic activity at many locations is continuously monitored by the scientific community. Furthermore, flight crews are required to report observations of significant volcanic activity by means of a Special Air Report (AIREP). Arrangements should be put in place to ensure that such information is transferred without delay to the appropriate aeronautical institutions responsible for subsequent action. Reports (text to be included referring to **Attachment C**)

> **PRE-ERUPTION PHASE:** The initial response, "raising the alert", commences when a volcanic eruption is expected. Alerting information will be provided by VA SIGMET, NOTAM or ASHTAM as appropriate and disseminated to affected aircraft in flight by the most expeditious means. In addition to the normal distribution list, the NOTAM/ASHTAM will be addressed to meteorological/volcanological agencies.

2.2.2 If it is considered that the event could pose a hazard to aviation, a danger area will be declared by NOTAM around the volcanic source. Normally, clearances will not be issued through the danger area unless explicitly requested by the flight crew. In this context it should be noted that the final responsibility for aircraft safety rests with the pilot, therefore the final decision regarding route, whether it will be to avoid or proceed through an area of volcanic activity, is the pilot's responsibility. Wherever this document discusses the possible establishment of danger areas, States are not prevented from establishing restricted or prohibited areas over the sovereign territory of the State if considered necessary by the State concerned.

> **START OF ERUPTION PHASE:** The start of eruption phase commences at the outbreak of the volcanic eruption and entrance of volcanic ash into the atmosphere and mainly pertains to aircraft in flight. A "Start of Eruption VA SIGMET" will be issued and a danger area will be declared by NOTAM. Normally, clearances will not be issued through the danger area unless explicitly requested by the flight crew.

ONGOING ERUPTION PHASE: The ongoing eruption phase commences with the issuance of the first VAA after completion of reactive responses. The T+0 hours and T+6 hours forecasts of the contaminated area are to be issued as VA SIGMET. The T+12 hours and T+18 hours (and further into the future) forecasts of contaminated areas are to be issued as VAA forecasts. Significant changes may result in a reversion to a temporary start of eruption phase situation and unscheduled issuance of VAA, VA SIGMET and NOTAM/ASHTAM

RECOVERY PHASE: The recovery phase commences with the issuance of the first "No Volcanic Ash Expected VAA" which normally occurs when it is determined that the volcanic activity has reverted to its pre-eruption state.

3. PRE-ERUPTION PHASE

3.1 General

3.1.1 Where flight operations are planned in areas that are susceptible to volcanic eruptions, a system of monitoring volcanoes should be established. As the lack of resources results in a large number of volcanoes unmonitored locally, pilots flying in the vicinity of a VA activity are frequently the first source of information on an eruption. Therefore, pilots operating in areas with unmonitored volcanoes should always be vigilant for signs of an eruption and should fully understand their importance as information providers. Operators should provide them with the ICAO Volcanic Activity Report form published in the *Procedures for Air Navigation Services – Air Traffic Management* (PANS-ATM, Doc 4444) Attachment 1, preferably in an easily useable electronic format, as part of the pre-flight briefing.

3.1.2 The focus of this phase is to gain early recognition of volcanic events. This phase is frequently characterised by a limited availability of information on the potential extent and severity of the upcoming eruption. The priority is to ensure the safety of aircraft in flight and there is therefore a requirement to promulgate information as a matter of urgency. Regardless of the extent of information available the pre-eruption phase actions should be carried out for every event.

3.1.3 The initial response, "raising the alert", commences when a volcanic eruption is expected or has occurred without prior warning. Initial awareness of the event can be by means of an AIREP/Volcanic Activity Report and/or meteorological or volcanological agencies. Arrangements in each State between designated volcano observatories, meteorological and air traffic management agencies shall ensure that alerting information is provided expeditiuosly by the most appropriate means, VA SIGMET, NOTAM or ASHTAM or re-transmitted AIREPs, to ensure safety of flight.

3.1.4 Emphasis is placed on raising awareness of the hazard and to protect aircraft in flight. The actions are based on well-prepared contingency plans and standard operating procedures. Aircraft are expected to clear or avoid the affected area based on standard operating procedures. The alerting will trigger action, such as the collection of additional data and the preparation of specific safety risk assessments (SRAs).

3.2 Originating Area Control Centre (ACC) Actions (eruption in its own flight information region (FIR))

3.2.1 In the event of significant pre-eruption volcanic activity, a volcanic eruption occurring, or a volcanic ash cloud being reported which could pose a hazard to aviation, an area control centre (ACC)[1], on receiving information of such an occurrence, should carry out the following:

a) define an initial danger area in accordance with established procedures. The size of the danger area should encompass a volume of airspace in accordance with the limited information available, aiming to avoid undue disruption of flight operations;

[1] Although the term "ACC" is used throughout this document, it applies also to flight information centre (FIC)

i) if no such procedures have been established, the danger area should be defined as a circle with a radius of xxx km (xx NM)[2]. If the eruption has not commenced or if no information on upper winds is available, the circle should be centred on the estimated location of the volcanic activity;

ii) should a precautionary danger area be established, its size should encompass a reasonable volume of airspace in accordance with the limited information available aiming to avoid undue disruption of flight operations;

Note.– An area with a radius of 5 to 10 minutes flying time would result in only 2 – 3 minutes additional flying time.

iii) If the eruption has started and predicted upper wind information is available, the circle should be centred xxx km (xx NM)[3] downwind from the volcano whilst enclosing it. The purpose of this initial danger area is to ensure safety of flight in the absence of any prediction from a competent authority of the extent of contamination;

iv) although ATC would not normally initiate a clearance through a danger area, it will inform aircraft about the potential hazard and continue to provide normal services. It is the responsibility of the pilot-in-command to determine the safest course of action.

.

b) advise the associated Meteorological Watch Office (MWO) and the appropriate VAAC (unless the initial notification originated from either of these entities). The VAAC will then inform the appropriate ACC.

c) alert flights already within the danger area and offer assistance to enable aircraft to exit the area in the most expeditious and appropriate manner. Pilots should be provided with all necessary information required to make safe and efficient decisions while flying around the defined area. Aircraft that are close to the danger area should be offered assistance to keep clear of the area. Tactically re-clear flights which would penetrate the danger area onto routes that will keep them clear. The ACC should immediately notify other affected ACCs of the event and the location and dimensions of the danger area. It should also negotiate any re-routings necessary for flights already coordinated but still within adjacent flight information regions (FIRs). It is also expected that adjacent ACCs will be asked to reroute flights not yet coordinated to keep them clear of the danger area. It should be noted that pilots may make the decision not to completely avoid the danger area based on e.g. visual observations.

d) ensure that a NOTAM/ASHTAM is originated. This must provide as precise information as is available regarding the activity of the volcano. The name (where applicable), reference number and position of the volcano should be included along with the date and time of the start of the eruption (if appropriate). It is imperative that this information is issued by the international NOTAM office and disseminated as soon as possible.

e) in order to assist staff in expediting the process of composing the NOTAM/ASHTAM, a series of templates should be available for this stage of the volcanic activity Examples of VA SIGMET, NOTAM and ASHTAM announcing operational measures and volcanic activities in the different stages and are contained in **Attachment K**.

3.2.2 In addition to sending the NOTAM/ASHTAM and any subsequent NOTAM/ASHTAM to the normal distribution list, it will be sent to the relevant meteorological agencies with the appropriate World Meteorological Organisation (WMO) header.

[2] The size of the area to be agreed in the region concerned.

[3] The values to be agreed in the region concerned.

3.3 Adjacent ACC Actions

3.3.1 During the pre-eruption phase ATC will not normally initiate clearances through the danger area; however, it will inform aircraft about the potential hazard and continue to provide normal services. Any ash contamination should be contained within a limited area and disruption to traffic should not be excessive. Adjacent ACCs should take the following action to assist:

a) when advised, re-clear flights to which services are being provided and which will be affected by the danger area.

b) unless otherwise instructed, continue normal operations except:

i) if one or more routes are affected by the danger area, stop clearing aircraft on these routes and take steps to reroute onto routes clear of the danger area; and

ii) initiate a running plot of the affected area.

4. START OF ERUPTION PHASE

4.1 General

4.1.1 This phase commences at the outbreak of volcanic eruption. The focus of the processes in this phase is to protect aircraft in flight and on aerodromes from the hazards of the eruption; to collect relevant information; and to combine the information available into reliable information about the volcanic cloud (horizontal and vertical extent; composition).

4.1.2 In addition to relevant actions described under the pre-eruption phase, major activities of the start of eruption phase are: Issuance of an eruption commenced VA SIGMET; eruption commenced NOTAM/ASHTAM; and rerouting of airborne traffic if necessary. As appropriate, danger areas will be notified via NOTAM. This phase will last until such time as the ongoing eruption phase can be activated.

4.2 Originating ACC Actions (*eruption in its own FIR*)

4.2.1 The ACC providing services in the FIR within which the volcanic eruption takes place should inform flights about the existence, extent and forecast movement of volcanic ash and provide information useful for the safe conduct of flights.

4.2.2 If necessary, rerouting of traffic should commence immediately or may be in progress if the alerting time has been sufficient to facilitate activation of the pre-eruption phase. The ACC should assist in rerouting aircraft around the danger area as expeditiously as possible. Adjacent ACCs should also take the danger area into account and give similar assistance to aircraft as early as possible.

4.2.3 During the start of eruption phase, although ATC will not normally initiate a clearance through a danger area, it will inform aircraft about the hazard and will continue to provide normal services. It is expected that aircraft will attempt to remain clear of the danger area; however, it is the responsibility of the pilot-in-command to determine the safest course of action.

4.2.4 During the start of eruption phase the ACC should:

a) maintain close liaison with its associated MWO and the lead VAAC. The MWO should issue a “start of eruption” SIGMET message by the most expeditious means. It may simply contain information that an ash cloud has been reported and the date/time and location. A “start of eruption” message may also be promulgated by a VAA. During this phase information on the extent and severity of the volcanic event may be limited; however, when possible, the message should contain information on the extent and forecast movement of the ash cloud based on appropriate sources of information.

b) based on these forecasts and in cooperation (CDM) with aircraft operators and the adjacent ACCs, ACC measures should be devised and updated when necessary to ensure safety of flight operations.

c) ensure a NOTAM is originated to define a danger area delineated cautiously so as to encompass a volume of airspace in accordance with the limited information available.

d) ensure that reported differences between published information and observations (pilot reports, airborne measurements, etc.) are forwarded as soon as possible to the appropriate authorities to ensure its dissemination to all concerned.

e) begin planning for the ongoing eruption phase in conjunction with the aircraft operators, the appropriate ACCs concerned.

f) should significant reductions in intensity of volcanic activity take place during this phase and the airspace no longer is contaminated by volcanic ash, a NOTAMC cancelling the last active NOTAM shall be issued stating the cause for cancellation; new NOTAM/ASHTAM should be promulgated to update the situation. Otherwise, begin CDM planning for the ongoing eruption phase in conjunction with aircraft operators, the affected ACCs.

4.3 Adjacent ACC Actions

4.3.1 During the start of eruption phase adjacent ACCs should take the following actions:

a) maintain close liaison with the originating ACC to design, implement and keep up to date ACC measures which will enable aircraft to ensure safety of flight operations.

b) in the event that tactical measures additional to those issued by the appropriate ACC are required, the adjacent ACC should, in cooperation with the originating ACC and aircraft operators, impose such measures.

c) maintain a running plot of the affected area.

d) begin planning for the ongoing eruption phase in conjunction with the aircraft operators, the ACCs concerned.

5. ONGOING ERUPTION PHASE

5.1 The ongoing eruption phase commences with the issuance of the first VAA/VAG by the VAAC after completion of the start of eruption phase responses. The VAA/VAG will contain the current position of the volcanic cloud and forecasts of the expected vertical and horizontal extent of the volcanic ash cloud, and its expected movement, at six-hourly time-steps for the period T+0 to T+18 hours. When the volcanic ash cloud is expected to move considerably during a 6 hour period, VA SIGMETs for shorter periods should be produced.

5.2 Volcanic cloud forecasts and/or VAA/VAGs may include (if available) quality indicators (e.g. accuracy, variability, etc.) and risk levels that can more easily be used in SRAs.

5.3 Following the start of eruption phase, the VAA/VAG should be used to define airspace volumes encompassing the furthest extent of contamination predicted for that period. These volumes should be used to:

a) publish NOTAM/ASHTAM indicating the extent of areas of volcanic ash contamination,;

b) issue VA SIGMET warning of potential hazard from areas of volcanic ash contamination; and

c) apply appropriate ACC measures.

5.4 Longer term forecasts (i.e. beyond T+6 hours) should be used to generate VAA/VAG forecasts in order to ensure that adequate information is available to support flight planning

5.5 Operators should use the information published to plan their flights in accordance with their regulatory requirements and the service that will be provided in the airspace concerned. Operators should be aware that, depending on the State concerned, danger areas may be established. During this phase, operators should only operate into, above, below and lateral vicinity of the affected area in accordance with their SRA.

5.6 The volcanic contamination may affect any combination of airspace; therefore, it is impossible to prescribe measures to be taken for any particular situation. Nor is it possible to detail the actions to be taken by any particular ACC. The following guidance may prove useful during the ongoing eruption phase but should not be considered mandatory:

a) ACCs affected by the movement of the ash should ensure that NOTAM/ASHTAM continue to be originated at appropriate intervals. ACCs concerned should continue to publish details on measures taken to ensure dissemination to all concerned.

b) depending on the impact of the volcanic ash, the appropriate ATFM unit may take the initiative to organise teleconferences to exchange latest information on the developments, in order to support CDM, with the VAACs, ANSPs and MWOs and operators concerned.

c) during this phase the VAAC should endeavour to assess the vertical extent of the ash contamination and provide appropriate VAA/VAG to define the contaminated airspace as accurately as possible. For the purpose of flight planning, operators should treat the horizontal and vertical limits of the contaminated area to be over-flown as they would mountainous terrain. Operators are cautioned regarding the risk of cabin depressurisation or engine failure resulting in the inability to maintain level flight above the contaminated area, especially where extended range operations by turbine-engined airplanes (ETOPS) are involved.

d) any reported differences between published information and observations (pilot reports, airborne measurements, etc.) should be forwarded as soon as possible to the appropriate authorities including VAACs.

6. RECOVERY PHASE

6.1 The recovery phase commences with the issuance of the first “No Volcanic Ash Expected VAA” which normally occurs when it is determined that the volcanic activity has reverted to its pre-eruption state. Consequently, a NOTAMC cancelling the active NOTAM, and a new NOTAM/ASHTAM, shall be promulgated to update the situation for volcanic ash as soon as the volcano has reverted to its normal pre-eruption status, no further eruptions are expected by vulcanologists and no ash cloud is detectable or reported from the FIR concerned.

7. AIR TRAFFIC CONTROL PROCEDURES5

7.1 If volcanic ash is reported or forecast in the FIR for which the ACC is responsible, the following procedures should be followed:

a) relay all available information immediately to pilots whose aircraft could be affected to ensure that they are aware of the horizontal and vertical extent of the ash contamination;

b) if requested, suggest appropriate rerouting to assist flights to avoid areas of known or forecast ash contamination;

c) when appropriate, remind pilots that volcanic ash cannot be detected by ATC radar systems;

d) normally, ATC will not initiate a clearance through a danger area during the pre-eruption phase and the start of eruption phase; however, on the explicit request of a flight crew, a clearance would be provided. The existence of a danger area due to the presence of volcanic ash indicates the presence and extent of the hazard, hence ATC will inform aircraft about the hazard and will continue to provide normal services. It is then the responsibility of the pilot-in-command to determine the safest course of action in accordance with the operator's SRA;

e) assistance to enable an aircraft to exit a danger area in the most expeditious and appropriate manner should be provided; and

f) if the ACC has been advised by an aircraft that it has entered an area of ash contamination and indicates that a distress situation exists:

i) consider the aircraft to be in an emergency situation;

ii) do not initiate any climb clearances to turbine-powered aircraft until the aircraft has exited the area of ash contamination; and

iii) do not attempt to provide vectors without pilot concurrence.

7.2 Experience has shown that the recommended escape manoeuvre for an aircraft which has encountered volcanic ash is to reverse its course and begin a descent (if terrain permits). However, the final responsibility for this decision rests with the pilot.

- - - - - - - - -

ATTACHMENT A - GENERAL GUIDANCE FOR THE DEVELOPMENT OF ATM CONTINGENCY PLANS FOR VOLCANIC ASH[4]

(This information is adapted from the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691). Refer to this document for full details.)

1. In a contingency plan relating to volcanic contamination certain steps need to be taken to provide a coordinated and controlled response for dealing with an event of this nature. Responsibilities should be clearly defined for the manager in charge, supervisors and air traffic controllers (ATCOs). The plan should also identify the officials who need to be contacted, the type of messages that are to be created, the proper distribution of the messages and how to conduct business.

2. ATCOs need to be trained and be made aware of the potential effects if aircraft encounter unsafe levels of volcanic ash.

3. Some particular points of guidance are as follows:

a) volcanic ash contamination may extend for hundreds of miles horizontally and reach the stratosphere vertically;

b) volcanic ash may block the pitot-static system of an aircraft, resulting in unreliable airspeed indications;

c) braking conditions at airports where volcanic ash has recently been deposited on the runway will affect the braking ability of the aircraft. This is more pronounced on runways contaminated with wet ash. Pilots and ATCOs should be aware of the consequences of volcanic ash being ingested into the engines during landing and taxiing. For departure it is recommended that pilots avoid operating in visible airborne ash; instead they should allow sufficient time for the particles to settle before initiating a take-off roll, in order to avoid ingestion of ash particles into the engine. In addition, the movement area to be used should be carefully swept before any engine is started;

d) volcanic ash may result in the failure or power loss of one or all engines of an aeroplane; and

e) airports might have to be declared unsafe for flight operations. This might have consequences for the ATM system.

4. The area control centre (ACC) in conjunction with air traffic flow management (ATFM) units serves as the critical communication link between affected aircraft in flight and the information providers during a volcanic eruption. During episodes of volcanic contamination within the FIR, the ACC has two major communication roles. First and of greatest importance is its ability to communicate directly with aircraft en route which may encounter the ash. Based on the information provided in the volcanic ash SIGMET and volcanic ash advisories (VAAs) and working with meteorological watch offices (MWOs), the ATCOs should be able to advise the pilot of which flight levels are affected by the ash and the projected trajectory and drift of the contamination. Through the use of radio communication, ACCs have the capability to coordinate with the pilot alternative routes which would keep the aircraft away from the volcanic ash.

5. Similarly, through the origination of a NOTAM/ASHTAM for volcanic activity the ACC can disseminate information on the status and activity of a volcano even for pre-eruption increases in volcanic activity. NOTAM/ASHTAM and SIGMET together with AIREPs are critical to dispatchers for flight planning purposes. Operators need as much advance notification as possible on the status of a volcano for strategic planning of flights and the safety of the flying public. Dispatchers need to be in communication with pilots en route so that a coordinated decision can be made between the pilot, the dispatcher and ATS regarding alternative routes that are available. It cannot be presumed, however, that an aircraft which is projected to encounter ash will be provided with the most desirable

[4] This information is adapted from the *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691). Refer to this document for full details.

route to avoid the contamination. Other considerations have to be taken into account such as existing traffic levels on other routes and the amount of fuel reserve available for flights which may have to be diverted to other routes to allow for the affected aircraft to divert.

6. The NOTAM/ASHTAM for volcanic activity provide information on the status of activity of a volcano when a change in its activity is, or is expected to be, of operational significance. They are originated by the ACC and issued through the respective international NOTAM office based on the information received from any one of the observing sources and/or advisory information provided by the associated Volcanic Ash Advisory Centre (VAAC). In addition to providing the status of activity of a volcano, the NOTAM/ASHTAM also provides information on the location, extent and movement of the ash contamination and the air routes and flight levels affected. NOTAM can also be used to limit access to the airspace affected by the volcanic ash. Complete guidance on the issuance of NOTAM and ASHTAM is provided in Annex 15 — *Aeronautical Information Services*. Included in Annex 15 is a volcano level of activity colour code chart. The colour code chart alert may be used to provide information on the status of the volcano, with "red" being the most severe, i.e. volcanic eruption in progress with an ash column/cloud reported above flight level 250, and "green" at the other extreme being volcanic activity considered to have ceased and volcano reverted to its normal pre-eruption state. It is very important that NOTAM for volcanic ash be cancelled and ASHTAM be updated as soon as the volcano has reverted to its normal pre-eruption status, no further eruptions are expected by vulcanologists and no ash is detectable or reported from the flight information region (FIR) concerned.

7. It is essential that the procedures to be followed by ATS personnel, including supporting services such as MET, AIS should follow during a volcanic eruption/ash cloud event described in the foregoing paragraphs are translated into local staff instructions (adjusted as necessary to take account of local circumstances). It is also essential that these procedures/instructions form part of the basic training for all ATS, AIS and MET personnel whose jobs would require them to take action in accordance with the procedures. Background information to assist the ACC or flight information centre (FIC) in maintaining an awareness of the status of activity of volcanoes in their FIR(s) is provided in the monthly Scientific Event Alert Network Bulletin published by the United States Smithsonian Institution and sent free of charge to ACCs/FICs requesting it.

— — — — — — — —

ATTACHMENT B - ANTICIPATED PILOT ISSUES WHEN ENCOUNTERING VOLCANIC ASH

1. ATCOs should be aware that flight crews will be immediately dealing with some or all of the following issues when they encounter volcanic ash:

a) smoke or dust appearing in the cockpit which may prompt the flight crew to don oxygen masks (could interfere with the clarity of voice communications);

b) acrid odour similar to electrical smoke;

c) multiple engine malfunctions, such as stalls, increasing exhaust gas temperature (EGT), torching, flameout, and thrust loss causing an immediate departure from assigned altitude;

d) on engine restart attempts, engines may accelerate to idle very slowly, especially at high altitudes (could result in inability to maintain altitude or Mach number);

e) at night, St. Elmo's fire/static discharges may be observed around the windshield, accompanied by a bright orange glow in the engine inlet(s);

f) possible loss of visibility due to cockpit windows becoming cracked or discoloured, due to the sandblast effect of the ash;

g) because of the abrasive effects of volcanic ash on windshields and landing lights, visibility for approach and landing may be markedly reduced. Forward visibility may be limited to that which is available through the side windows; and/or

h) sharp distinct shadows cast by landing lights as compared to the diffused shadows observed in clouds (this affects visual perception of objects outside the aircraft).

2. Simultaneously, ATC can expect pilots to be executing contingency procedures such as the following:

a) if possible, the flight crew may immediately reduce thrust to idle;

b) turn autothrottles off;

c) exit volcanic ash cloud as quickly as possible. The shortest distance/time out of the ash may require an immediate, descending 180-degree turn (terrain permitting);

d) turn engine and wing anti-ice and all air conditioning packs on;

e) start the auxiliary power unit, if available;

f) put flight crew oxygen masks on at 100 per cent (if required);

g) restart engine according to aircraft operation manual procedures. If an engine fails to start the flight crew will try again immediately;

h) monitor airspeed and pitch attitude. If unreliable airspeed is suspected, or a complete loss of airspeed indication occurs (volcanic ash may block the pitot system), the flight crew will establish the appropriate pitch attitude;

i) land at the nearest suitable airport; and

j) on landing, reverses may be used as lightly as feasible.

— — — — — — — —

ATTACHMENT C - REPORTING [Editorial Note: Awaiting input from IVATF task TF-ATM03]

ATTACHMENT D- ACTION TAKEN BY METEOROLOGICAL WATCH OFFICES (MWO) IN THE EVENT OF A VOLCANIC ERUPTION[5]

1. On receipt of information of a volcanic eruption and/or the existence of volcanic ash, the MWO will:

   a) Notify, if necessary, the AFI VAAC (Toulouse) designated to provide VAA/VAG for the FIR for which the MWO is responsible that a volcanic eruption and/or ash has been reported. In the event that the MWO becomes aware, from a source other than an ACC, of the occurrence of pre-eruption activity, a volcanic eruption or ash from any other source , the information will be passed with all available relevant details on the extent, forecast movement and concentration of volcanic ash immediately to the ACC and to the designated VAAC;

   b) Reported differences between ash encounters by aircraft and the information published in VAA/VAG, SIGMET or NOTAM/ASHTAM received by an ACC shall be made available as soon as possible to the respective MWO, preferably in the form of an AIREP. The MWO will relay the information to the respective originators of the published information;

   c) Notify adjacent MWOs designated to provide SIGMET that a volcanic eruption and/or ash cloud has been reported, provide available relevant details on the extent, forecast movement and (if known) concentration of volcanic ash. In the event that any other MWO becomes aware of the occurrence of volcanic ash cloud from any source other than the VAAC, the information should be passed immediately to the VAAC and any adjacent MWO(s) downstream of the moving ash cloud;

   d) As soon as practicable, advise the ACC and the VAAC whether or not the volcanic ash is identifiable from satellite images/data, ground based or airborne measurements or other relevant sources;

   e) Issue SIGMET relating to the horizontal and vertical extent of volcanic ash cloud and its expected movement (provided in the VA from Toulouse VAAC) for a validity period of up to 6 hours. The SIGMET shall include an observed (or forecast) position of the ash cloud at the *start* of the period of validity, and a forecast position at the *end* of the period of validity. The SIGMET should be based on the advisory information provided by the VAAC. Include in the SIGMET distribution list the two Regional OPMET Databanks (RODBs) in Dakar and Johannesburg (Pretoria RODB). As well as inter-regional distribution, the RODBs will ensure dissemination of the SIGMET to ~~all~~ the VAAC, the London World Area Forecast Centre (WAFC) and the AFI Bulletin Compiling Centres (BCC);

   f) provide information to assist with the origination of NOTAM by ACCs and maintain continuous coordination with ACCs, adjacent MWOs and the VAAC concerned to ensure consistency in the issuance and content of SIGMET and NOTAM/ASHTAM; and

   g) provide, if possible, regular volcanic briefings, based on the latest available ash observations and forecasts, to ACCs, Airport Operators and aircraft operators concerned, giving an outlook for beyond T+12 hours.

- - - - - - - - - - - - - -

[5] This information is adapted from the *Handbook on the International Airways Volcano Watch (IAVW)* (Doc 9766). Refer to this document for full details.

ATTACHMENT E: ACTION TO BE TAKEN BY THE AFI VAAC IN THE EVENT OF A VOLCANIC ERUPTION[6]

1. On receipt of information from a MWO or any other source, of significant pre-eruptive/eruption activity and/or a volcanic ash cloud observed, the VAAC should:

a) Initiate the volcanic ash computer trajectory/dispersal model in order to provide advisory information on volcanic ash trajectory to MWOs, ACCs and operators concerned;

b) Review satellite images/data and any available pilot reports of the area for the time of the event to ascertain whether a volcanic ash cloud is identifiable and, if so, its extent and movement;

c) Prepare and issue advisories on the extent, and forecast trajectory, of the volcanic ash contamination in message format for transmission to the MWOs, ACCs and operators concerned in the VAAC area of responsibility, and to the two Regional OPMET Data Banks (RODB) in Dakar and Pretoria. As well as inter-regional distribution, the RODBs will ensure dissemination of the advisory to all VAACs, the London World Area Forecast Centre (WAFC);

d) Monitor subsequent satellite information or other available observations to assist in tracking the movement of the volcanic ash;

e) Continue to issue advisory information (i.e. VAA/VAG), for validity periods T+0, T+6, T+12 and T+18 hours after data time, to MWOs, ACCs and operators concerned at least at 6 hour intervals, and preferably more frequently, until such time as it is considered that the volcanic ash is no longer identifiable from satellite data, no further reports of volcanic ash are received from the area and no further eruptions of the volcano are reported; and

f) Maintain regular contact with other VAACs and meteorological offices concerned, and, as necessary, the Smithsonian Institute Global Volcanism Network, in order to keep up to date on the activity status of volcanoes in the VAAC area of responsibility.

- - - - - - - - - - -

[6] This information is adapted from the *Handbook on the International Airways Volcano Watch (IAVW)* (Doc 9766). Refer to this document for full details.

ATTACHMENT F - PROCEDURES FOR THE PRODUCTION OF MODELLED ASH CONCENTRATION CHARTS

1. The following procedures are to be applied by the meteorological office of a Provider State, having accepted, by regional air navigation agreement, the responsibility for providing a VAAC within the framework of the International Airways Volcano Watch (IAVW).

2. All VAA and VAG information issued by a meteorological office under designation as a VAAC within the framework of the IAVW shall be prepared in accordance with ICAO provisions.

3. Additionally, where feasible, the meteorological office may issue modelled ash concentration charts and corresponding coordinate data files at 6-hourly intervals showing the different ash concentrations for the validity periods T+0, T+6, T+12 and T+18 hours after data time. These charts will show forecast ash distribution in terms of Areas of Low, Medium and High Contamination and be published at the same time, and with the same validity periods, as the VAA/VAG described above. Updated charts and data files should be distributed prior to the end of the validity time of those previously distributed.

4. These data may be used by Provider States to prepare SIGMET, NOTAM/ASHTAM and to establish Danger Areas as appropriate.

- - - - - - - - - - - - - - - -

ATTACHMENT G RECOMMENDED ACTIONS BY STATES OF THE OPERATOR/REGISTRY WITH REGARDS TO AIRCRAFT OPERATIONS IN THE EVENT OF A VOLCANIC ERUPTION

Safety Risk Assessments For Flights In Airspace Proximate To Volcanic Ash

1 Introduction

1.1 It is recommended that States of the Operator/Registry as appropriate which intend to allow operators under their jurisdiction to operate in areas of volcanic ash contamination consider requiring operators to carry out a safety risk assessment prior to carrying out such operations.

1.2 Safety risk assessments should be completed prior to planned operations in airspace or to/from aerodromes which may be contaminated by volcanic ash.

2 Applicability

2.1 All operators conducting flights in airspace and/or to/from aerodromes which could be affected by volcanic ash.

3 Recommendations

3.1 In accordance with ICAO Annex 6, Chapter 3, paragraph 3.3- Safety Management, it is recommended that States of the Operator/Registry as appropriate require all operators, planning to operate in areas where the presence of volcanic ash is forecast, to carry out a safety risk assessment prior to planned operations. The safety risk assessment should include a requirement for the operator to:

a) Conduct their own risk assessment and develop operational procedures to address any remaining risks;

b) Put in place appropriate maintenance ash damage inspections; and

c) Ensure that any ash related incidents are reported by AIREP and followed up by a Volcanic Activity Report (VAR).

3.2 Guidance in the preparation of such a safety risk assessment is provided in **Attachment H** of this document.

ATTACHMENT H EXAMPLE SAFETY RISK ASSESSMENT PROCESS

1 Introduction

1.1 The safety risk assessment process is described in the *Safety Management Manual* (Doc 9859) .The process involves identifying the hazards associated with the activity (in this case airspace proximate to volcanic ash or flying to and from aerodromes affected by volcanic ash), considering the seriousness of the consequences of the hazard occurring (the severity), evaluating the likelihood or probability of it happening, deciding whether the consequent risk is acceptable and within the organisation's safety performance criteria (acceptability), and finally taking action to reduce the safety risk to an acceptable level (mitigation).

2 Hazard Identification

2.1 A hazard is any situation or condition that has the potential to cause adverse consequences. A suggested list of topics, that is not necessarily exhaustive, to be considered is attached at **Attachment I**

3 The Safety Risk Assessment

3.1 Risk is an assessment of the likelihood and the severity of adverse consequences resulting from a hazard.

3.2 To help an operator decide on the likelihood of a hazard causing harm, and to assist with possible mitigation of any perceived safety risk, all relevant stakeholders should be consulted.

3.3 The safety risk from each hazard should be assessed using a suitably calibrated safety risk assessment matrix. An example risk assessment matrix is given in *Safety Management Manual* (Doc 9859) but an alternative which aligns with an organisation's own Safety Management System (SMS) would be equally appropriate. The safety risk should be derived by considering the severity of the safety outcome arising from the hazard, together with the likelihood of the outcome.

3.4 The severity of any adverse consequences resulting from a particular hazard should be assessed using a suitably calibrated severity scale. Example scales are given in *Safety Management Manual* (Doc 9859) but an alternative, which aligns with an organisation's own SMS, would be equally appropriate. Note that, for any flight, the safety outcome of a volcanic ash encounter may be significant.

3.5 Risk Likelihood

3.5.1 The likelihood or probability of adverse consequences resulting from a particular hazard should then be assessed. The likelihood should be agreed using a suitably calibrated likelihood or probability scale. An example probability scale is given in *Safety Management Manual* (Doc 9859), but an alternative which aligns with an organisation's own SMS would be equally appropriate.

3.5.2 When assessing likelihood or probability the following factors should be taken into account:

- The degree of exposure to the hazard.
- Any historic incident or safety event data relating to the hazard. This can be derived from data from industry, regulators, other operators, Air Navigation Service Providers, internal reports etc.
- The expert judgement of relevant stakeholders.

3.5.3 The results of the assessment should be recorded in a hazard log, sometimes referred to as a risk register. An example of a hazard log is at **Attachment J**.

3.6 Risk Tolerability

3.6.1 At this stage of the process the safety risks should be classified in a range from acceptable to unacceptable. A suitable set of definitions for Risk Classification is given in *Safety Management Manual* (Doc 9859).

3.6.2 Appropriate mitigations for each identified hazard should then be considered, recorded on the hazard log and implemented. Mitigations must be adopted in order to reduce the safety risks to an acceptable level, but additional mitigation wherever reasonably practicable should also be considered where this might reduce an already acceptable safety risk even further. Thus, the mitigation process should reduce the safety risk to be as low as reasonably practicable.

3.6.3 Not all hazards can be suitably mitigated in which case the operation should not proceed.

3.7 Mitigating Actions

3.7.1 Mitigating actions by themselves can introduce new hazards. Where an organisation has an effective SMS then procedures will exist for continual monitoring of hazard, risk and involvement of qualified personnel in accepting the mitigating actions or otherwise. Operators without an effective SMS should repeat the safety risk assessment following any mitigation process and at regular intervals as the circumstances on which the original assessment was predicated may have changed. This ensures ongoing safety management or monitoring.

3.8 Records

3.8.1 The results of the safety risk assessment should be documented and promulgated throughout the organisation and submitted to the operator's national safety authority. Actions should be completed and mitigations verified and supported by evidence prior to the start of operations.

3.8.2 Any assumptions should be clearly stated and the safety risk assessment reviewed at regular intervals to ensure the assumptions and decisions remain valid.

3.8.3 Any safety performance monitoring requirements should also be identified and undertaken through the organisation's safety management processes.

- - - - - - - - - - - - - - - - - - -

ATTACHMENT I EXAMPLE TABLE OF CONSIDERATIONS FOR PLANNED OPERATIONS IN AIRSPACE OR TO/FROM AERODROMES WHICH MAY BE CONTAMINATED BY VOLCANIC ASH.

Considerations	Guidance
Operator Procedures	
Type Certificate Holder Guidance	Operators must obtain advice from the Type Certificate Holder and engine manufacturer concerning both operations in potentially contaminated airspace and/or to/from aerodromes contaminated by volcanic ash, including subsequent maintenance action.
Guidance for Company Personnel	Publish procedures for flight planning, operations and maintenance. Review of flight crew procedures for detection of volcanic ash and associated escape manoeuvres. Type Certificate Holder advice on operations to/from aerodromes contaminated by volcanic ash including performance.
Flight Planning	These considerations will be applicable to all flights that plan to operate in airspace or to/from aerodromes which may be contaminated by volcanic ash.
NOTAM and ASHTAM	The operator must closely monitor NOTAM and ASHTAM to ensure that the latest information concerning volcanic ash is available to crews.
SIGMETs	The operator must closely monitor SIGMETs to ensure that the latest information concerning volcanic ash is available to crews.
Departure, Destination and any Alternates	Degree of contamination, additional performance, procedures and maintenance consideration.
Routing Policy	Shortest period in and over contaminated area.
Diversion Policy	Maximum allowed distance from a suitable alternate. Availability of alternates outside contaminated area. Diversion policy after an ash encounter.
Minimum Equipment List / Dispatch Deviation Guide	Consider additional restrictions for dispatching aircraft: • air conditioning packs; • engine bleeds; • air data computers; • standby instruments; • navigation systems; • Auxiliary Power Unit (APU); • Airborne Collision Avoidance System (ACAS); • Terrain Awareness Warning System (TAWS); • provision of crew oxygen; and • supplemental oxygen for passengers. (This list is not necessarily exhaustive.)

Considerations	Guidance
Operator Procedures	
Provision of Enhanced Flight Watch	Timely information to and from crew of latest information.
Fuel Policy	Consideration to the carriage of extra fuel.

Considerations	Guidance
Crew Procedures	These considerations will be applicable to all flights that plan to operate in airspace or to/from aerodromes which may be contaminated by volcanic ash.
Pilot Reports	Requirements for reporting in the event of an airborne encounter. Post-flight reporting.
Mandatory Occurrence Reports	Reminder regarding the necessity for filing MORs following an encounter.
Standard Operating Procedures	Review changes to normal and abnormal operating procedures: • pre-flight planning; • operations to/from aerodromes contaminated with volcanic ash; • supplemental oxygen; • engine-out procedures; and • escape routes. (This list is not necessarily exhaustive.)

Technical Log	Any actual or suspected volcanic ash encounter will require a tech log entry and appropriate maintenance action prior to subsequent flight. Penetration (detail and duration) of airspace or operations to/from aerodromes which may be contaminated by volcanic ash will require a tech log entry.

Considerations	Guidance
Maintenance Procedures	Operators, who are operating in areas of ash contamination, are recommended to enhance vigilance during inspections and regular maintenance and potentially adjust their maintenance practices, based upon the observations, to prevent unscheduled maintenance. Observations should include signs of unusual or accelerated abrasions, corrosion and / or ash accumulation. Operator co-operation is requested in reporting to manufacturers and the relevant authorities their observations and experiences from operations in areas of ash contamination. If significant observations are discovered beyond normal variations currently known, manufacturers will share these observations, and any improved recommendations for maintenance practices, with all operators and the relevant authorities.

Note: The above list is not necessarily exhaustive and operators must make their own assessments of the hazards on the specific routes they fly.

- - - - - - - - - - - - - - - - - -

ATTACHMENT J EXAMPLE OF A HAZARD LOG (RISK REGISTER)

HAZARD		Incident Sequence Description	Existing Controls	Outcome (Pre-Mitigation)			Additional Mitigation Required	Outcome (Post-Mitigation)			Actions and Owners	Monitoring and Review Requirements
No.	Description			Severity	Likelihood	Risk		Severity	Likelihood	Risk		

(additional rows as necessary)

ATTACHMENT K - EXAMPLE SIGMET, NOTAM, ASHTAM

Guidance on WMO headers referred to in Alerting Phase, paragraph 1.2.2 refers can be found in WMO No.386 Volume I (*Manual of Global Telecommunications System)* Part II *(Operational Procedures for the Global Telecommunications System)*

NOTAM Offices are reminded that ASHTAM (or NOTAM for volcanic ash) should be distributed via AFTN to their associated MWO, the SADIS Gateway and all the VAAC, in accordance with guidelines contained in ICAO Doc 9766 Chapter 4 paragraph 4.3.

1. SIGMET

```
WVUK02 EGRR 180105
EGGX SIGMET 2 VALID 180105/180705 EGRR-
EGGX SHANWICK OCEANIC FIR VA ERUPTION MT KATLA PSN N6337 W01901 VA CLD OBS
AT 0100Z N6100 W02730 - N6100 W02230 - N5800 W01730 - N5630 W02000
FL200/350 MOV SE 35KT FCST 0705Z VA CLD APRX N5800 W02000 - N5730 W01200 -
N5500 W00910 - N5430 W01530 - N5800 W02000=
```

Note: PSN replaces LOC as per Amendment 75 to Annex 3 (applicable 18 November 2010)

2. NOTAM alerting pre-eruptive activity

```
(A0777/10NOTAMN
Q) BIRD/QWWXX/IV/NBO/W/000/999/6337N01901WXXX
A) BIRD B) 1002260830 C) 1002261100  E) INCREASED VOLCANIC ACTIVITY,
POSSIBLY INDICATING IMMINENT ERUPTION, REPORTED FOR VOLCANO KATLA 1702-03
6337.5N01901.5W ICELAND-S. VOLCANIC ASHCLOUD IS EXPECTED TO REACH 50,000
FEET FEW MINUTES FROM START OF ERUPTION.AIRCRAFT ARE REQUIRED TO FLIGHT
PLAN TO REMAIN AT LEAST XXXNM CLEAR OF VOLCANO AND MAINTAIN WATCH FOR
NOTAM/SIGMET FOR AREA.
F) GND G) UNL)
```

Note: XXX is a distance established by the Provider State in accordance with paragraph 1.2.1 a)

3. NOTAM establishing Danger Area after initial eruption

```
(A0778/10 NOTAMR A0777/10
Q) BIRD/QWWXX/IV/NBO/W/000/999/6337N01901WXXX
A) BIRD
B) 1002260900 C) 1002261200
E) VOLCANIC ERUPTION REPORTED IN VOLCANO KATLA 1702-03 6337.5N01901.5W
ICELAND-S. VOLCANIC ASHCLOUD REPORTED REACHING FL500. AIRCRAFT ARE REQUIRED
TO REMAIN AT LEAST XXXNM CLEAR OF VOLCANO AND MAINTAIN WATCH FOR
NOTAM/SIGMET FOR BIRD AREA.
F) GND G) UNL)
```

Note: XXX is a distance established by the Provider State in accordance with paragraph 1.2.1 a)

4. NOTAM establishing Danger Area to include Area of High [or High/Medium or High/Medium/Low] Contamination

```
(A0503/10 NOTAMN
Q)EGGN/QWWXX/IV/NBO/AE/000/350
A) EGPX B) 1005182300 C) 1005190500
E) TEMPORARY DANGER AREA HAS BEEN ESTABLISHED FOR VOLCANIC ASH AREA OF HIGH
CONTAMINATION IN AREA 5812N00611W 5718N00216W 5552N00426W 5629N00652W
```

```
F) SFC
G) FL350)
```

5. NOTAM to define Area of Medium Contamination for which a Danger Area has not been established

```
(A0207/10 NOTAMN
Q) EUEC/QWWXX/IV/AE/000/200
A) EIAA B) 1005190700 C) 1005191300
E) VOLCANIC ASH AREA OF MEDIUM CONTAMINATION FORECAST IN AREA 5243N00853W
5330N00618W 5150N00829W
F) SFC
G) FL200)
```

6. ASHTAM alerting pre-eruptive activity

```
VALI0021 LIRR  01091410
ASHTAM 005/10
A) ROMA FIR B) 01091350 C) ETNA 101-06 D) 3744N01500E
E) YELLOW ALERT
J) VULCANOLOGICAL AGENCY
```

7. ASHTAM alerting eruptive activity

```
VALI0024 LIRR  01151800
ASHTAM 015/10
A) ROMA FIR B) 01151650 C) ETNA 101-06 D) 3744N01500E
E) RED ALERT F) AREA AFFECTED 3700N01500E 3900N01600E 3800N001700W
SFC/35000FT  G) NE H) ROUTES AFFECTED WILL BE NOTIFIED BY ATC  J)
VULCANOLOGICAL AGENCY
```

8. ASHTAM alerting reduction in eruptive activity

```
VALI0035 LIRR  01300450
ASHTAM 025/10
A) ROMA FIR B) 01300350 C) ETNA 101-06 D) 3744N01500E
E) YELLOW ALERT FOLLOWING ORANGE J) VULCANOLOGICAL AGENCY
```

ATTACHMENT L – MAJOR VOLCANOES IN THE AFI REGION

MAJOR VOLCANOES IN THE AFI REGION

	Volcano Name	Volcano Type	Volcano Status	Location
1	TAHALRA VOLCANIC FIELD	Pyroclastic cones	Holocene	Algeria
2	ATAKOR VOLCANIC FIELD	Scoria cones	Holocene	Algeria
3	MANZAZ VOLCANIC FIELD	Scoria cones	Holocene	Algeria
4	IN EZZANE VOLCANIC FIELD	Volcanic field	*Holocene*	Algeria-Niger border
5	CAMEROON	Stratovolcano	Historical	Cameroon
6	TOMBEL GRABEN	Cinder cones	Holocene	Cameroon
7	MANENGOUBA	Stratovolcano	*Holocene*	Cameroon
8	OKU VOLCANIC FIELD	Stratovolcano	*Holocene*	Cameroon
9	NGAOUNDERE PLATEAU	Volcanic field	*Holocene*	Cameroon
10	LA PALMA	Stratovolcanoes	Historical	Canary Islands
11	HIERRO	Shield volcano	Radiocarbon	Canary Islands
12	TENERIFE	Stratovolcano	Historical	Canary Islands
13	GRAN CANARIA	Fissure vents	Radiocarbon	Canary Islands
14	FUERTEVENTURA	Fissure vents	Holocene	Canary Islands
15	LANZAROTE	Fissure vents	Historical	Canary Islands
16	FOGO	Stratovolcano	Historical	Cape Verde Islands
17	BRAVA	Stratovolcano	Holocene	Cape Verde Islands
18	SAO VICENTE	Stratovolcano	Holocene	Cape Verde Islands
19	TARSO TOH	Volcanic field	Holocene	Chad
20	TARSO TOUSSIDE	Stratovolcano	Holocene	Chad
21	TARSO VOON	Stratovolcano	Fumarolic	Chad
22	EMI KOUSSI	Pyroclastic shield	Holocene	Chad
23	LA GRILLE	Shield volcano	Holocene	Comore Island
24	KARTHALA	Shield volcano	Historical	Comore Island
25	KARISIMBI	Stratovolcano	Potassium-Argon	Democratic Republic Congo-Rwanda border
26	VISOKE	Stratovolcano	Historical	Democratic Republic Congo-Rwanda border
27	MAY-YA-MOTO	Fumarole field	Fumarolic	Democratic Republic of Congo
28	NYAMURAGIRA	Shield volcano	Historical	Democratic Republic of Congo
29	NYIRAGONGO	Stratovolcano	Historical	Democratic Republic of Congo
30	TSHIBINDA	Cinder cones	Holocene	Democratic Republic of Congo
31	ARDOUKOBA	Fissure vents	Historical	Djibouti
32	GARBES	Fumarole field	*Pleistocene-*	Djibouti
33	BOINA	Fumarole field	*Pleistocene-*	Djibouti-Ethiopia border
34	JALUA	Stratovolcano	Holocene	Eritrea
35	ALID	Stratovolcano	Holocene	Eritrea
36	DUBBI	Stratovolcano	Historical	Eritrea
37	NABRO	Stratovolcano	*Holocene?*	Eritrea
38	ASSAB VOLCANIC FIELD	Volcanic field	Holocene	Eritrea
39	GUFA	Volcanic field	Holocene	Eritrea-Djibouti border
40	DALLOL	Explosion craters	Historical	Ethiopia
41	GADA ALE	Stratovolcano	Holocene	Ethiopia
42	ALU	Fissure vents	Holocene	Ethiopia
43	DALAFFILLA	Stratovolcano	Historical	Ethiopia
44	BORALE ALE	Stratovolcano	Holocene	Ethiopia
45	ERTA ALE	Shield volcano	Historical	Ethiopia
46	ALE BAGU	Stratovolcano	Holocene	Ethiopia
47	HAYLI GUBBI	Shield volcano	Holocene	Ethiopia
48	ASAVYO	Shield volcano	Holocene	Ethiopia
49	MAT ALA	Shield volcano	Holocene	Ethiopia
50	TAT ALI	Shield volcano	Holocene	Ethiopia
51	BORAWLI	Stratovolcano	Holocene	Ethiopia
52	AFDERA	Stratovolcano	*Holocene?*	Ethiopia
53	MA ALALTA	Stratovolcano	Holocene	Ethiopia
54	ALAYTA	Shield volcano	Historical	Ethiopia
55	DABBAHU	Stratovolcano	Historical	Ethiopia

MAJOR VOLCANOES IN THE AFI REGION

	Volcano Name	Volcano Type	Volcano Status	Location
56	DABBAYRA	Shield volcano	Holocene	Ethiopia
57	MANDA HARARO	Shield volcanoes	Historical	Ethiopia
58	GROPPO	Stratovolcano	Holocene	Ethiopia
59	KURUB	Shield volcano	Holocene	Ethiopia
60	MANDA GARGORI	Fissure vents	Anthropology	Ethiopia
61	BORAWLI	Lava domes	Holocene	Ethiopia
62	DAMA ALI	Shield volcano	Historical	Ethiopia
63	GABILLEMA	Stratovolcano	Holocene	Ethiopia
64	YANGUDI	Complex volcano	Holocene	Ethiopia
65	AYELU	Stratovolcano	Holocene	Ethiopia
66	ADWA	Stratovolcano	Holocene	Ethiopia
67	HERTALI	Fissure vent	Holocene	Ethiopia
68	LIADO HAYK	Maars	*Holocene?*	Ethiopia
69	DOFEN	Stratovolcano	Holocene	Ethiopia
70	FENTALE	Stratovolcano	Historical	Ethiopia
71	BERU	Volcanic field	Holocene	Ethiopia
72	KONE	Calderas	Historical	Ethiopia
73	UNNAMED	Pyroclastic cones	Holocene	Ethiopia
74	BOSET-BERICHA	Stratovolcanoes	Holocene	Ethiopia
75	BISHOFTU VOLCANIC FIELD	Fissure vents	Holocene	Ethiopia
76	UNNAMED	Fissure vents	Holocene	Ethiopia
77	SODORE	Pyroclastic cones	Holocene	Ethiopia
78	GEDAMSA	Caldera	Holocene	Ethiopia
79	BORA-BERICCIO	Pumice cones	Holocene	Ethiopia
80	TULLU MOJE	Pumice cone	Anthropology	Ethiopia
81	UNNAMED	Fissure vents	Holocene	Ethiopia
82	EAST ZWAY	Fissure vents	Holocene	Ethiopia
83	BUTAJIRI-SILTI FIELD	Fissure vents	Holocene	Ethiopia
84	ALUTU	Stratovolcano	Radiocarbon	Ethiopia
85	O'A CALDERA	Caldera	Holocene	Ethiopia
86	CORBETTI CALDERA	Caldera	Holocene	Ethiopia
87	BILATE RIVER FIELD	Maars	Holocene	Ethiopia
88	TEPI	Shield volcano	Holocene	Ethiopia
89	HOBICHA CALDERA	Caldera	*Holocene?*	Ethiopia
90	CHIRACHA	Stratovolcano	*Holocene?*	Ethiopia
91	TOSA SUCHA	Cinder cones	Holocene	Ethiopia
92	UNNAMED	Cinder cones	Holocene	Ethiopia
93	KORATH RANGE	Tuff cones	*Holocene?*	Ethiopia
94	MALLAHLE	Stratovolcano	*Holocene?*	Ethiopia/Eritrea
95	SORK ALE	Stratovolcano	*Holocene?*	Ethiopia/Eritrea
96	MANDA-INAKIR	Fissure vents	Historical	Ethiopia-Djibouti border
97	MOUSA ALLI	Stratovolcano	Holocene	Ethiopia-Eritrea-Djibouti border
98	MEGA BASALT FIELD	Pyroclastic cones	Holocene	Ethiopia-Kenya border
99	NORTH ISLAND	Tuff cones	Holocene	Kenya
100	CENTRAL ISLAND	Tuff cones	Holocene	Kenya
101	SOUTH ISLAND	Stratovolcano	Historical	Kenya
102	MARSABIT	Shield volcano	*Holocene?*	Kenya
103	THE BARRIER	Shield volcano	Historical	Kenya
104	NAMARUNU	Shield volcano	Tephrochronology	Kenya
105	SEGERERUA PLATEAU	Pyroclastic cones	Holocene	Kenya
106	EMURUANGOGOLAK	Shield volcano	Radiocarbon	Kenya
107	SILALI	Shield volcano	Ar/Ar	Kenya
108	PAKA	Shield volcano	Ar/Ar	Kenya
109	BOGORIA	Shield volcano	*Pleistocene-Geysers*	Kenya

MAJOR VOLCANOES IN THE AFI REGION

	Volcano Name	Volcano Type	Volcano Status	Location
110	KOROSI	Shield volcano	Holocene	Kenya
111	OL KOKWE	Shield volcano	Holocene	Kenya
112	NYAMBENI HILLS	Shield volcano	Holocene	Kenya
113	MENENGAI	Shield volcano	Tephrochronology	Kenya
114	HOMA MOUNTAIN	Complex volcano	Holocene	Kenya
115	ELMENTEITA BADLANDS	Pyroclastic cones	Holocene	Kenya
116	OL DOINYO EBURRU	Complex volcano	Holocene	Kenya
117	OLKARIA	Pumice cones	Radiocarbon	Kenya
118	LONGONOT	Stratovolcano	Anthropology	Kenya
119	SUSWA	Shield volcano	Holocene	Kenya
120	CHYULU HILLS	Volcanic field	Anthropology	Kenya
121	HARUJ	Volcanic field	Holocene	Libya
122	WAU-EN-NAMUS	Caldera	*Holocene?*	Libya
123	AMBRE-BOBAOMBY	Volcanic field	Holocene	Madagascar
124	NOSY-BE	Cinder cones	Holocene	Madagascar
125	ANKAIZINA FIELD	Cinder cones	Holocene	Madagascar
126	ITASY VOLCANIC FIELD	Scoria cones	Radiocarbon	Madagascar
127	ANKARATRA FIELD	Cinder cones	Holocene	Madagascar
128	MADEIRA	Shield volcano	Radiocarbon	Madeira
129	TIN ZAOUATENE VOLCANIC FIELD	Volcanic field	Holocene	Mali
131	TODRA VOLCANIC FIELD	Cinder cones	Holocene	Niger
132	BIU PLATEAU	Volcanic field	*Holocene?*	Nigeria
133	PITON DE LA FOURNAISE	Shield volcano	Historical	Reunion Island
134	SAO TOME	Shield volcano	*Holocene?*	Sao Tome and Principe
135	JEBEL MARRA	Volcanic field	Radiocarbon	Sudan
136	KUTUM VOLCANIC FIELD	Scoria cones	*Holocene?*	Sudan
137	MEIDOB VOLCANIC FIELD	Scoria cones	Holocene	Sudan
138	BAYUDA VOLCANIC FIELD	Cinder cones	Radiocarbon	Sudan
139	JEBEL UMM ARAFIEB	Shield volcano	*Holocene?*	Sudan
140	OL DOINYO LENGAI	Stratovolcano	Historical	Tanzania
141	KILIMANJARO	Stratovolcano	Holocene	Tanzania
142	MERU	Stratovolcano	Historical	Tanzania
143	IGWISI HILLS	Tuff cones	Holocene	Tanzania
144	UNNAMED	Pyroclastic cone	Holocene	Tanzania
145	SW USANGU BASIN	Lava domes	Holocene	Tanzania
146	NGOZI	Caldera	Radiocarbon	Tanzania
147	IZUMBWE-MPOLI	Pyroclastic cones	Holocene	Tanzania
148	RUNGWE	Stratovolcano	Radiocarbon	Tanzania
149	KYEJO	Stratovolcano	Historical	Tanzania
150	FORT PORTAL	Tuff cones	Radiocarbon	Uganda
151	KYATWA	Tuff cones	*Holocene?*	Uganda
152	KATWE-KIKORONGO	Tuff cones	Holocene	Uganda
153	BUNYARUGURU	Maars	Holocene	Uganda
154	KATUNGA	Tuff cone	Holocene	Uganda
155	BUFUMBIRA	Cinder cones	*Holocene?*	Uganda
156	MUHAVURA	Stratovolcano	Holocene	Uganda-Rwanda border

- END -

DRAFT REGIONAL PROVISIONS IN THE ANP/FASID

BASIC ANP

World area forecast system (WAFS)
(FASID Table MET 5)

1. FASID Table MET 5 sets out the [AFI, ASIA/PAC, CAR/SAM, EUR, MID, NAT] Region[s] requirements for WAFS forecasts to be provided by WAFC [London, Washington]. [WAFSOPSG Conclusion 1/2]

2. For back-up purposes, each WAFC should have the capability to produce WAFS forecasts for all the required areas of coverage. [WAFSOPSG Conclusion 5/2]

3. WAFS forecasts should be ~~disseminated~~ made available by WAFC [London, Washington] using the [satellite distribution system for information relating to air navigation (SADIS), international satellite communications system (ISCS1, ISCS2)] covering the reception area shown in FASID Chart CNS [4] or using the satellite and Internet service. [WAFSOPSG Conclusion 5/2]

Editorial Note.— Insert "or using the [SADIS, ISCS FTP WIFS service" in the corresponding CNS procedure contained in Part IV of the ANP.

---

4. Each State should make the necessary arrangements to receive and make full use of operational WAFS forecasts made ~~disseminated~~ available by WAFC [London, Washington]. The lists of the authorized users of the [SADIS, WIFS ISCS1, ISCS2] services in the [AFI, ASIA/PAC, CAR/SAM, EUR, MID, NAT] Region[s] and the locations of the operational VSATs and FTPs are available from the following websites:

- www.icao.int/anb/sadisopsg (click "Operational Information" and then "Status of implementation") for SADIS;

- www.weather.gov/iscs (click: "Documents" and then "Status of implementation of ISCS listed by ICAO regions") for ISCS.

[WAFSOPSG Conclusion 5/2]

FASID

World area forecast system (WAFS)
(FASID Table MET 5)

1. FASID Table MET 5 sets out the [AFI, ASIA/PAC, CAR/SAM, EUR, MID, NAT] Region[s] requirements for WAFS forecasts, to be provided by WAFC [London, Washington].

FASID TABLE MET 5 — REQUIREMENTS FOR WAFS FORECASTS

EXPLANATION OF THE TABLE

Column

1 WAFS forecasts required by the [AFI, ASIA/PAC, CAR/SAM, EUR, MID, NAT] States, to be provided by WAFC~~s~~ [London, Washington].

2 Area of coverage required for the WAFS forecasts, to be provided by WAFC [London, Washington].

FORECAST REQUIRED	AREAS REQUIRED
1	2
SWH forecasts (FL 250-630) in the BUFR code form	GLOBAL
SWM forecasts (FL 100-250) in the BUFR code form	[NIL or ASIA SOUTH, EUR, MID, NAT]
Forecasts of upper-air wind, temperature and humidity, cumulonimbus clouds, icing, and clear-air and in-cloud turbulence, and of altitude of flight levels in the GRIB code form	GLOBAL

Note 1.— SWM forecasts are provided for limited geographical areas as determined by regional air navigation agreement. Areas "ASIA SOUTH", "EUR" and "MID" provided by WAFC London; area "NAT" provided by WAFC Washington.

Note 2.— WAFCs will continue to issue forecasts of SIGWX in PNG chart form for back-up purposes for fixed areas of coverage as specified in Annex 3.

` *Note 3.— Forecasts of cumulonimbus clouds, icing, and clear-air and in-cloud turbulence are ~~experimental forecasts which are expected to become available by the end of 2009~~ labelled as "trial forecasts" and are currently distributed through the internet-based services.*

Appendix M:

Terms of Reference, Work programme and composition of the Meteorology Sub-Group (MET/SG)

Terms of Reference

a. To keep under review, the adequacy of meteorological facilities and services to meet new technological developments in the air navigation field and make proposals as appropriate for implementation by States to APIRG.

b. To identify, State by State, those specific deficiencies and shortcomings that constitute major obstacle to the provision of efficient and reliable meteorological facilities and services to meet the requirements of air navigation in the AFI Region and recommend specific measures to eliminate them.

Appendix A Future Work Programme

	Task	Source	Recent Progress Next milestone and its deadline	Final Result (completion)
1	Establish and maintain detailed lists, State by State of the specific deficiencies of facilities for the provision of atmospheric measurements pertaining to surface wind, pressure, visibility/runway visual range, cloud base, temperature and dew point temperature considered critical for flight safety.	APIRG/13 Con. 13/96	• State by state MET deficiencies have been established and included in APIRG/17 Report • Surveys are in progress	Deficiencies on MET parameters measurements established and compiled
2	Monitor the exchange of OPMET information through the AMBEX scheme in the AFI Region and between the AFI and ASIA/PACIFIC and EUR Regions	APIRG/8 Con. 8/43 c)	• Continuing task • Next monitoring with three events in 2011	Exchange of OPMET information through AMBEX and SADIS, improved
3	Plan for the introduction of efficient inter-regional OPMET exchanges in coordination with the CNS Sub-group as required	AFI/7	Implementation of a new AMBEX Scheme (Handbook 7th Ed.)	Efficient inter-regional OPMET exchanges
4	Monitor the degree of implementation of very small aperture terminals (VSATs) for the reception of WAFS products	AFI/7 Rec. 14/12	• A large number of AFI States have implemented SADIS2G VSATs with others using the SADIS FTP Service	Information on the implementation of SADIS VSAT and FTP established and compiled
5	Monitor the quality of WAFS high and medium level significant weather charts in the AFI Region, provide feed back to WAFC, London as appropriate	APIRG/12 Con. 12/34	• Continuing task • Monitoring is in progress	Improvement of the quality of WAFS high and low level significant weather charts in the AFI Region
6	Monitor the implementation of regional procedures for the issuance of volcanic ash and tropical cyclone advisories	AFI/7 Rec. 7/3 and 7/4	• Continuing task • SIGMET Tests conducted yearly: Next test scheduled for Nov. 2011	Regional procedures for the issuance of volcanic ash and tropical cyclone advisories Implemented

	Task	Source	Recent Progress Next milestone and its deadline	Final Result (completion)
7	Review on a continuing basis the contents of Tables MET 1A and 1B and Tables MET 2A to ensure their validity in light of operational requirements and develop proposals to update them if necessary.	AFI/7	• Continuing task • Tables MET 1A and 2A will be amended from SADISOPSG/16 proposals	The validity of contents of Tables MET 1A, 1B and and Table MET 2A.are to ensured
8	Review the meteorological procedures in the introductory text to Part VI B Meteorology of the Basic AFI Regional Plan/FASID, as well as Meteorological related issues in other sections of the Plan and relevant regional supplementary Meteorology procedures (SUPPs) in the Doc 7030, in the light of procedures employed in other regions and develop amendment proposals as appropriate, coordinating where necessary with other APIRG Sub-Groups.	APIRG/12	• Amendments proposals for WAFS-related meteorological procedures submitted to APIRG for approval	Maintain up to date procedures to improve safety and efficiency of air navigation.
9	Monitor developments in the CNS/ATM Systems with regard to meteorological requirements in the AFI Region and in coordination with AFI ATM Sub-Group.	APIRG/14 Con. 14/43	• A proposal for the establishment of a MET/ATM Task Force has been submitted to APIRG for approval • A draft AFI Volcanic Ash contingency Plan has been also submitted	Consistent provision of meteorological information as an integrated function of the ATM system with improved accuracy and timeliness and increased availability. Performance management will be an important part of the quality assurance of meteorological information.
10	Monitor the implementation in the AFI region of quality management system in the MET field	APIRG/14 Con. 14/40	• Four seminars on QMS in 2008-2009 • Two QMS trainings in 2010 • Two more trainings planned for 2011	AFI region quality management system relating to the MET field, implemented

	Task	Source	Recent Progress Next milestone and its deadline	Final Result (completion)
11	Monitor training and qualification of aeronautical MET personnel	APIRG/15 Dec. 15/94	• Training and qualification monitored in 15 States during 2009-2010	Information on training and qualification of aeronautical MET personnel established and compiled

3. **Composition**

Algeria, Burkina Faso, Cameroon, Congo, Côte D'Ivoire, Egypt, Eritrea, Ethiopia, France, Gabon, The Gambia, Ghana, Guinea, Kenya, Madagascar, Malawi, Morocco, Niger, Nigeria, Senegal, South Africa, Spain, Tunisia, United Kingdom, United Republic of Tanzania, Zambia, ASECNA, IATA and WMO.