



INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICA OFFICE (WACAF)
ICAO Regional Seminar on ATS/MET/Pilots Coordination
(Yaoundé, Cameroon, 23 – 25 August 2010)

**THE REGIONAL SEMINAR ON ATS/MET/PILOT CO-ORDINATION WITH
SPECIAL EMPHASIS ON THE DEVELOPMENT OF A VOLCANIC ASH
CONTINGENCY PLAN FOR THE AFI REGION**

(Yaoundé, Cameroon, 23 – 25 August 2010)

FINAL REPORT

Prepared by ICAO WACAF Office, Dakar

TABLE OF CONTENTS

<i>PART I - HISTORY OF THE SEMINAR.....</i>	<i>3</i>
1.1 Objective of the Seminar.....	3
1.2 Date and Venue of the Seminar	3
1.3 Organization and opening of the seminar	3
1.4 Attendance	3
1.5 Agenda	4
1.6 List of Recommendations	4
<i>PART II - REPORT ON AGENDA ITEMS</i>	<i>5</i>
2.1 Agenda Item 1 - General information	5
2.2 Agenda Item 2 -Organization of Air Traffic Management and Meteorological Authority.....	5
2.3 Agenda Item 3 -Meteorological information for Air Traffic Services and Search Rescue Services.....	6
2.4 Agenda Item 4 - Meteorological information obtained by air traffic service units from other sources.....	6
2.5 Agenda Item 5 - Coordination between ATS units and meteorological offices and stations	7
2.6 Agenda Item 6 - Coordination between aeronautical information services and aeronautical meteorological services.....	7
2.7 Agenda Item 7- Volcanic Ash Contingency Plan for the AFI Region.....	8
2.8 Agenda Item 8 - Meteorological support to the new ATM system.....	9
<i>APPENDIX 1</i>	<i>11</i>
<i>APPENDIX 2</i>	<i>19</i>
<i>APPENDIX 3</i>	<i>20</i>
<i>APPENDIX 4</i>	<i>30</i>
<i>APPENDIX 5</i>	<i>34</i>

PART 1 - HISTORY OF THE SEMINAR

1.1 Objective of the Seminar

1.1.1 The Regional Seminar on the Coordination between Air Traffic Services (ATS), Meteorological Services (MET) and Pilots (ATS/MET/Pilots) became necessary and urgent because of significant changes that occurred as a result of Amendment 75 to Annex 3, including removal of regular vocal AIREP, publication of the 4th edition of Doc 9377 in 2008 and changes introduced in Appendix 1 to Doc 9766. One of the key points included in the agenda of this Seminar is the introduction of a volcanic ash contingency plan in the AFI region.

1.1.2 The overall objective of this Seminar is to improve coordination between ATS and MET services and Pilots in view of the reinforcement of international air navigation safety and efficiency.

1.2 Date and Venue of the Seminar

1.2.1 The ATS/MET/Pilots Seminar was successfully held at the Hilton Hotel in Yaoundé, Cameroon, from 23 to 25 August 2010.

1.3 Organization and opening of the seminar

1.3.1 The Seminar was jointly organized by ICAO and Cameroon Civil Aviation Authority (CCAA), and was made possible with the personal involvement of the Director General of CCAA, who put a lot of effort towards its hosting in view of the particular interest he attached to the development of air navigation in the region.

1.3.2 The seminar was opened by Mr. P. Takam, Director General of the Cameroon Civil Aviation Authority (CCAA), at 10:00 hours on 23 August 2010. He stressed the importance of co-ordination between those concerned in the delivery and use of meteorological information to ensure safe, efficient and regular conduct of international civil aviation. He made mention of a new contingency plan being introduced in the AFI Region for the monitoring of volcanic ash issues in the region.

1.3.3 In his speech, Mr. M. S. Jallow, ICAO Deputy-Regional Director, welcomed participants and stressed the importance of the seminar in relation to the ICAO strategic objectives and air navigation safety in general. Mr. A. B. Okossi, Regional Officer - Meteorology, Dakar facilitated the seminar assisted by Mr. Sadou Marafa, Regional Officer – ATM and Mrs. Ndeye Coumba Siby-Diagne, Assistant, at the WACAF Office.

1.4 Attendance

1.4.1 Ninety-five (95) participants from twenty (20) States with two English speaking States and eighteen French speaking States of whom two are from the ESAF region (Comoros and Madagascar), and one regional organization (ASECNA, with representatives from its Headquarters, Paris and its Regional School EAMAC) participated in this seminar. It should be pointed out that ASECNA assisted in encouraging the participation of all its French-speaking member States. The list of participants is at

Appendix 1 to this report.

1.4.2 The seminar was conducted in both English and French with documentation distributed in both languages.

1.5 Agenda

1.5.1 **The agenda of the seminar covered the following:**

1. General information
2. Air traffic and meteorological services organizations
3. Meteorological information for ATS and search and rescue services units
4. Meteorological information received by ATS units from sources other than the associated meteorological offices and stations
5. Coordination between ATS units and meteorological offices and stations
6. Coordination between aeronautical information services and aeronautical meteorological services
7. Volcanic Ash Contingency Plan for the AFI Region
8. Meteorological support to the new ATM system

1.6 List of Recommendations

1.6.1 The seminar was an informal meeting and therefore Recommendations have no official status and are not subject to any formal action by ICAO. The Recommendations are meant to facilitate follow-up by operational units in States. The recommendations are the following:

1. Improvement of MET service to international air navigation;
2. Effective implementation of telecommunications facilities;
3. Coordination agreement between ATS/MET and/or ATS/MET/Volcano observatories;
4. Provision of MET information in States' AIPs;
5. Development of a contingency plan for volcanic ash;
6. Provision of required service for global ATM systems;
7. Human factors and procedures
8. Integrating pilots requirements
9. inviting aeronautical meteorology personnel in the civil/military coordination meeting
10. Proposal to ASECNA for efficiency of MET service to air navigation.

PART II - REPORT ON AGENDA ITEMS

2.1 Agenda Item 1 - General information

2.1.1 The participants were given an overview of the objectives of the seminar on the ATS/MET/Pilots coordination and were provided with a background on key issues on the agenda by focusing on the need for coordination between the Air Traffic Management Authority and Meteorological Authority for the provision of meteorological services for safety, regularity and efficiency of air navigation as per Annexes 3, 11 and 12 and Doc. 4444 - PANS - RAC in addition to ICAO Doc-9377 - *Manual on coordination between air traffic services and aeronautical meteorological services*.

2.2 Agenda Item 2 -Organization of Air Traffic Management and Meteorological Authority

2.2.1 The seminar discussed the basic organizational structures of air traffic management and aeronautical meteorological services which provide the necessary framework for better coordination. Participants were briefed on the links between the structures and functions of aeronautical meteorology and air traffic management.

2.2.2 The Seminar further discussed the different roles played by aeronautical meteorological (MET) stations, aerodrome MET offices, MET watch offices (MWOs) and World Area Forecast Centres (WAFCs). It was pointed out that the main objective of air traffic management authority and aeronautical meteorology authority for aviation is to provide assistance to ensure regular, safe and efficient conduct of flights. In order for these bodies to provide the necessary service to their users, their organizational structures, goals and objectives must be framed properly.

2.2.3 The ATS units and the corresponding meteorological station/offices discussed are summarized hereunder:

<i>ATS unit</i>	<i>Associated meteorological Station/Office</i>
Aerodrome control tower (TWR)	Aeronautical MET Station (AMS) and Aerodrome MET office (AMO)
Approach control office (APP)	AMS and AMO
Area control centre (ACC)	Meteorological watch office (MWO)
Flight information centre (FIC)	MWO or AMO

2.3 Agenda Item 3 -Meteorological information for Air Traffic Services and Search Rescue Services

2.3.1 Under this agenda item, the participants were reminded of the different types of meteorological information to be provided to air traffic services and search and rescue units. The seminar agreed that it was of paramount importance that the specified content and format for presentation of meteorological messages were adhered to and that the necessary communications facilities were also specified and agreed upon by the providers and the users. It was also recalled that appropriate meteorological information should be passed to aeronautical information services units.

2.3.2 Participants noted the need for formulation of clear procedures to be followed in an emergency to avoid confusion on the action by the various units at aerodromes. The need for efficient and effective telecommunications facilities, in good working order at all times between meteorological offices/stations and the air traffic management units, was also noted.

2.3.3 The seminar noted that such telecommunications facilities should be implemented to meet the requirements of lead time for the exchange of information under the provisions of Annex 3 and AMBEX scheme.

2.3.4 Having identified and noted requirements of meteorological information for air traffic and search and rescue services, the following Recommendations were formulated:

Recommendation 1 -Improvement of meteorological service to air navigation

That:

- a) **the provision of services by the Air Traffic Units and Meteorological Authorities be kept under continuous review; and**
- b) **the Meteorological Authority, in co-ordination with the Civil Aviation Authority, arrange to supply up-to-dated meteorological information to relevant air traffic and search and rescue units for the conduct of their functions as provided for in Annex 3, Chapter 10.**

Recommendation 2 - Effective implementation of telecommunications facilities

That efficient and effective communications facilities be implemented to meet the required lead times for exchange of information in accordance with the provisions of ICAO Annexes 3 and 10 and AFI ANP AMBEX Scheme.

2.4 Agenda Item 4 - Meteorological information obtained by air traffic service units from other sources

2.4.1 In addition to meteorological information prepared and issued by meteorological office(s)/ station(s), air traffic service units obtained other information directly from display units installed at aerodrome control towers and approach control offices and from pilots.

2.4.2 The seminar emphasized the crucial role played by the valuable information provided by pilots

concerning hazardous weather conditions. It was agreed that the effective implementation of updated provisions on the issuance of air-reports depends primarily on good coordination between stakeholders, namely pilots, ATS and MET authorities.

2.5 Agenda Item 5 - Coordination between ATS units and meteorological offices and stations

2.5.1 Under this agenda item the seminar discussed the co-ordination required between air traffic services, aeronautical meteorological services and pilots to achieve the best service for aviation.

2.5.2 The seminar noted that for a better coordination and harmonization of the services provided to aircraft, the authorities are to be urged to consider the development of letters of agreement that identify and define unambiguously the responsibilities of each authority. This is important not only to improve services provided as part of daily activity, but these provisions could also be used in dealing with the legal implications of aircraft accidents or incidents.

2.5.3 The seminar agreed that States develop letters of agreement using **Appendix 2 to Doc. 9377 in Appendix 3** to this report, which clearly and unequivocally defines responsibilities of ATS units and meteorological services for the guidance and harmonization of national and international air navigation services. The seminar then formulated the following Recommendation:

Recommendation 3 - Coordination agreement between ATS/MET and/or ATS/MET/Volcano observatories

That MET Authorities and Civil aviation Authorities

- a. Prepare letters of coordination agreement between ATS and MET services, based on Appendix 2 to Doc. 9377 in Appendix 3 to this report, which clearly and unequivocally defines the responsibilities of ATS and those of meteorological services, for the guidance and harmonization of national and international air navigation services;**
- b. Prepare where required, letters of agreement between ATS, MET and volcano authorities in the volcano observatory Provider State along the lines with Appendix A, Doc. 9766 in Appendix 4 to this report.**

2.6 Agenda Item 6 - Coordination between aeronautical information services and aeronautical meteorological services

2.6.1 The participants noted that the general information on meteorological service provided to aeronautical users in a State including the ATS authorities and their operational units, is promulgated through the aeronautical information services (AIS). Changes in the provision of the service, changes in meteorological procedures and even new information concerning the impact of significant weather on flight operations are notified to aeronautical users through the AIS. The requirement for relevant notifications to be made to the AIS by the meteorological authority is given in Annex 3, Chapter 10 and Appendix 9.

2.6.2 The seminar noted that continuous liaison should be maintained between the meteorological authority and AIS offices and units in each State. As a result of such liaison, the meteorological authority submits directly to the AIS authority, or through its meteorological offices and/or aeronautical meteorological stations, certain information to be included in the integrated aeronautical information package (IAIP) of the State concerned. That package includes, in particular:

- a) the AIP, including the amendment service;
- b) supplements to the AIP;
- c) notices to airmen (NOTAM) and pre-flight information bulletins (PIBs);
- d) aeronautical information circulars (AICs); and
- e) checklists and summaries.

2.6.3 Participants were recalled the coordination between MET and AIS services and agreed on the provision of MET information in the AIP of States, based on the guidelines provided in Appendix 5 to this report. In this regard, the meeting formulated the following Recommendation:

Recommendation 4 - Provision of MET information in States' AIPs

That MET Authorities and Civil aviation Authorities develop a letter of agreement for the provision of required meteorological information in States AIP in accordance with ICAO Doc 9377 as per Appendix 5 to this report.

2.7 Agenda Item 7- Volcanic Ash Contingency Plan for the AFI Region

2.7.1 The participants were informed that in response to the unprecedented disruptions to commercial air traffic in Europe caused by the eruption of Iceland's Eyjafjallajökull volcano on 14 April 2010, ICAO has established an International Volcanic Ash Task Force (IVATF) and taken a number of decisions to drive the development of a global safety risk management framework that will make it possible to routinely determine the safe levels of operation in airspaces contaminated by volcanic ash.

2.7.2 The seminar was presented with a paper proposing that, in order to avoid unexpected disruptions to commercial air traffic in the AFI region caused by volcanic eruption, the next meeting of the APIRG MET/SG should propose a volcanic ash contingency plan for the AFI region. In this regard, the seminar formulated the following Recommendation:

Recommendation 5 - Development of a contingency plan for volcanic ash

That APIRG be encouraged to develop a volcanic ash contingency plan for the AFI region.

2.7.3 The seminar was informed by ASECNA of a training course available at its training school, EAMAC, on the detection and follow up of volcanic ash clouds through the processing of geostationary satellite imagery. The seminar encouraged AFI States to utilize this opportunity to train their MWO personnel in the detection of volcanic ash clouds.

2.8 Agenda Item 8 - Meteorological support to the new ATM system

2.8.1 Under this agenda item, the participants were presented with the global ATM operational concept, the ICAO vision of an integrated, harmonized and globally interoperable ATM system. The purpose of the ATM operational concept is to achieve an interoperable global ATM system, for all users during all phases of flight that meets agreed levels of safety, provides for optimum economic operations, environmentally sustainable and meets national security requirements.

2.8.2 The ATM operational concept describes the services that will be required to operate the global air traffic system up to and beyond 2025. The operational concept addresses what is needed to increase user flexibility and maximize operating efficiencies in order to increase system capacity and improve safety levels in the future ATM.

2.8.3 Participants were invited to note the challenges faced by meteorological services in the provision of MET information to support the global air traffic management system and encouraged States to prepare their aeronautical MET services to meet these challenges. In this regard, the seminar formulated the following Recommendation:

Recommendation 6 - Provision of required service for global ATM systems

That AFI States be encouraged to prepare their aeronautical MET services to meet the challenges of the provision of MET information to support the global air traffic management system.

2.8.4 The seminar was presented with actions being taken by ASECNA in preparing MET support for the global ATM. The seminar agreed to formulate the following Recommendations:

Recommendation 7 - Human factors and procedures

That AFI States be encouraged to act on human factors and procedures by:

- **monitoring and strengthening the training of MET and ATS personnel to improve their technical and professional skills;**
- **developing and enforcement procedures through the implementation of QMS/SMS.**
- **creating a synergy of action between MET structures ATS units and pilots in the development, transmission and utilization of meteorological information.**

Recommendation 8- inviting aeronautical meteorology personnel in the civil/military coordination meetings

That aeronautical MET personnel be invited in ICAO meetings on civil/military coordination to develop MET related guidelines and collaborative protocols to make them available to crew members and ATS units.

Recommendation 9 - Proposal to ASECNA for efficiency of MET service to air navigation

That ASECNA be invited to:

- a) **Revitalize its cooperation in the framework of E-AMDAR project.**
- b) **Provide, in a more timely, its MET offices with data processing and display systems to process thousands of AMDAR reports already available in some RTCs including Dakar, some AMDAR reports for Dakar airport are provided by Lufthansa Cargo flights.**
- c) **Revitalize its cooperation with WMO in the framework of the proposed use of LIDAR.**
- d) **conduct regular surveys with aeronautical users to improve aeronautical meteorological services to air navigation provided by the Agency.**

2.8.5 A long haul pilot expressed his concerns on ATS units and MET services to aircraft in flight. He wanted to renew the awareness of safety and profitability, ATS Services are more involved in improving safety and efficiency of flight by providing value-added information especially during critical phases of the flight. The MET services should include the reliability, consistency and accuracy of their information can make a safe area even safer, and helps to achieve huge savings in fuel, the first item of expenditure in the business of an Airline. The contribution of the crews would be more efficient in this synergy if services were more accessible and feedback marked in protocols whose management would be compatible with operational constraints. The seminar congratulated the pilot for his valuable contribution and agreed to formulate the following Recommendation.

Recommendation 10 - Integrating pilots requirements

That ATS/MET provider services be encouraged to consider pilot needs by integrating the following requirements:

- **ATS Services should be more involved in improving safety and efficiency of flights by providing value-added information especially during critical phases.**
- **The MET should understand that reliability, consistency and accuracy of their information can make a safe area even safer, and helps to achieve huge savings in fuel, the first item of expenditure in the activity of an Airline.**
- **The contribution of the crews members would be more efficient in this synergy if services were more accessible and feedback marked in protocols whose management would be compatible with operational constraints.**

-END-

APPENDIX 1

List of Participants to the ICAO Regional Seminar on ATS/MET/Pilots Coordination (Yaoundé, Cameroun, 23-25 August 2010)

N°	PAYS -ORGANISATION	NOM	FONCTION SERVICE	ADRESSE	TEL/FAX
1	BENIN	Mr Dovo non Vivien	Chef Service Exploitation de la Navigation Aérienne	01BP96 ASECNA COTONOU	229 95360712 229 21 304119 vdovonon@yahoo.fr
2	BENIN	Mr Francis DIDE	Chef SEMET	01BP96 ASECNA COTONOU	22921306627 229 21 300839 dide_fral@yahoo.com
3	BURKINA FASO	Mr Bakienon Louis	RPT SEMET	01BP63 OUAGA 01	226 50 30 4902 226 50 30 6567 bakienonlouis@hotmail.com
4	BURKINA FASO	Mr Ouedraogo Fulgence Edgard	Chef du Service de la Navigation Aérienne	01BP75 ASECNA OUAGA 01	22670251079 22650306557 fulgencedgard@gmail.com
5	BURKINA FASO	Mr OUEDRAOGO Didier	Chef SEMET	01BP75 ASECNA OUAGA 01	22670238085 22650306557 ohdidier@yahoo.fr
6	CAMEROUN ASECNA	Mr Théodore Tchuisseu	Chef ENA (ASECNA) Douala		
7	CAMEROUN	Mr Kouogueu Jean Pierre	CHEF SEMET (ASECNA)		99685666 223063362 jpkouogueu@hotmail.com
8	CAMEROUN	Mr FOFACK Jean		ASECNA YAOUNDE	77 67 02 02 -222 23 75 66 22-22 -23 75 66 Jean-fofack@yahoo.fr
9	Cameroun Autorité Aéronautique	Mr Mandeng Samuel	Directeur de la Sécurité Aérienne	BP 6998 YAOUNDE	236 77 3945 46 237 22 30 33 62 Sam_mandeg@yahoo.fr
10	Cameroun	Mr Erick Ngoune Sonna			237 99 00 22 70 237 22 22 04 01

					francsonna@yahoo.fr
11	Cameroun Autorité Aéronautique	Mr NGUETCHUISSI CHARLES	Airport Manager		237 670174 changuetch@yahoo.fr
12	Cameroun Autorité Aéronautique	Mme ESSIMI Leopoldine	Sous Directeur de la Navigation Aérienne		
13	Cameroun Autorité Aéronautique	M.ABONDO Cyrille	Chef de Service en Charge de la Météorologie Aéronautique.		237 226 27434 cyrille.abondo@ccaa.aero
14	Cameroun Autorité Aéronautique	Mr BEMBA KOUDAOU Patrick	Cadre Technique	BP 6998 CCAA Yaounde Cameroun	237 96 42 97 55 237 22 30 33 62 patrick.bamba@ccaa.aero
15	Cameroun Autorité Aéronautique	Mr BISSE BELL Raymond	Cadre Technique	BP 6998 YAOUNDE	237 94 63 05 49 237 22 30 33 62 raymond.bisse@ccaa.aero
16	Cameroun Autorité Aéronautique	Mr KOUOGUEU Jean Pierre	Directeur de l'Exploitation Aéronautique.	BP 6998 YAOUNDE	237 99685666 237 22 30 633 62 jpkouagueu@hotmail.com
17	Cameroun Autorité Aéronautique	Mr KAMAJOU Augustin Désiré	Sous Directeur des Opérations.	BP 6998 YAOUNDE	237 77 11 01 34 augkamajou@yahoo.fr
18	Cameroun Autorité Aéronautique	Mr KOUFANA Joseph	Chef de Service d'Exploitation des Activités non Concédées.	BP 6998 YAOUNDE	237 22 30 30 90 237 20 33 62 kouf-2003@yahoo.fr
19	Cameroun Autorité Aéronautique	Mr NKODO Thierry Boniface	Chef de Service du Suivi Technique des Concessions.		237 79814431 nkodothiery@yahoo.fr
20	Cameroun ASECNA	Mr KAGHO Fabien	Commandant de Bord (Air Leasing)		237 77 11 17 56 237 42 51 64 fkagho@yahoo.fr
21	Cameroun ASECNA	Mr KAFFO Michel	Chef SEM ASECNA	BP 4063	237 99 77 51 51 237 33 42 71 17 kaffomichel@yahoo.fr
22	Cameroun ASECNA	Mr Mandengue-Lys Laure		BP 4063 ASECNA DOUALA	99764236 liselaure5@yahoo.fr
23	Cameroun /EMAA	Mr Binye Gabriel		MINAE/EMAA PO Box 6075 YAE	223 77 515 14 44 brnyero@yahoo.fr
24	Cameroun Autorité Aéronautique	Mr Ewolo Alexis Christian	Sous- Directeur des Applications Météorologiques		237 94 39 0208 237 94 39 02 08 ewoloyusto@yahoo.fr

25	Cameroun Autorité Aéronautique	Mr Nguilambouche B.Andre	Chef de Centre Meterologique National	BP 186 Douala	237 75 86 53 57 237 75 42 1 6 andre_angui@yahoo.fr
26	Cameroun Autorité Aéronautique	Mr Ngwasiri James Chi	Coordonnateur des Activités des Services de la navigation Aerienne		237 77 61 9008
27	Cameroun Autorité Aéronautique	Mr NGOM MANFRED JOSUE		CCAA P.O Box 6998 Yaoundé	237 96 07 03 77 237 22 30 33 62 manfred-ngom@yahoo.fr
28	Cameroun Autorité Aéronautique	Mr Komguem Magni Apollin	Che Circulation Aerienne Douala	BP 18637 Douala	237 99 00 22 50 237 33 42 51 90 komguemmagniapo@asecna.org
29	Cameroun Autorité Aéronautique	Mr Ngwasiri James CHE	Coordonnateur des Activités des services de la Navigation Aerienne		237 77 61 9000
30	Cameroun Autorité Aéronautique	Mr Hamadjida Adamou	Coordonnateur CCAA		237 75 04 38 66
31	Cameroun Autorité Aéronautique	Mr Eyoum Kana Juliette	Chef Bureau Telecoms	BP 40 63	237 96 03 68 eyoumjul@asecna.org
32	CAMEROUN ASECNA	Mr Ndoke Benjamin Peruzu	Payeur	237 77 78 58 89	237 33 42 87 61 ndokepezuzu@yahoo.fr
33	CAMEROUN	Mr Kenmogne Emile Leopold	Etudiant en Aviation Stagiaire Cameroun Autorite Aeronautique	BP 26 48 YDE	380 63 180 47 93 emileken@yahoo.fr 99 60 44 26
34	CAMEROUN	MBOZO'O NDO Emmanuel	Pilote de Ligne		002377763122 embozoo@yahoo.com
35	CONGO	Mr Serge MOUFOUMA	Chef ENA	B.P 218 Brazzaville	242 992 04 54 congoema@asecna.org; moufouma@yahoo.fr
36	CONGO	Mr Albert NZINZIELE	Représentant ASECNA CONGO	BP 218	242 9920455 poitsaille_karst@yahoo.fr
37	CONGO BRAZAVILLE	Mr Otoungabea Onguime Théodore B.	Chef de Division Informations Meteorologiques et Aeronautiques	Direction Générale de la Navigation Civile, BP 128	242630 8559 ootb_oeht@yahoo.fr

			(DIMA)	Brazzaville- Congo	
38	CONGO BRAZAVILLE	Mr Dilou Moïse	Superviseur METEO	Direction General de l'Aviation Civile, BP 128 Brazzaville-Congo	242 609 88 17
39	COMORES	Mr Mohammed Chanfi Ahhmad	C/SENA P.J	B.P 29 87 Moroni Comores	269 3333930 269 773 26 13 moh_hotmail.com
40	COTE D'IVOIRE	Mr Kouakou KONAN	CHEF SEMET	07 BP 11 Abidjan 07 RCI	225 01 33 4341 225 21 27 71 71 Konetien@hotmail.com
41	COTE D'IVOIRE	Mr Mamadou KONATE	Ingénieur de l'Aviation Civile Chef de Division des Services de la Navigation Aerienne (ANAC)	07 B.P 287 Abidjan 07	225 05 72 8282 225 21 27 6346 mamadou_konate anac@avlso.ci anac-ci@yahoo.fr
42	COTE D'IVOIRE	Mr ATTRO Firmin	Chef du Département de la Navigation Aérienne	15 B .P 990 Abidjan 15	225 21 27 87 36/ 21 58 20 01 21 27 73 44 attrofirmin@yahoo.fr
43	COTE D'IVOIRE	Mr YA Kouakou Firmin	Chef du Service de la Météorologie synoptique et aéronautique	15 B .P 990 Abidjan 15	225 06 99 50 70 yakouakou@yahoo.fr
44	COTE D'IVOIRE	Mr Sidi KONE	Chef Navigation Aerienne	BP 918 Abidjan 15	225 02 966859 225 21 27 71 71 konesidi@asecna.org sidkone@yahoo.fr
45	FRANCE	Mr Makosso Jean- Paul	Delegué	ASECNA France	0144950718 makossojea@asecna.org
46	GABON	Mr Jean Martin ELANGMANE	CHEF SEMET		241 05182298 manpene2007@yahoo.fr
47	GABON	Mr Mvola Ndong Toussaint	Chef Bureau ASECNA	2252 ASECNA/LIBRE VILLE	241 05 18 22 voto-o@yahoo.fr
48	GUINEE BISSAU	Mr Paulo Luis LOPES SA	Chef CMP P.I	ASECNA BISSAU	2456620777 paulopes1960@yahoo.fr
49	GUINEE EQUATORIALE	Mr NTUTUMU Manguande Manuel	Chef Service Exploitation Meteo	Malabo Guinee Equatoriale	240222234055 240333273505 nanguande2@yahoo.fr
50	GUINEE EQUATORIALE	Mr GIL ESOP BOLEKIA BUERIBERI			240 222273944 240333093501 gilosopi@yahoo.fr guinee@asecna.org

51	LIBERIA ROBERTSFIELD	Mr Richard Zawiea	Meteorology Department	P.O Box 1 Roberts International Airport	00 231 6 922658 rozawiea@yahoo.ca wbeyesolow@yahoo.com 231 6571895
52	LIBERIA	Mr. Eugene V.S. GAR-Glahn	Meteorology Ministry of Transport P.O Box 9041 Monrovia, Liberia		231 6 560 932 earglah@yahoo.com egarglahn@yahoo.com
53	LIBERIA ROBERTSFIELD	Mr Edward D. Larsala	Meteorology Department	P.O Box 1 Roberts International Airport	231 6880636233 e.larsala@yahoo.com
54	MALI	Mr Almahadi Sagayar MAIGA	Chef Service Exploitation de la Météorologie de l'ASECNA	ASECNA BP 36	223 20 20 31 61 223 20 20 41 51 almahadim@gmail.com
55	MALI	Mr GUINDO Ousmane	Chef Bureau Réglementation de la Navigation Aerienne à l'ANAC	ANAC MALI B.P 227	223 20 29 59 42 223 20 29 61 77 anacmali@anac-mali.org ousguindo@yahoo.fr
56	MALI	Mr Berthé Adama	Chef CA ASECNA Mali	ASECNA MALI BP36	223 20203161 223 20 20 41 51 berthead@asecna.org
57	MADAGASCAR	Mr RAKOTOARIVON Y Sylvain	Chef de Service Exploitation de la Navigation Aerienne	ASECNA MADAGASCAR BP 46 ANTANARARIV O 105	261 202258113 261202258115 rakotoarivonysyl@asecna.org
58	MADAGASCAR	Mr RAKOTONDRIAN A Jérôme	Chef Service Exploitation de la Météorologie	ASECNA IVATO BP 46 Antanarivo (105)	261 33 1210805 261 20 22 58 115 rakotondrianajer@asecna.org
59	MAROC	Mr El Mansouri SAAD	ATS Office Nationale des Aéroports Chef de Service	DNA ONDA Novassaeur Direction de la Météorologie Nationale Aéroport Mohammed V	212660100037 212 522 53 9009 selmansouri@onda.ma
60	MAROC	Mr Mouhtadi Abderrahim	Chef du Service de Météorologie Aéronautique DMN	B.P 8106 Oasis – Casablanca	+212 522 654910 +212 522 913698 +212 522 91 37 97 abderrahim.mouhtadi@gmail

					l.com dmn@mtpnet.gov.ma
61	MAURITANIE	Mouhamed Lemine	Chef Service ENA	ASECNA Mauritanie	002223200072 leminenekou@yahoo.fr
62	MAURITANIE	Mr CAMARA FODIE		Nouakchott BP 4939 ASEC NA	222 64 73417 222 525 16 25 cfodie@yahoo.fr
63	NIGER	Mr ABDOU Hassane	CHEF SEMET	Representation ASECNA BP 1096	2279485212 abdoucvmt@yahoo.fr
64	NIGER	Mr Ali SAYABOU	Chef Service ENA	ASECNA NIAMEY BP 1026	227 94 29 10 84 Ali-sayabou@yahoo.fr
65	NIGERIA Nigeria Civil Aviation Authority	Mr POPOOLA Adebiyi	Directorate Of Aerodrome & Airspace, Nigerian Civil Aviation Authority	Murtala Muhammed Airoport Lagos Nigeria	234 8055093316 Jiire2002@yahoo.co.uk
66	NIGERIA Nigerian Meteorological Agency NIGERIA	Mr. IFEANYI D. NNODU	NIMET AB UJA Headquarters	33 Pope John Paul St Maitama Abuja	234 803339282 idnnodu@yahoo.com
67	NIGERIA Nigerian Meteorological Agency NIGERIA	Mrs. MARY O. ISO	MET Manager	Murtala Muhammed INT'L Airoport Lagos Nigeria	234 8023005890 maryottuiso@yahoo.com
68	NIGERIA	Dr NDINDA RENE	M.A port A court	Officiel	237 77345993
69	NIGERIA	Mr Felix Oziegbe Ikekhu	NIMET Headquarters Abuja	33 Pope John Paul St Maitama Abuja	234 80 23 20 41 felix-ikekhua@yahoo.com
70	NIGERIA	Mr Douglas Egere	Nigeria CAA	Lagos Nigeria	234 80 33 33 54 91 douglassgere@
71	RCA	Kiapo François Alexandre	Chef Service ENA	ASECNA BANGUI BP 828	akiaps@yahoo.fr
72	RCA	Ngaïssot Philémon Hubert	Chef Service METEO	ASECNA CENTRAFIQUE	236 75500104 236 21 61 49 18 ngaissot@yahoo.fr
73	TCHAD	Mr Nadjitessem GAOU	Chef ENA	ASECNA BP 70 TCHAD	235 99 14 82 66 nadjigaou@yahoo.fr
74	TCHAD	GAGA Hamid	Chef MTO TCHAD	ASECNA TCHAD	235 99148261 hamidgaga62@yahoo.fr

75	TOGO	Mr AWESSO Telouh Modeste	Chef Service Exploitation de la Météorologie	B.P 10151 ASECNA LOME TOGO	228 226 2101 228 226 5236/2611371 awemodeste@yahoo.fr
76	TOGO	Mr ATISSO A.Komlan	Chef Service ENA	ASECNA TOGO	228 9119877 226 5236/2282611367 franoistisso@hotmail.com
77	ASECNA	Mr NDAO Magueye Marame	Chef Service Exploitation Aérienne	BP8132 Aéroport LSS Dakar Yoff ASECNA- Senegal	221 33 869 23 07 221 33 820 06 00 magueyen@yahoo.fr
78	ASECNA	Mr YOGUELM Kadjibaye	Chef Bureau AIS/MAP	56 Bis Lib 6 Ext Dakar	221 77 560 7142 221 820 75 46 jeantrois@voila.fr
79	ASECNA	Mr SOUGUE Bissa	Bureau Expl. Télécoms	ASECNA BP 3144 DAKAR	221 77 654 23 55 338207495 souguebisa@asecna.org
80	ASECNA	NDIAYE	Meissa	ASECNA DAKAR	221 869 56 79
81	ASECNA	Mr ZOUMARA Siméon	Chef DEEM	BP 8163 DAKAR YOFF	221 33 869 56 85 221 33 820 75 28 zoumarsim@asecna.org
82	ASECNA	Mr Yena Rassemgar	Charge de mission ASECNA	Dakar ASECNA	221 77 2490033 yenaras@asecna.org
83	ASECNA	MBOLIDI Joseph	Chef Service Gestion Météo	BP 3144 DAKAR SENEGAL	221 77 655562 221 820 27 13 mbolidi2000@yahoo.fr
84	ASECNA	Mme TOURE Aminata	Conseil ASECNA	10 Mermoz BP 24045 Mermoz	221 77 637 2431 221 33 825 32 83 qualitee.mcs@gmail.com
85	ASECNA	Mr DJIOLEU Micheline	Chef Bureau prévention des risques	ASECNA BP 3144	221 77 612 19 18 djiouleumic@asecna.org
86	ASECNA	Mr TANGOMO LAURENT	Chargé de mission du Directeur du Cabinet / DG ASECNA	Chargé de mission du Directeur du Cabinet / DG ASECNA	221 77 1061680 237 96 26 71 etangomoaria@yahoo.fr
87	ASECNA	Mr SONKO Malamine	Chef Service Exploitation de la Météorologie	Representation ASECNA SENEGAL BP 8101 AEROPORT SN	221 33 869 23 58 221 33 820 02 72 mlsonko@hotmail.fr sonkomal@asecna.org
88	ASECNA	Mr Thomas COMPAORE	Mission Qualité	BP 29189 DAKAR YOFF	compthom@yahoo.fr
89	ASECNA	Julien LAPIE	Conseiller Technique du Directeur de l'Exploitation	AV.Jean Jaures BP 3144 DAKAR- SENEGAL	lapiejul@asecna.org

90	ASECNA	Mr Thioro Bakary		Av.Jean Jaures BP 3144 DAKAR- SENEGAL	
91	ASECNA	Mr BETOLE Moïse	Cadre MG/N	ASECNA	221 77 358 3293 labetole@yahoo.fr
92	EAMAC	Mr KPLOGUEDE Emmanuel	Chef D.MET		
93	EAMAC	Mr SONKO Malamine	CHEF SEMET		
94	EAMAC NIGER	Mr Gorou Ernest	Instituteur EAMAC	BP746 Niamey	227 94 939616 gorouern@asecna.org
95	EAMAC NIGER	Mr KPLOGUEDE Emmanuel		EAMAC NIGER BP 746	227 20723662 22720722236 kploguede@hotmail.com
96	OACI	Mr JAOLLOW Mame Sait	Directeur Régional Adjoint	15, Boulevard de la République BP 2356 Dakar, Sénégal	mjallow@dakar.icao.int
97	OACI	Mr Okossi Akoa Benoit	Regional Officer - Meteorology	15, Boulevard de la République BP 2356 Dakar, Sénégal	aokossi@dakar.icao.int
98	OACI	Mr Sadou Marafa	Regional Officer - ATM	15, Boulevard de la République BP 2356 Dakar, Sénégal	smarafa@dakar.icao.int
99	OACI	Mme SIBY Diagne Ndèye Coumba	Assistante	15, Boulevard de la République BP 2356 Dakar, Sénégal	nsiby@dakar.icao.int

APPENDIX 2

List of Discussion Papers

DP No	Agenda Item.	Subject	Presented by	Language
A. DISCUSSION PAPER				
DP/1	1	Ordre du Jour/Généralités	Secretariat	E/F
DP/2	2	Air traffic and meteorological services organizations	Secretariat	E/F
DP/3	3	Meteorological information for ATS and search and rescue services units	Secretariat	E/F
DP/4	4	Meteorological information received by ATS units from sources other than the associated meteorological offices and stations	Secretariat	E/F
DP/5	5	Coordination between ATS units and meteorological offices and stations	Secretariat	E/F
DP/6	6	Coordination between aeronautical information services and aeronautical meteorological services.	Secretariat	E/F
DP/7	7	Volcanic Ash Contingency Plan for the AFI Region	Secretariat	E/F
DP/8	8	Meteorological support to the new ATM system	Secretariat	E/F
DP/9	5	Lettre d' Accord ATS/MET Madagascar	ASECNA	F
DP/10	5	L'observation et la prévision du phénomène de cisaillement du vent dans les bas niveaux (Sénégal)	ASECNA	F
DP/11	5	Collaboration entre les organes ATS, les centres et les stations météorologiques du Niger	ASECNA	F
DP/12	1	Présence des pilotes dans les services météorologiques de l'aéroport international F.H.B d'Abidjan (Côte d'Ivoire)	ASECNA	F
DP/13	3	Affichage et instruments dont les organismes ATS sont dotés (Congo)	ASECNA	F
DP/14	2	Activités météorologiques au sein de l'ASECNA (DEEM)	ASECNA	F
DP/15	14	Rareté des comptes rendus spéciaux d'aéronefs en zone ASECNA (DEEM)	ASECNA	F
DP/16	3	Résultats de l'enquête satisfaction client 2009/2010 sur la qualité de l'assistance météorologique en zone ASECNA (DEEM)	ASECNA	F
DP/17	3	Formation sur les Cendres Volcaniques à l'EAMAC	ASECNA	F
DP /18	3	Incidents ATS	ASECNA	F
DP /19	5	Lettre d'accord ATS/MET	ASECNA	F
DP/20	6	Communication entre les organes ATS/MET	ASECNA	F
DP/21	8	Management de la Sécurité	ASECNA	F
DP/22	8	Sécurité et MET	ASECNA	F
DP/23	8	Qualité et ATS/MET	ASECNA	F
DP/24	5	ATS/MET et changements climatiques (Burkina)	ASECNA	F
DP/25	2	Organisation Maroc	MAROC	F
DP/26	4	MET service and Safety Air Navigation (Nigeria)	NIGERIA	E
DP/27	6	Coordination AIS/MET	ASECNA	F

Appendix 2

**SAMPLE LETTER OF AGREEMENT BETWEEN
THE ATS AND METEOROLOGICAL AUTHORITIES**

**Directives for the coordination between ATS and the meteorological offices
and stations and responsibility for the provision of meteorological
service for international and national air navigation**

Effective date:

1. OBJECTIVE

1.1 The objective of this Letter of Agreement between [the ATS authority]¹ and [the meteorological authority]² is to establish the directives for the necessary coordination between ATS units and meteorological offices and stations to ensure the provision of the meteorological service required for civil (international and national) air navigation, in accordance with international agreements (see 1.4) and [national air navigation regulatory documents].

1.2 This Letter of Agreement also specifies the responsibility of ATS units in relation to the transmission to meteorological offices and stations of air-reports and other meteorological information obtained from aircraft in flight or resulting from observations made by ATS personnel at aerodromes.

1.3 This Letter of Agreement also includes the responsibilities of ATS units and meteorological offices and stations in relation to the mutual exchange of information on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud, and information on the release into the atmosphere of radioactive materials and toxic chemicals [if applicable].

1.4 The directives detailed in this document are in accordance with the Standards and Recommended Practices and Procedures of ICAO, contained in Annex 3 — *Meteorological Service for International Air Navigation*, Annex 11 — *Air Traffic Services*, Annex 12 — *Search and Rescue*, Annex 15 — *Aeronautical Information Services* and in the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444), as well as the provisions contained in the *Regional Supplementary Procedures* (Doc 7030), relevant regional air navigation plans and in the aeronautical information publication of [name of State] (AIP-[name of State]). These directives are also based on the guidance material in the *Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services* (Doc 9377), the *Aeronautical Information Services Manual* (Doc 8126) and the *Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List* (Doc 9766).

1. Name of the ATS authority.
2. Name of the meteorological authority.

1.5 This Letter of Agreement Includes³ Annexes, including detailed directives and arrangements pertaining to individual aerodromes and to ATS units and meteorological offices not located at aerodromes.

2. REVISIONS

2.1 When, for special or unforeseen reasons, a significant change in the coordination between the two parties involved or the services mentioned in this Letter of Agreement becomes necessary, the respective officers-in-charge, through mutual agreement, may effect temporary changes or amendments, provided that these changes are not intended to last more than⁴ days.

2.2 Permanent revisions to this Letter of Agreement may be made by the authorities who approve and sign this agreement. A complete cancellation of this Letter of Agreement may be made, in writing, by the parties to the agreement within a notice period of⁵ days.

3. GENERAL

3.1 The objective of meteorological service is to contribute to the safety, regularity and efficiency of civil air navigation.

3.2 [The meteorological authority] has responsibility for executing and coordinating activities to meet the meteorological requirements necessary for civil air navigation in [the Contracting State concerned].

3.3 On the basis of the decision [reference] by [the Contracting State concerned], [the meteorological authority] establishes an adequate number of meteorological offices and stations to meet the relevant requirements for the provision of meteorological service for civil air navigation.

3.4 The aeronautical meteorological service provided by these offices and stations to ATS units comprises:

- a) meteorological stations making routine and special observations and issuing local routine and special reports and METAR and SPECI. In addition, these stations make non-routine observations and prepare volcanic activity reports [if applicable];
- b) meteorological offices and/or aerodrome meteorological offices providing forecasts for aerodromes (such as TAF and trend forecasts, relevant warnings for aerodromes and their vicinity), as well as forecasts of en-route weather conditions, meteorological consultation, flight briefings and documentation; and
- c) a meteorological watch office (the MWO), providing meteorological watch for the FIR/UIR established in [the Contracting State concerned], including the preparation, issuance and dissemination of SIGMET information and AIRMET information [if applicable] concerning specified en-route weather phenomena which may affect the safety of aircraft operations.

3.5 The objectives of ATS are to:

3. Number of annexes agreed upon by the two parties to the Letter of Agreement.

4. Figure to be agreed upon locally; six days appears to be a suitable period.

5. Figure to be agreed locally; 180 days appears to be a suitable period.

- a) prevent collisions between aircraft in the air or on the manoeuvring area of an aerodrome;
- b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;
- c) expedite and maintain an orderly flow of air traffic;
- d) provide advice and information useful for the safe and efficient conduct of flights; and
- e) notify appropriate organizations regarding aircraft in need of search and rescue aid and assist such organizations as required.

3.6 ATS comprises three services, as follows:

- a) air traffic control service;
- b) flight information service; and
- c) alerting service.

3.7 The air traffic control service includes the provision of:

- a) air traffic control service for controlled flights, except for those parts of such flights provided within the approach control service and the aerodrome control service;
- b) approach control service to that portion of controlled flights associated with the arrival of an aircraft at, or its departure from, the various controlled aerodromes; and
- c) aerodrome control service for aerodrome traffic, except for those parts of flights provided within approach control service.

3.8 The flight information service provides advice and information useful for the safe and efficient conduct of flights.

3.9 The alerting service notifies the appropriate organizations regarding aircraft in need of search and rescue aid and assists such organizations as required.

Note.— The established FIR/UIR and control areas⁶ and the related FIC/ACC, as well as the established TWRs and APPs, are given in the AIP, GEN 3.3, of [the Contracting State concerned].

4. RESPONSIBILITIES

4.1 General

In order to provide an efficient air traffic service and in view of the fact that the ATS units are an important factor in the liaison between aircraft in flight and the meteorological offices and stations, [the meteorological authority] and [the ATS authority] will collaborate to ensure a fast and efficient coordination.

6. It is assumed that the Contracting State concerned has established in its airspace one FIR/UIR and one control area within the FIR/UIR. The required ATS is provided from one FIC/ACC which is served by one MWO.

4.2 Responsibilities of [the meteorological authority] and the meteorological offices and stations

General

4.2.1 [The meteorological authority], through the meteorological offices and aeronautical meteorological stations listed in Table A2-1, is responsible for the provision of up-to-date information on existing and forecast meteorological conditions to those ATS units that need it in order to carry out their functions. The necessary meteorological information will be supplied to individual ATS units from the associated meteorological offices and relevant meteorological stations at aerodromes. Table A2-2 provides a list of the associated meteorological offices designated by [the meteorological authority] to serve individual ATS units and rescue coordination centres and sub-centres.

4.2.2 Meteorological offices will be located, or suitable arrangements will be made, so that meteorological briefings for ATS personnel, as well as consultations between meteorological and ATS personnel, are facilitated and fast and reliable communications are established in order to effect coordination in the most efficient manner possible.

4.2.3 The meteorological information provided will, as far as possible, be in a format that facilitates easy interpretation by ATS personnel, and the frequency of meteorological reports, forecasts, warnings, etc., will cover the needs of each of the ATS units. Table A2-3 provides a list of meteorological information to be supplied to ATS units, its format and the frequency with which it is to be supplied to individual ATS units.

4.2.4 In providing local reports and current altimeter setting information to ATS units at aerodromes, consideration will be given to the type and volume of air traffic and the availability of meteorological instruments/displays and/or automated observing system displays in the units concerned.

Table A2-1. List of meteorological offices and aeronautical stations
providing meteorological service to civil aviation

<i>Office</i>	<i>Located at</i>	<i>Location indicator</i>
Aerodrome meteorological office	Donlon International Aerodrome	YUDL
Aerodrome meteorological office	Kental Aerodrome	YUDK
Meteorological watch office	Donlon (City)	YUDD
<i>Aeronautical meteorological station at</i>		<i>Location indicator</i>
Donlon International		YUDL
Donlon West		YUDW
Biggin		YUDB
Gales		YUDG
Kental		YUDK
Tursa		YUDT

Note.— All names, locations and location indicators are fictitious.

Table A2-2. Designation of meteorological offices associated with individual ATS units and search and rescue services centres

<i>Aerodrome</i>	<i>ATS unit</i>	<i>Meteorological office associated with the ATS unit</i>
Donlon International	TWR	Donlon International
Donlon International	APP	Donlon International
Donlon West	TWR	Donlon International
Biggin	TWR	Donlon International
Biggin	APP	Donlon International
Gales	TWR	Donlon International
Kental	TWR	Kental
Kental	APP	Kental
Tursa	TWR	Kental
—	ACC/FIC Donlon	MWO Donlon
—	RCC/RCS Donlon	MWO Donlon

Note.— All locations are fictitious.

4.2.5 Detailed information on the location, vertical extent, direction and speed of movement of significant meteorological phenomena in the proximity of aerodromes, which may present a danger to aircraft operations, particularly in the areas of the initial climb-out and approach, will be provided to the appropriate ATS units with the utmost speed. This information will be derived from weather radar observations, remote-sensing equipment and meteorological satellite data available in [the meteorological authority].

4.2.6 Meteorological offices and/or meteorological stations will provide other information as agreed locally concerning, for example, surface wind, rapid deterioration of weather conditions or sudden fluctuations of temperatures that could adversely affect the operation of certain types of aircraft, either en route or on take-off and landing.

4.2.7 Meteorological offices will provide the meteorological information needed to meet non-routine requests from aircraft in flight (e.g. requests from distant aerodromes for meteorological reports).

4.2.8 Computer-processed meteorological information in digital form will be provided to ATS computerized centres in accordance with the arrangements agreed between [the meteorological authority] and [the ATS authority] concerning its content, format and transmission. Details of these arrangements are specified in [relevant Annexes to this Letter of Agreement].

4.2.9 Copies of meteorological flight documentation supplied to flight crews will be kept for a period of at least 30 days (i.e. stored as hard copies or in computer memory), from the date of issue and will be made available on request for inquiries or investigations and, for these purposes, will be retained until the inquiry or investigation is completed.

Table A2-3. Aeronautical meteorological information supplied to ATS units

<i>Information</i>	<i>Distributor</i>	<i>Destination</i>	<i>Frequency</i>	<i>Communications means</i>
METAR and local routine reports with trend forecast*, as required	Aeronautical MET station (trend forecast prepared by MET office)	TWR APP ACC FIC COM station	Hourly**	See Note 1 See Note 1 See Note 1 See Note 1 See Note 2
SPECI and local special reports with trend forecast*, as required	Aeronautical MET station (trend forecast prepared by MET office)	TWR APP ACC FIC COM station	When warranted	See Note 1 See Note 1 See Note 2 See Note 2 See Note 2
TAF	MET office	TWR APP ACC FIC COM station	Every 3 or 6 hours	See Note 1 See Note 1 See Note 1 or 2 See Note 1 or 2 See Note 2
Aerodrome warnings	MET office	TWR APP COM station Aerodrome services	When warranted	See Note 1 See Note 1 or 2 See Note 2
Upper wind and temperature forecasts	MET office and/or MWO (data to be obtained through the WAFS)	ACC FIC	Every 6 hours (if required)	See Note 2 See Note 2
Significant en-route weather forecast	MET office and/or MWO (data to be obtained through the WAFS)	ACC FIC	Every 6 hours	See Note 2
SIGMET and AIRMET	MWO	TWR APP ACC FIC COM station	When warranted	See Note 1 See Notes 1 and 2 See Notes 1 and 2 See Notes 1 and 2 See Note 2
Wind shear warnings and alerts	MET office	TWR APP	When warranted	See Note 1 See Note 1
Tropical cyclone advisory	TCAC/MWO	ACC FIC	When warranted	See Notes 1 and 2
Volcanic ash advisory	VAAC/MWO	ACC FIC	When warranted	See Notes 1 and 2
Information on accidental release of radioactive material, i.e. location of the accident and forecast trajectories of the radioactive material	MWO (normally, the information obtained from the WMO RMSC concerned)	ACC FIC	When warranted	See Notes 1 and 2
Information on volcanic eruptions and volcanic ash for which a SIGMET has not yet been issued.	MWO VAAC	TWR APP ACC FIC	When warranted	

* Trends to be added to local reports and METAR/SPECI for those stations so identified in the air navigation plan.

** Or half-hourly if so decided by regional air navigation agreement.

Note 1.— Communications by intranet, closed-circuit TV, video display unit, or similar. If none of these are available, or during unserviceability periods, communications by phone, followed if possible by confirmation by other means.

Note 2.— Communications by teleprinter.

4.2.10 Aeronautical climatological information (i.e. in particular, aerodrome climatological tables and summaries) will be provided to [the ATS authority] as agreed between the two parties to this Letter of Agreement.

Information for aerodrome control towers (TWRs)

4.2.11 Up-to-date local reports with trend forecasts, including current pressure data for the setting of altimeters, and TAF, related to the aerodrome concerned, will be provided to the aerodrome control tower of each aerodrome.

4.2.12 Local special reports with trend forecasts, including current pressure data for the setting of altimeters, issued in accordance with Annex 3, Chapter 4, 4.4, and the list of criteria for special observations referred to in Annex 3, Appendix 3, 2.3, and amendments to TAF will be communicated to the TWR in accordance with locally established procedures as soon as they are issued, i.e. without waiting for the next local routine report or forecast.

4.2.13 Aerodrome warnings issued in accordance with Annex 3, Chapter 7, 7.3 and Appendix 5, 5 and 6, and the list of criteria for the issuance of these warnings in Annex 3, Appendix 6, 5.2, wind shear warnings and alerts and relevant SIGMET information and AIRMET information [if appropriate] will be communicated to the TWR without delay.

4.2.14 TWRs will be equipped with displays for surface wind and runway visual range (RVR), [other meteorological elements/phenomena, as appropriate]. The displays will relate to the same points of observation and will obtain data from the same sensors as those to which the corresponding displays in the meteorological station are connected.

4.2.15 Local special reports will not be issued for changes in values of meteorological elements displayed continuously at TWRs (as per 4.2.14).

4.2.16 Information received on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud, for which SIGMET information has not been issued, will be communicated to individual TWRs by their associated meteorological offices [if applicable].

Note.— Annexes to this Letter of Agreement include detailed arrangements relating to TWRs at [list of aerodromes].

Information for approach control offices (APPs)

4.2.17 Up-to-date local reports with trend forecasts, including current pressure data for the setting of altimeters, and TAF related to the aerodromes concerned will be provided to the ATS units that provide approach control services.

4.2.18 Local special reports with trend forecasts, including current pressure data for the setting of altimeters, and amendments to TAF will be communicated to APPs, in accordance with locally established procedures, as soon as they are issued (i.e. without waiting for the next local routine report or forecast).

4.2.19 Relevant SIGMET information and appropriate special air-reports, AIRMET information [if appropriate], aerodrome warnings and wind shear warnings and alerts will be provided to APPs without delay.

4.2.20 APPs providing the service for final approach, landing and take-off will be equipped with displays for surface wind, RVR and atmospheric pressure, [other meteorological elements/phenomena, as appropriate]. The displays will relate to the same points of observation and will obtain data from the same sensors as those to which the corresponding displays in the meteorological station are connected.

4.2.21 Local special reports will not be issued for changes in values of meteorological elements displayed continuously at APPs (as per 4.2.20).

4.2.22 Information received on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud, for which SIGMET information has not been issued, will be communicated to individual APPs by their associated meteorological offices [if applicable].

Note.— Annexes to this Letter of Agreement include detailed arrangements relating to APPs at [APP's location or location indicators].

**Information for the [location or location indicators]
area control centre/flight information centre (ACC/FIC)**

4.2.23 Up-to-date routine and special reports (METAR and SPECI with TREND forecasts) and TAF related to aerodromes located within the FIR/UIR, as well as other forecasts for the airspace for which the ACC/FIC are responsible, will be provided to these centres, giving special emphasis to significant meteorological conditions and weather deterioration occurring, as soon as it can be determined. Such reports and forecasts will also relate to all other areas that may be determined on the basis of regional air navigation agreement.

4.2.24 SIGMET information and appropriate special air-reports and AIRMET information [if appropriate] pertaining to the FIR/UIR, and also to those FIRs/UIRs or portions of FIRs/UIRs which lie within two hours' flying time from the boundaries of the FIR/UIR, will be provided to the ACC/FIC.

4.2.25 Current pressure data for setting altimeters [e.g. the lowest QNH in the FIR specified by the FIC/ACC] will be provided to the ACC/FIC to be available for low-level flight operations.

4.2.26 Information received on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud, for which SIGMET information has not been issued, will be communicated to the ACC/FIC by the MWO [if applicable].

4.2.27 Volcanic ash advisories will be communicated to the FIC/ACC in accordance with regional air navigation agreement.

4.2.28 Information received from [the designated national and/or international sources] concerning the release into the atmosphere of radioactive materials and toxic chemicals will be communicated to the ACC/FIC by the MWO.

Note.— Annex to this Letter of Agreement includes detailed arrangements relating to the ACC/FIC.

4.3 Responsibilities of [the ATS authority] and ATS units

4.3.1 [The ATS authority] makes the necessary arrangements for ATS units to:

- a) transmit routine and special air-reports received by voice communications to the MWO;
- b) automatically transmit routine air-reports by data link communications to WAFCs London and Washington;
- c) automatically transmit special air-reports received by data link communications to the MWO, WAFCs London and Washington.

The special air-reports will be transmitted without delay and the routine air-reports will be transmitted as soon as practicable.

4.3.2 Reports of non-routine observations from aircraft in flight (Annex 3, 5.6 refers) will be transmitted without delay to the MWO and meteorological offices and stations concerned. (Annex 11, 2.20.1 a) and b) refer.)

4.3.3 [The ATS authority], in coordination with [the meteorological authority], establishes a list of ATS/MET reporting points, coordinates the list with the ICAO Regional Office and submits the list to the AIS office concerned for inclusion in the aeronautical information publication of [the State concerned].

4.3.4 Supplementary meteorological observations made by personnel in local ATS units, as well as the meteorological information that the meteorological offices and stations have requested them to obtain will be supplied without delay to the meteorological offices and stations concerned.

4.3.5 Meteorological information obtained from ATS radar will be provided to meteorological offices and stations whenever necessary and feasible and, in particular, when information from weather radar is not available. This information should be relayed to the associated meteorological offices and stations as soon as possible and should contain the time of observation, location, extent, distance and intensity of the identified significant weather areas. In this regard, it is recognized that it is not mandatory for radar controllers to maintain watch over significant weather areas [if applicable].

4.3.6 ATS units will transmit to the associated meteorological offices and to the MWO, as appropriate (and to the VAAC [if so agreed with the VAAC]), without delay, information received on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud for which SIGMET information has not been issued. (Annex 11, 2.20.1 c) refers) [if applicable.]

4.3.7 Within the frame of the FIS, relevant ATS units will transmit to aircraft pertinent:

- a) SIGMET information up to a distance normally corresponding to two hours' flying time and appropriate special air-reports for which SIGMET information has not been issued. The transmission to aircraft of such air-reports will continue for from the time of issuance of the respective air-reports;
- b) AIRMET information [if appropriate] up to a distance of hours' flying time;
- c) information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds received from [the sources specified in arrangements developed by the ATS, AIS, vulcanological and meteorological authorities in the State concerned] until the respective SIGMET and/or ASHTAM or NOTAM are issued [if applicable];

- d) information received from [the source designated in the State concerned] concerning the release into the atmosphere of radioactive materials or toxic chemicals, in accordance with arrangements developed by [the ATS and AIS authorities] in coordination with the meteorological authority [if applicable]; and
- e) as necessary, weather conditions at departure, destination and alternate aerodromes reported in relevant METAR and SPECI, with TREND forecasts and TAF.

5. DISSEMINATION OF METEOROLOGICAL INFORMATION

Bearing in mind that meteorological information is of vital importance to the safety of aircraft in flight, it is necessary that the units providing ATS always keep aircraft informed of the current weather conditions. Table A2-3 outlines the requirements for supplying aeronautical meteorological information to the various ATS units as well as the means of communication to be utilized so that this information reaches the ATS units in good time.

6. ATS UNITS AND METEOROLOGICAL OFFICES AND STATIONS — COORDINATION MEETINGS

Regular and/or ad hoc coordination meetings between the chiefs of the ATS units and chiefs of meteorological offices and stations, and other interested parties, aimed at improving the services provided to aircraft, will be convened as appropriate and at least every months.

7. COURSES FOR METEOROLOGISTS AND AIR TRAFFIC CONTROLLERS

7.1 Courses or on-the-job training for meteorological and ATS personnel will be organized periodically with the objective of familiarizing them with the activities performed by both services.

7.2 Periods and dates for these courses will be agreed by [the ATS authority] and [the meteorological authority] taking into account the availability of personnel and the necessary equipment.

APPENDIX A

**Sample Letter of Agreement between
the Air Traffic Services (ATS), Meteorological Authorities and
Vulcanological Authorities**

*Directives for coordination between area control centres (ACCs),
meteorological watch offices (MWOs) and vulcanological observatories and
responsibility for the
provision/exchange of information relevant to volcanic ash*

Effective date:

1. OBJECTIVE

1.1 The objective of this Letter of Agreement between the [ATS authority]¹, the [meteorological authority]² and the [vulcanological authority]³ is to establish the directives for the necessary coordination between ATS units, meteorological watch offices and vulcanological observatories to ensure the provision of specific information on pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud required for civil (international and national) air navigation, in accordance with international agreements (see 1.4) and [national air navigation regulatory documents].

1.2 This Letter of Agreement provides guidelines on the responsibilities of ATS units, meteorological watch offices and vulcanological observatories in relation to the mutual exchange of information related to volcanic ash.

1.3 This Letter of Agreement is in accordance with the Standards and Recommended Practices and Procedures of ICAO, contained in Annex 3 — *Meteorological Service for International Air Navigation*, Annex 11 — *Air Traffic Services*, Annex 15 — *Aeronautical Information Services* and in the *Procedures for Air Navigation Services - Air Traffic Management* (PANS-ATM, Doc 4444), as well as the provisions contained in the relevant regional air navigation plan publications and in the aeronautical information publication of [State]⁴ (AIP-[State]). This Letter of Agreement is also based on the guidance material in the *Manual on Coordination between Air Traffic Services*.

-
1. Name of the ATS authority.
 2. Name of the meteorological authority
 3. Name of the vulcanological authority.
 4. Name of the State concerned.

Aeronautical Information Services and Aeronautical Meteorological Services (Doc 9377), the Aeronautical Information Services Manual (Doc 8126) and the Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List (Doc 9766).

1.4 This Letter of Agreement includes _____⁵ Appendices, regarding detailed national directives and arrangements pertaining to the use of the aviation volcano colour code, the ASHTAM format, abbreviations, list of contact points and means of communication, stations/offices and contact numbers, etc.

2. REVISIONS

2.1 When, for special or unforeseen reasons, a significant change in the coordination between the three parties involved or the services mentioned in this Agreement becomes necessary, the respective officers-in-charge, through mutual agreement, may effect temporary changes or amendments, provided that these changes are not intended to last more than _____⁶ days.

2.2 Permanent revisions to the Letter of Agreement may be made by the authorities who approve and sign this Agreement. This LOA is to be reviewed annually. A complete cancellation of this Letter of Agreement may be made, in writing, by the parties to the agreement within a notice period of _____⁷ days.

3. GENERAL

3.1 In order to contribute with the efficiency and safety of international air navigation in [State] the [ATS authority]¹, the [meteorological authority]² and the [vulcanological authority]³ will collaborate to ensure fast and efficient coordination to minimize the impact of the presence of volcanic ash in the atmosphere.

3.2 The [MWOs][ACCs][VAACs and selected volcano observatories] concerned shall make suitable arrangements in order to facilitate vulcanological briefings as well as inter-agency consultations and to establish reliable communications to undertake an effective coordination.

5. Number of appendices agreed upon by the three parties to the letter of Agreement.

6. Figure to be agreed locally: six days appears to be a suitable period.

7. Figure to be agreed locally: 180 days appears to be a suitable period.

4. RESPONSIBILITIES

4.1 Responsibilities of [the meteorological authority] and the meteorological watch offices

4.1.1 General

4.1.1.1 FASID Table MET 3C identifies the selected State volcano observatories which are to notify volcanic ash advisory centres (VAAC), MWOs and ACCs on volcanic pre-eruption, volcanic eruption and volcanic ash.

4.1.1.2 The [meteorological authority], through the [meteorological watch office (MWO)]⁸ included in the FASID Table MET 3C of [ANP]⁹, is responsible for issuing SIGMET(s) on volcanic ash, i.e. providing up-to-date information on existing and forecast volcanic ash clouds and trajectory forecast at different flight levels based on the latest information received from vulcanological observatories or from the corresponding VAAC to those area control centres that need it in order to carry out their functions. The provision of any information related to volcanic activity and the presence of volcanic ash clouds in the atmosphere should be in accordance with the guidelines provided in the attachment to this Letter of Agreement.

4.2 Responsibilities of [the ATS authority] and area control centres (ACCs)

4.2.1 [The MET Authority], through the [ACC]¹⁰ included in the FASID Table MET 3C of [ANP], is responsible to provide up-to-date information on existing and forecast volcanic ash clouds and trajectory forecast at different flight levels to pilots and airline operation centers. This information should be based on the latest information received from:

- a) vulcanological observatories;
- b) the associated VAAC; or
- c) the associated MWO

and passed immediately to aircraft in flight that could be affected by the volcanic ash and to the adjacent ACCs.

8. Name(s) of the meteorological watch office(s).

9. Title of corresponding ANP.

10. Name of the area control centre.

4.2.2 The ACC should also issue an ASHTAM or NOTAM through the State International NOTAM Office (NOF) in accordance with Annex 15, Chapter 5, giving details of the pre-eruption activity, volcanic eruption and ash cloud, including name and geographical coordinates of the volcano, date and time of eruption, flight levels and routes affected and, if necessary, routes to be closed to air traffic. The provision of any information related to volcanic activity and the presence of volcanic ash clouds in the atmosphere should be in accordance with the guidelines provided in the attachment to this Letter of Agreement

4.3 Responsibility of the vulcanological authority

4.3.1 [*The vulcanological observatory*] included in the FASID Table MET 3C of [*ANP*], is responsible for the provision of up-to-date information on existing and forecast volcanic activity and volcanic ash clouds based on the latest information received from direct or remote observation sources to the [*ACC*], the [*MWO*] and the [*VAAC*] concerned. The necessary vulcanological information will be supplied in accordance with the guidelines stipulated in the attachment to this Letter of Agreement

4.3.2 The vulcanological information provided will, as far as possible, be in the format described in step 1 of the attachment in order to facilitate easy interpretation by ATS personnel.

5. ATS UNITS, MWOs AND VULCANOLOGICAL OBSERVATORIES COORDINATION MEETINGS

Regular and/or ad hoc coordination meetings between the chiefs of the ATS units, chiefs of meteorological watch offices and chiefs of vulcanological observatories, and other interested parties, aimed at improving the services provided to aircraft, will be convened as deemed necessary to ensure the safety of air navigation in accordance with the provisions as identified in 1.3.

6. COURSES FOR METEOROLOGISTS, AIR TRAFFIC CONTROLLERS AND VULCANOLOGISTS

6.1 Courses or on-the-job training for meteorological, ATS personnel and vulcanologists will be organized periodically with the objective of familiarizing personnel with the activities performed by the other services.

6.2 Periods and dates for these courses will be agreed by [*the ATS authority*], [*the meteorological authority*] and [*the vulcanological authority*] taking into account the availability of personnel and the necessary equipment.

APPENDIX 5

INFORMATION ON THE METEOROLOGICAL AUTHORITY AND METEOROLOGICAL SERVICES TO BE INCLUDED IN THE AIP

1. It may be recalled that the aeronautical information publication (AIP) consists of:

Part 1 — GENERAL (GEN);

Part 2 — EN-ROUTE (ENR); and

Part 3 — AERODROMES (AD).

A major portion of the information related to the meteorological authority and meteorological service for international air navigation in the State concerned is presented in Part 1. The meteorological service provided at individual aerodromes and heliports can be found in Part 3. No information on meteorological service is contained in Part 2.

2. The following is a summary of the structure and content of the information on the meteorological authority and meteorological service for international air navigation to be presented in various sections of the AIP. The summary and numbering shown below fully reflect the guidance given in the *Aeronautical Information Services Manual* (Doc 8126), Chapter 5 and related Appendix.

PART 1 GENERAL (GEN)

GEN 1. NATIONAL REGULATIONS AND REQUIREMENTS

GEN 1.1 DESIGNATED AUTHORITIES

2. Meteorology

The full address of the meteorological authority designated by the State concerned, including telephone, telefax and telex numbers as well as an AFS address, are given in this section of the AIP.

GEN 1.7 DIFFERENCES FROM ICAO STANDARDS, RECOMMENDED PRACTICES AND PROCEDURES

3. Annex 3 — *Meteorological Service for International Air Navigation*

Differences from Annex 3 Standards filed with ICAO by the State concerned, which form part of the complete list of differences with respect to all other ICAO Annex Standards and other relevant ICAO documents.

A3-1

GEN 2. TABLES AND CODES**GEN 2.1 MEASURING SYSTEM,
AIRCRAFT MARKINGS, HOLIDAYS****1. Units of measurement**

Units of measurement used in meteorological observations, reports, forecasts, warnings and other types of meteorological information are incorporated in a table of units of measurement used in civil aviation in the State concerned or in individual FIRs therein.

GEN 3. SERVICES**GEN 3.5 METEOROLOGICAL SERVICES****1. Responsible service**

This section includes the full address of the meteorological authority that is responsible for the provision of meteorological service for international air navigation in the State concerned. It should, however, be noted that the meteorological authority designated by the State concerned may arrange for a number of other entities to be involved in the provision of meteorological service for international air navigation on its behalf.

2. Area of responsibility

The geographical area within which the meteorological authority provides or arranges for the provision of meteorological service in the State concerned is normally defined by a list of FIRs/control areas to be served.

3. Meteorological observations and reports

Table GEN 3.5.3 lists the meteorological observations and reports provided, including:

- name of the aeronautical meteorological station and respective location indicator;
- type and frequency of observation (routine, special);
- types of meteorological reports and messages issued (MET REPORT, SPECIAL, METAR and SPECI) and supplementary information included in the reports and messages (e.g. trend forecasts);
- observation instruments, automatic systems in use, observation sites;
- hours of operation (of individual aeronautical meteorological stations); and
- availability (or otherwise) of aerodrome climatological tables and/or summaries derived from observation data from the meteorological stations listed in the table.

4. Types of services

This section provides general information regarding meteorological service provided to users (i.e. operators, flight crew members and ATS units) by meteorological offices at aerodromes. The information may describe the following types/aspects of meteorological service:

- Issuance of
 - local forecasts (TAF, trend forecasts);
 - aerodrome warnings;
 - wind shear warnings (if applicable);
 - en-route forecasts (in particular forecasts for low-level flights that cannot be obtained from WAFS centres); and
- availability of
 - meteorological products, such as charts, weather radar information/data, meteorological satellite data;
 - meteorological information for pre-flight planning by operators and flight crew members, including information on volcanic activity and volcanic ash clouds, both for flights above FL 100 or 150 and for low-level flights;
 - WAFS products used for pre-flight planning, flight documentation and briefing;
 - briefing and consultation facilities.

Note.— More detailed information concerning these types of services and facilities is specified in 8.3 and 9 and Part 3 — Aerodromes (AD), AD 2.11 and 3.11.

5. Notification required from operators

This section contains, in particular, requirements for timely notification of flights (individual flights or flights in accordance with individual operators' regular flight schedules, repetitive flight plans, etc.) to be submitted to relevant meteorological offices at aerodromes by operators or flight crew members. (The content of such notifications can be found in Annex 3, Chapter 2, 2.3.4.) This section may also include the requirements of the meteorological authority concerning notification of new routes, new types of operations, changes of a lasting character in scheduled operations and other changes affecting the provision of meteorological service to individual operators.

6. Aircraft reports

Requirements regarding air-reporting are given in Annex 3, Chapter 5. It may be recalled that in addition to air-reporting by voice communications, automated air-reporting by data link is being implemented in the CNS/ATM systems environment (Chapter 4, 4.2 of this manual refers). In view of this, information presented in this section should summarize the requirements for and procedures related to both modes of air-reporting. In respect of air-reports by voice communications, the following should be included:

- a list of ATSMET reporting points;
- exemptions from the requirement to make air-reports;
- designation procedures for air-reporting on routes with high-density air traffic;

Note.— All the subjects should reflect respective regional air navigation agreements.

- requirements for the delivery of post-flight reports of aircraft observations of volcanic activity (on the special air-report of volcanic activity form) to aerodrome meteorological offices.

Similar aspects should also be dealt with in terms of the air-reporting by data link, as soon as it is implemented. In such cases, particular attention is to be paid to the identification of data link applications used for routine and special air-reports. If ADS is applied to routine air-reports, procedures concerning the establishment of respective ADS contracts should be specified.

7. VOLMET service

VOLMET broadcasts provided in the State concerned are described in Table GEN 3.5.7 containing the following specifications relating to individual broadcasts:

- name of station;
- call sign and identification;
- frequency of broadcast (VHF or HF);
- hours of service;
- aerodromes/heliports included;
- contents and format of the reports and/or forecasts (METAR + trend forecast (if applicable), SIGMET and TAF are broadcast through various VOLMET broadcasts in compliance with relevant regional air navigation agreements) and remarks.

Note.— In many States the VOLMET service is provided by the ATS authority. This authority will therefore also originate specifications regarding the service to be incorporated in the AIP.

8. SIGMET service

The necessary information regarding this service is provided in Table GEN 3.5.8, SIGMET service, and in the explanatory text relating to the table. The table includes:

- name of the meteorological watch office issuing SIGMET, location indicator;
- hours of service;
- types of SIGMET information and validity periods (i.e. SIGMET — validity 4 hours. SIGMET for volcanic ash or tropical cyclones — validity up to 6 hours);

- specific procedures that may apply in the State concerned;
- ATS units served (ACCs, FICs with which the MWO is associated);
- additional information.

Note.— If AIRMET information is issued by an MWO in accordance with regional air navigation agreement to support low-level flight operations, Table GEN 3.5.8 should be extended to include similar specifications related to AIRMET messages.

These specifications should be supplemented by the following information:

8.1 General

- description of the meteorological watch maintained in the State concerned;
- MWOs maintaining the watch and their functions;
- detailed specifications concerning the area over which the watch is maintained and within which individual types of SIGMET are issued (FIRs/control areas and/or their parts, both in terms of horizontal and vertical limits);
- the VAAC (if applicable) and TCAC (if applicable) associated with the MWOs.

8.2 Area meteorological watch

- types of SIGMET issued;
- specific procedures applied to the issuance of SIGMET (e.g. validity period, numbering, description/definition/indication of required weather phenomena in SIGMET);

Note.— It should be noted that the relevant procedures in Annex 3, 7.1 and 7.2 should be adhered to, to the maximum possible extent.

- dissemination of SIGMET, special and non-routine air-reports to aircraft by ATS units;
- dissemination to aircraft of volcanic ash advisories by ACCs/FICs (if applicable).

Note.— Similar material concerning AIRMET information should be incorporated in this section if these messages are issued in accordance with regional air navigation agreement.

8.3 Warning service

This section contains detailed specifications and procedures concerning aerodrome warnings and wind shear warnings, which were not given in 4:

- aerodromes for which aerodrome and/or wind shear warnings are issued;
- criteria for the issuance of aerodrome warnings (at individual aerodromes);

- procedures for the issuance of aerodrome and wind shear warnings;
- dissemination procedures.

9. Other automated meteorological services

Table GEN 3.5.9, Other automated meteorological services, includes specifications concerning, for example, automated information systems established in the State concerned to provide OPMET information to aeronautical users. Information concerning self-briefing systems, systems through which flight documentation can be obtained and systems providing OPMET information to support low-level flights, including VFR flights, may be also presented in the table. Specifications to be included in the table are as follows:

- service name;
- information available;
- areas, routes and aerodromes covered;
- telephone, facsimile numbers (e-mail addresses to access the systems) and remarks.

PART 3 AERODROMES (AD)

AD 2. AERODROMES

EADD AD 2.3 OPERATIONAL HOURS

6. MET Briefing Office

Provides the hours of operation of the MET Briefing Office.

EADD AD 2.11 METEOROLOGICAL INFORMATION PROVIDED

Provides a detailed description of the meteorological information provided at the EADD aerodrome, including:

- name of the associated MET office (to the aerodrome concerned);
- hours of service (of the associated office), the meteorological office providing the service outside the hours of service of the associated meteorological office;
- office responsible for TAF preparation, periods of validity (of the TAF Issued);
- trend forecast issued, interval of issuance;
- briefing/consultation provided;

- flight documentation, languages used;
- charts and other information available for briefing or consultation;
- supplementary equipment available for providing information (e.g. facsimile, self-briefing terminals);
- ATS units provided with information (TWR, APP);
- additional information (limitation of service, etc.).

AD 3. HELIPORTS

EADH AD 3.3 OPERATIONAL HOURS

6. MET Briefing Office

Provides the hours of operation of the MET Briefing Office.

EADH AD 3.11 METEOROLOGICAL INFORMATION PROVIDED

Provides a detailed description of the meteorological information provided at the EADH heliport, including:

- name of the associated MET office (to the heliport concerned);
- hours of service (of the associated office), the meteorological office providing the service outside the hours of service of the associated meteorological office;
- office responsible for TAF preparation, periods of validity (of the TAF issued);
- trend forecast issued, interval of issuance;
- briefing/consultation provided;
- flight documentation, languages used;
- charts and other information available for briefing or consultation;
- supplementary equipment available for providing information (e.g. facsimile, self-briefing terminals);
- ATS units provided with information (TWR, APP);
- additional information (limitation of service, etc.).