



Agenda Item 4: Implementation of SIGMET

(Presented by the Secretariat)

SUMMARY

This working paper presents the results of the Second Meeting of the Meteorological Warning Study Group (METWSG/2) and information on the implementation status of SIGMET information in the CAR/SAM States.

References:

- Report of METWSG/2, Montreal, Canada, 19 to 21 May 2009);
- Report of METWSG/1 Meeting, Montreal, Canada, 20 to 22 November 2007);
- Report of GREPECAS/15, Rio de Janeiro, Brazil, 13 to 17 de October 2008;
- Report of GREPECAS/13, Santiago de Chile, Chile, 14 to 18 de November 2005; and
- Report of SADISOPSG/13; Dakar, Senegal, 27 to 29 de May 2008.

1. Introduction

1.1 The main task of the ICAO Meteorological Warning Study Group (METWSG) is to review the current provisions in Annex 3 – *Meteorological Services for International Air Navigation* concerning related to the content and issuance of SIGMET to meet the evolving needs of flight operations and in view of resolving the persistent implementation problems with the availability of SIGMET.

1.2 In addition, the Group is expected to address the legacy task of the Low Level Wind Shear and Turbulence Study Group (WISTG) related to the provision for wind shear warning and alerts. This would also involve the assessment of the need to develop criteria for the provision of warnings for rotor zones in the terminal area and the need to provide information on low-level temperature inversions.

1.3 Complete information on METWSG meetings can be found in its website: <http://www2.icao.int/en/anb/met-aim/met/metwsg/Lists/Meetings/AllItems.aspx>.

2. Discussion

a) Review of the outcome of the METWSG/2 Meeting

2.1 When discussing Agenda Item 5 – Content and issuance of SIGMET, the Meeting recalled that the Thirteenth Meeting of the Satellite Distribution Systems Operations Group (SADISOPSG/13, May 2008), noted with concern the results of the monitoring that had shown occurrences of significant deficiencies in SIGMET format compliance and in the incorrect routing format with particular reference to the first line of the SIGMET. The results had been disappointing in that only 29 per cent of the samples during a 14-day period had been in compliance as far as the identification of the FIR was concerned.

2.2 In this regard, and considering that the Brasilia International OPMET Databank carries out four annual controls of OPMET information received from the CAR/SAM Regions, and that in their control it analyzes the most common errors, perhaps the Meeting could agree to request the referred bank that when developing the afore mentioned analysis give priority to SIGMET errors and, as included in their procedures, send this information to the SAM Office for its further submission to the States concerned. In this context, the Meeting could agree to formulate the following draft conclusion:

DRAFT

CONCLUSION 10/XX – MONITORING OF SIGMET RECEIVED IN BRASILIA INTERNATIONAL OPMET DATABANK

That, in the controls of OPMET information carried out by the Brasilia International Databank:

- a) priority is given to the analysis of most common errors in SIGMET;
- b) the results be sent to ICAO SAM Office; and
- c) ICAO Lima and Mexico offices submit the monitoring results to the corresponding States for them to take the pertinent actions to correct the deficiencies detected.

2.3 During the Second Meeting of the Meteorological Warning Study Group (METWSG/2), carried out from 19 to 21 May 2009 in Montreal, Canada, it was agreed that the ad hoc Group established in the METWSG/1 by Action agreed 1/2, should consider the improvement of the existing framework and the development of draft provisions with a view to use regional cooperation, in particular where resources at MWOs are deemed insufficient to cope with the requirements.

2.4 In addition, the group had foreseen the development of proposals to improve training related to SIGMET, with regular testing and real-time monitoring and extend successful measures to all ICAO regions.

2.5 The group also agreed that it was prudent to conduct a feasibility study during a reasonable period in a region where this type of problems have occurred, in order to introduce SIGMET advisory information to be issued by designated regional centres, similar to volcanic ash advisories and

tropical cyclones, thus, agreed Action 2/1 – Feasibility study into issuance of SIGMET advisory information from selected regional centres.

b) Implementation issues

2.6 The implementation status of conclusions formulated by GREPECAS/15 was presented in Appendix A to WP/02. Concerning Conclusion 15/12 – Back-up MWOs in the CAR/SAM States, **Appendix A** presents a list prepared by NACC and SAM Regional Offices of the back-up MWOs to be included in the CAR/SAM SIGMET Guide. In this regard, the Meeting could agree to formulated the following draft conclusion:

DRAFT

CONCLUSIÓN 10/XX – BACK-UP MWOs IN THE CAR/SAM STATES

That,

- a) in order to comply with paragraph 13 of ANP Basic, Part VI – MET, if a MWO is temporarily not functioning another could face its obligations, the back-up list included as Appendix XX¹ to this part of the report should be taken into account;
- b) the Secretariat make the necessary updates to CAR/SAM SIGMET Guide.

2.7 With regard to Conclusion 15/13 – Increased frequency of bi-annual periodic SIGMET WV tests, the Meeting could take note that in compliance with the referred conclusion, the days 17 and 18 of December 2008 and 20 and 31 May 2009 the corresponding SIGMET tests were carried out. The results of the analysis of the referred tests will be presented by the Rapporteur of the Volcanic ash Task Force.

2.8 The Meeting could take note that during the update of the SIGMET Guide, it was observed that the States are not informing, in due course, the changes in the contact information of the ACC, MWO and NOTAM international offices (NOF) under the responsibility of VAAC Buenos Aires and Washington, which is also included in Part 5 of *Doc 9766-AN/69 – Handbook on the International Airways Volcano Watch (IAVW) – Operational Procedures and Contact List*. In this regard, it is expected that during the meeting, the relevant information shown in Appendices K and L of the referred Guide, and included as **Appendices B** and **C** to this working paper, is revised and updated, as necessary.

2.9 Considering the above, the meeting may wish to note that meteorological authorities should review their procedures, in particular those regarding meteorological watch offices, in order to inform Lima and Mexico regional offices about changes in the contact information of the area control centres (ACC), NOTAM international offices (NOF), vulcanological observatories or in meteorological watch offices, in order to update the information of the Regional SIGMET Guide and update the International Airways Volcano Watch Operations Group (IAVWOPSG) Contact List.

¹ Appendix XX corresponds to Appendix C of WP/05

3. **Action required**

3.1 The subgroup is invited to:

- a) consider the information presented in this working paper;
- b) review and, if necessary, update the information presented in Appendices B and C;
and
- c) based on the discussions, consider the approval of the draft conclusions presented in paragraphs 2.2 and 2.6.

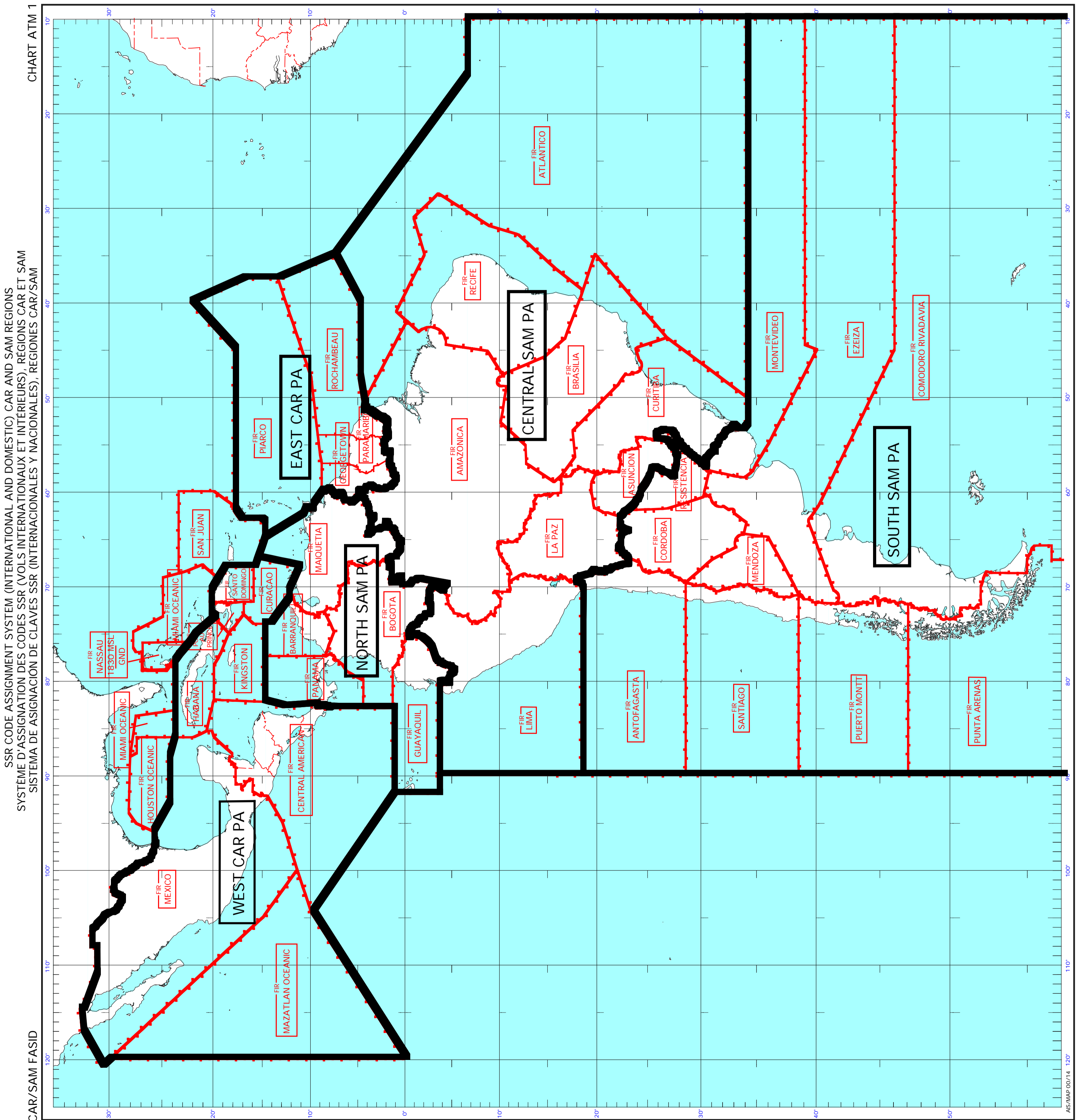
APPENDIX A

BACK-UP METEOROLOGICAL WATCH OFFICE (MWO)

Meteorological Watch Office	ICAO Location Ind.	Back-up Meteorological Watch Office	ICAO Location Ind.
ARGENTINA		ARGENTINA	
BUENOS AIRES/Aeroparque, Jorge Newbery	SABE	COMODORO IVADAVIA/General Mosconi	SAVC
COMODORO RIVADAVIA/General Mosconi	SAVC	BUENOS AIRES/Aeroparque, Jorge Newbery	SABE
CORDOBA/Ing. Aer. A.L. Taravela	SACO	RESISTENCIA/Resistencia	SARE
MENDOZA/El Plumerillo	SAME	BUENOS AIRES/Aeroparque, Jorge Newbery	SABE
RESISTENCIA/Resistencia	SARE	CORDOBA/Ing. Aer. A.L. Taravela	SACO
BOLIVIA		PERÚ	
LA PAZ/El Alto Intl	SLLP	LIMA-CALLAO/Jorge Chávez Intl	SPIM
BRAZIL		BRAZIL	
BRASILIA/CINDACTA I	SBBS	RECIFE/CINDACTA III	SBAZ
CURITIBA/CINDACTA II	SBCW	BRASILIA/CINDACTA I	SBBS
RECIFE/CINDACTA III	SBAZ	MANAUS/CINDACTA IV	SBRE
MANAUS/CINDACTA IV	SBRE	RECIFE/CINDACTA III	SBAZ
CHILE		CHILE	
ANTOFAGASTA/Cerro Moreno	SCFA	SANTIAGO/Arturo Merino Benítez	SCEL
PUERTO MONTT/El Tepual	SCTE	PUERTO MONTT/El Tepual	SCTE
PUNTA ARENAS/Pdte. C. Ibáñez del Campo	SCCI	PUNTA ARENAS/Pdte. C. Ibáñez del Campo	SCCI
SANTIAGO/Arturo Merino Benítez	SCEL	ANTOFAGASTA/Cerro Moreno	SCFA
COLOMBIA		PANAMÁ	
BOGOTÁ/Eldorado	SKBO	PANAMA/Tocumen Intl	MTPO
CUBA		JAMAICA	
HABANA/José Martí Intl	MUHA	KINGSTON/Norman al Manley Intl	MKJP
DOMINICAN REPUBLIC		UNITED STATES	
SANTO DOMINGO/De Las Américas Intl	MDSB	Kansas City Aviation Weather Center	KKCI
ECUADOR		BOLIVIA	
GUAYAQUIL/José Joaquín de Olmedo	SEGU	LA PAZ/El Alto Intl	SLLP
FRENCH GUIANA (France)		FRENCH GUIANA (France)	
CAYENNE/Rochambeau	SOCA	PORT OF SPAIN/Piarco Intl, Trinidad I.	TTPP
GUYANA		TRINIDAD AND TOBAGO	
TIMEHRI/Cheddi Jagan Intl	SYCJ	PORT OF SPAIN/Piarco Intl, Trinidad I.	TTPP
HAITI		JAMAICA	
PORT-AU-PRINCE/Port-au-Prince Intl	MTPT	KINGSTON/Norman al Manley Intl	MKJP
HONDURAS		PANAMA	
TEGUCIGALPA/Toncontin Intl	MHTG	PANAMA/Tocumen Intl	MTPO
JAMAICA		UNITED STATES	
KINGSTON/Norman al Manley Intl	MKJP	Kansas City Aviation Weather Center	KKCI
MEXICO		UNITED STATES	
MEXICO/Lic. Benito Juárez Intl	MMMX	Kansas City Aviation Weather Center	KKCI
NETHERLANDS ANTILLES (Netherlands)		JAMAICA	
WILLEMSTAD/Hato, Curaçao I.	TNCC	KINGSTON/Norman al Manley Intl	MKJP
PANAMA		COLOMBIA	
PANAMA/Tocumen Intl	MTPO	BOGOTÁ/Eldorado	SKBO
PARAGUAY		ARGENTINA	
ASUNCION/Silvio Pettrossi	SGAS	RESISTENCIA/Resistencia	SARE

PERU		BRAZIL	
LIMA-CALLAO/Jorge Chávez Intl	SPIM	MANAUS/CINDACTA IV	SBRE
SURINAME		TRINIDAD AND TOBAGO	
ZANDERY/Johan Adolf Pengel Intl	SMJP	PORT OF SPAIN/Piarco Intl, Trinidad I.	TTPP
TRINIDAD AND TOBAGO		UNITED STATES	
PORT OF SPAIN/Piarco Intl, Trinidad I.	TTPP	Kansas City Aviation Weather Center	KKCI
UNITED STATES		UNITED STATES	
Kansas City Aviation Weather Center	KKCI	Kansas City Aviation Weather Center	KKCI
URUGUAY		ARGENTINA	
MONTEVIDEO/Carrasco Intl Gral. Cesáreo L. Berisso	SUMU	BUENOS AIRES/Aeroparque, Jorge Newbery	SABE
VENEZUELA		BRAZIL	
CARACAS/Simon Bolivar Intl, Maiquetia	SVMI	MANAUS/CINDACTA IV	SBRE

ANEXO / ANNEX



APPENDIX B

(Appendix K of CAR/SAM SIGMET Guide, Eighth Edition)

**Contact information of the ACC, MWO, NOF and Volcano Observatories of CAR/SAM States
under the responsibility of VAAC Buenos Aires**

VAAC BUENOS AIRES:**AFTN: SAZZMAMX Tel. (5411) 5167 6767 Ext. 18238/18233****Tel: (5411) 5167 6767 Ext. 18238/18233/18103 / 5167 6705****Tel. Optional: (5411) 5167 6767 Ext. 18235 / 5167 6707 Fax: (5411) 5167 6709****Website: <http://www.ssd.noaa.gov/VAAC/OTH/AG/messages.html>****E-mail Operational: ymsr@smn.gov.ar / buevacc@smn.gov.ar / sovaacbue@smn.gov.ar (Mr. Carlos Severo Iglesias, VAAC Supervisor)****E-mail Optional: metaer@smn.gov.ar / cbenitez@smn.gov.ar (Lic. Carlos Manuel Benítez, VAAC Director)**

STATE	Name	ICAO Location Indicator	AFTN	Telephone (24 hours)	Fax (24 hours)	E-mail
ARGENTINA						
Observatorio u Organismo de Vulcanología	Servicio Geológico y Minero Argentino (SEGEMAR)	N/A	N/A	(5411) 4349 - 3176	(5411) 4349 - 3176	olapid@secind.mecon.gov.ar
FIR EZEIZA						
ACC	Ezeiza	SAEF	SAEZZRZX	(5411) 4480 - 2203	(54 11) 4480 - 2203	
MWO	Aeroparque	SABE	SABEYMYX SAZZMAMX	(5411) 4514 - 1612	(54 11) 4514 - 1612	omaer@meteofa.mil.ar
FIR CORDOBA						
ACC	Córdoba	SACF	SACOZRZX	(54351) 4335 - 350	(54351) 4335 - 350	accba@hotmail.com
MWO	Córdoba	SACO	SACOYMYX SAZZMAMX	(54351) 4341 - 479	(54 351) 4756 - 427	omacba@meteofa.mil.ar
FIR MENDOZA						
ACC	Mendoza	SAMF	SAMEZRZX	(54261) 4487 - 486	(54261) 4487 - 486	apelplumerillo@ciudad.com.ar
MWO	Mendoza	SAME	SAMEYMYX SAZZMAMX	(54261) 4487 - 468	(54 261) 4487 - 468	omadoz@meteofa.mil.ar
FIR COMODORO RIVADAVIA						
ACC	Comodoro Rivadavia	SAVF	SAVCZRZX	(54297) 4548 - 375		
MWO	Comodoro Rivadavia	SAVC	SAVCYMYX SAZZMAMX	(54297) 4548 - 018	(54297) 4548 - 018	omacrv@meteofa.mil.ar
FIR RESISTENCIA						
ACC	Resistencia	SARR	SAREZRZX	(54372) 2440 - 939	(54372) 2440 - 939	
MWO	Resistencia	SARE	SAREYMYX SAZZMAMX	(54372) 2436 - 278	(54372) 2436 - 285	omasis@meteofa.mil.ar
NOF	Ezeiza	SAEZ	SAEZYNYX	(5411) 4480 - 2260	(54 11) 4480 - 2260	notamezeiza@yahoo.com.ar

STATE	Name	ICAO Location Indicator	AFTN	Telephone (24 hours)	Fax (24 hours)	E-mail
BOLIVIA						
FIR LA PAZ						
ACC	La Paz	SLLP	SLLPZRZX	(5912) 2810 - 203	(5912) 2810 - 203	
MWO MWO con VAAC Bs As.	La Paz	SLLP	SLLPYMYX	(5912) 2114 - 232 (5912) 2124 - 129	(5912) 2316 - 686	ovmbolivia@yahoo.es
NOF	La Paz	SLLP	SLLPYNYX	(5912) 2351 - 305 int. 152	(5912) 2370 - 341	aisbolivia@yahoo.es
BRASIL/BRAZIL						
FIR AMAZONICA						
ACC	Amazónico	SBAZ	SBAZZRZX	(5592) 3652 - 5318	(5592) 3625 - 5425	
MWO	Amazónico	SBAZ	SBMUYFTH	(5592) 3652 - 5375 (5592) 3652 - 5384		cmvmanaus@bol.com.br
FIR BRASILIA						
ACC	Brasilia	SBBS	SBBRZRZX	(5561) 3364 - 8404	(5561) 3365-1256	
MWO	Brasilia	SBBS	SBBSYMYX	(5561) 3364 - 8358		cmvbrasil@ig.com.br
FIR RECIFE						
ACC	Recife	SBRE	SBRFZRZX	(5581) 3462 - 2742	(5581) 3462 - 4927	
MWO	Recife	SBRE	SBREYMYX	(5581) 2129 - 8093 (5581) 2129 - 8094		cmvre@ig.com.br
FIR ATLANTICO						
ACC	Atlántico	SBAO	SBAOZRZX	(5581) 3322- 4107		
MWO	Recife	SBRE	SBREYMYX	(5581) 2129 - 8093 (5581) 2129 - 8094		cmvre@ig.com.br
FIR CURITIBA						
ACC	Curitiba	SBCW	SBCWZRZX	(5541) 3356 - 3475 (5541) 3356 - 5509	(5541) 3251 - 5484	
MWO	Curitiba	SBCW	SBCWYMYX	(5541) 3356 - 6216 (5541) 3356 - 5367		cmvct@softone.com.br
NOF	Brasilia	SBBR	SBBRYNYX	(5561) 3364 - 8353		nofbrazil@cindacta1.aer.mil.br
CHILE						
Observatorio u Organismo de Vulcanología	Southern Andes Volcano Observatory (SAVO)	N/A	N/A	(5645) 270 - 700 Cel.: (5645) 09 643 0245	(5592) 625 0371	dvasualto@sernageomin.cl hmoreno@sernageomin.cl
	SERNAGEOMIN, Santiago	N/A	N/A	(562) 737 - 5050 Cel.: (56 45) 09 649 5377	(562) 737 9253	jnaranjo@sernageomin.cl josénaranjo@manquehue.net
FIR ANTOFAGASTA						
ACC	Antofagasta	SCFA	SCFAZRZX	(5655) 227 944 Anexo 1425	N/A	appantofagasta@dgac.cl
MWO	Antofagasta	SCFA	SCFAYMYX SCZZMAMX	(5655) 227 - 944 Anexos 1421, 1460, 1466	(5655) 225 - 022	cmnorte@dgac.cl jaravena@dgac.cl Página Web: www.dimetchi.cl
FIR SANTIAGO						
ACC	Santiago	SCEL	SCELZRZX	(252) 767 - 2001 (562) 436 - 3004	(562) 7671 - 636	cta.accu@dgac.cl cta_acol@dgac.cl

STATE	Name	ICAO Location Indicator	AFTN	Telephone (24 hours)	Fax (24 hours)	E-mail
MWO	Santiago	SCEL	SCELYMYX SCZZMAMX	(562) 601 - 9214 (562) 436 - 3224 (562) 436 - 3435	(562) 6019 - 214	metaer@meteochile.cl bcoopmet@meteochile.cl
NOF	Santiago	SCEL	SCELZPZX	(562) 436 - 3227	(562) 601 - 9366	operaciones_amb@dgac.cl
FIR PUERTO MONTT						
ACC	Puerto Montt	SCTE	SCTEZRZX	(5665) 486 - 234 (5665) 486 - 236	(5665) 486 - 298	evasquez@dgac.cl
MWO	Puerto Montt	SCTE	SCTEYMYX SCZZMAMX	(5665) 486 - 225 (5665) 486 - 226	(5665) 486 - 226	meteozonasur@dgac.cl
FIR PUNTA ARENAS						
ACC	Punta Arenas	SCCI	SCCIZRZX	(5661) 219 - 131 Anexo 5414, 5474	(5661) 219 - 131	fortiz@dgac.cl
MWO	Punta Arenas	SCCI	SCCIYMYX SCZZMAMX	(5661) 219 - 131 Anexos 5464 y 5423	(5661) 219 - 131 Anexo 5464	meteoparenas@dgac.cl
PARAGUAY						
FIR ASUNCION						
ACC	Asunción	SGFA	SGASZRZX	(59521) 646 - 082	(59521) 646 - 082	acc_sgac@dinac.gov.py
MWO	Asunción	SGAS	SGASYMYX SGZZMAMX	(59521) 646 - 095	(59521) 646 - 095	aeronautica_dmh@dinac.gov.py
NOF	Asunción	SGAS	SGASYNYX	(59521) 646 - 952	(59521) 646 - 952	ais.ad_nof@hotmail.com
PERU						
Observatorio u Organismo de Vulcanología	Instituto Geofísico del Perú Arequipa	N/A	N/A	(5154) 251 - 373	(5154) 251 - 373	Orlando Macedo omacedo@geo.igp.gob.pe
	Instituto Geofísico del Perú Lima	N/A	N/A	(511) 317 - 2325	(511) 317 - 2321	Edmundo Norabuena enorab@nazca.igp.gob.pe
FIR LIMA-CALLAO						
ACC	Lima-Callao	SPIM	SPIMZQZX	(511) 630 1157 (511) 630 1158 (511) 575 0886 (511) 575 1995		acclima@corpac.gob.pe jmontalvo@corpac.gob.pe
MWO	Lima-Callao	SPIM	SPIMYMYX SPZZMAMX	(511) 630 1181 (511) 630 1180	(511) 630 1180	pronostico@corpac.gob.pe
NOF	Lima-Callao	SPIM	SPIMYNYX SPIMYOYX	(511) 630 1173 (511) 630 1172 (511) 414 1435 (511) 414 1288	(511) 414 1435	aisaro@corpac.gob.pe
URUGUAY						
FIR MONTEVIDEO						
ACC	Montevideo	SUEO	SUEOZQZX	(5982) 6040 - 295	(5982) 6040 - 298	jopdta@adinet.com.uy
MWO	Montevideo	SUMU	SUMUYMYX	(5982) 2001 - 807	(5982) 6040 - 242	dmae@adinet.com.uy
NOF	Montevideo	SUMU	SUMUYNYX	(5982) 6040 - 067	(5982) 6040 - 067	ais@adinet.com.uy

APPENDIX C

**Contact information of the ACC, MWO, NOF and Volcano Observatories of CAR/SAM States
under the responsibility of VAAC Washington**

VAAC WASHINGTON:**AFTN: KWBCYMYX****Tel.: 1 301 763 8444/8298 Fax: 1 301 763 8333/8592****Sitio web: <http://www.ssd.noaa.gov/VAAC/washington.html>****E-mail: w-vaac@noaa.gov Grace.Swanson@noaa.gov**

STATE	Name	ICAO Loc. Indicator	AFTN	Telephone (24 hours)	Fax (24 hours)	E-mail
BRAZIL						
FIR AMAZONICA						
ACC	Amazonico	SBAZ	SBAZZRZX	(5592) 3652 5318	(5592) 3652 5425	
MWO	Amazonico	SBAZ	SBMUYFTH	(5592) 3652 5375 (5592) 3652 5384		cmvmanaus@bol.com.br
FIR BRASILIA						
ACC	Brasilia	SBBS	SBBRZRZX	(5561) 3364 8404	(5561) 3665 1256	
MWO	Brasilia	SBBS	SBBSYMYX	(5561) 3364 8358		cmvbrasil@ig.com.br
FIR RECIFE						
ACC	Recife	SBRE	SBRFZRZX	(5581) 3462 2742	(5581) 3462 4927	
MWO	Recife	SBRE	SBREYMYX	(5581) 2129 8093 (5581) 2129 8094		cmvre@ig.com.br
FIR ATLANTICO						
ACC	Atlántico	SBAO	SBAOZRZX	(55 81) 3322 4107		
MWO	Recife	SBRE	SBREYMYX	(55 81) 2129 8093 (55 81) 2129 8094		cmvre@ig.com.br
FIR CURITIBA						
ACC	Curitiba	SBCW	SBCWZRZX	(5541) 3356 3475 (5541) 3356 5509	(5541) 3251 5484	
MWO	Curitiba	SBCW	SBCWYMYX	(5541) 3356 6216 (5541) 3356 5367		cmvct@softone.com.br
NOF	Brasilia	SBBR	SBBRYNYX	(5561) 3468 8353		nofbrazil@cindacta1.aer.mil.br
COLOMBIA						
Volcano Observatory or Organization	Manizales	N/A	N/A	(5768) 843 020	(5768) 843 018	ovsm@ingeominas.gov.co
	Pasto	N/A	N/A	(5727) 314 752 (5727) 310 514 (5727) 312 595	(5727) 310 514	ovt@ingeominas.gov.co
	Popayan	N/A	N/A	(5728) 242 341 (5728) 242 057 (5728) 240 210	(5728) 241 255	

STATE	Name	ICAO Loc. Indicator	AFTN	Telephone (24 hours)	Fax (24 hours)	E-mail
FIR BARRANQUILLA						
ACC	Barranquilla	SKBQ	SKBQZQZX	(575) 3348 075 (575) 3348 503	(575) 3348 503	Maritza.lopez@aerocivil.gov.co
MWO	Bogotá	SKBQ	SKBQYMYX	(571) 4138 792 (571) 2662 481	(571) 4138 440	
FIR BOGOTA						
ACC	Bogotá	SKBO	SKBOZQZX	(571) 4139 998 (571) 2663 460 (571) 4135 445	(571) 4135 376	jcramirez@aerocivil.gov.co
MWO	Bogotá	SKBO	SKBOYMYX	(571) 4138 792 (571) 2662 481	(571) 4138 440	fhidalgo@ideam.gov.co
NOF	Bogotá	SKBO	SKBOYNYX	(571) 2662 552	(517) 4138 631	ais@aerocivil.gov.co
CUBA						
FIR HAVANA						
ACC	La Habana	MUHA	MUFHZQZX	(537) 642 1185	(537) 642 1185	superacc@aeronav.ecasa.avianet.cu
MWO	La Habana	MUHA	MUHAYMYX	(537) 642 6168	(537) 642 6168	meteof@aeronav.ecasa.avianet.cu aduran@aeronav.ecasa.avianet.cu
NOF	La Habana	MUHA	MUHAYNYX	(537) 266 4497	(537) 266 4497	notam@aeronav.ecasa.avianet.cu
DOMINICAN REPUBLIC						
FIR SANTO DOMINGO						
ACC	Santo Domingo	MDCS	MDCSZQZX	8095490692	8095490692	dgta@idac.gov.do
MWO	OVM	MDSO	MDSYMYX	8095491291	8095490256	avionaila@yahoo.com
NOF	Ofic. NOTAM Intl.	MCSC	MDSYNYX	8095490095	8095490095	ais@idac.gov.do
ECUADOR						
Volcano Observatory or Organization	Instituto Geofísico, Quito	N/A	N/A	(5932) 2225 655 (5932) 2225 627	(5932) 2567 847	geofisico@igepn.edu.ec geofisico@accessinter.net http://www.igepn.edu.ec
FIR GUAYAQUIL						
ACC	Guayaquil	SEGU	SEGUZQZX	(5934) 2282 851	(5934) 2396 073	accgye@dgac.gov.ec
MWO	Guayaquil	SEGU	SEGUYMYX	(5934) 2392 712	(5934) 2283 748	meteorologiagye@dgac.gov.ec fmancero@dgac.gov.ec
NOF	Guayaquil	SEGU	SEGUYNYX	(5934) 2285 661	(5934) 2285 661	notam_intl_gye@hotmail.com
FRENCH GUIANA						
FIR ROCHAMBEAU						
ACC	Rochambeau	SOCA	SOOZQZX	(594) 359 306	(594) 359 398	gilles.esser@aviation-civile.gouv.fr
MWO	CVM Rochambeau	SOCA	SOCAYMYX	(594) 353 535	(594) 356 089	philippe.livenais@meteo.fr
NOF	Rochambeau	SOCA	SOOYNYX	(594) 359 3 08	(594) 304 124	gilles.esser@aviation/civile.gouv.fr
GUYANA						
Volcano Observatory or Organization	Guyana Geology and Mines Commission			(5922) 53047	(5922) 53047	ggmc@sdpn.org.gy
FIR GEORGETOWN						
ACC	Georgetown	SYCJ	SYCJZQZX	(592) 2612 245	(592) 2612 279	
MWO	Timehri	SYCJ	SYCJYMYX	(592) 2612 216	(592) 2612 284	s.h.williams@hydromet-gv
NOF	Timehri	SYCJ	SYCJYNYX	(592) 2612 269	(592) 2612 279	ais@gcaa-gy.org

- C3 -

STATE	Name	ICAO Loc. Indicator	AFTN	Telephone (24 hours)	Fax (24 hours)	E-mail
HAITI						
FIR PORT AU PRINCE						
ACC	Port au Prince		MTEGZQZX			
MWO	Port au Prince	MTPP	MTPPYMYX	(509) 3406 0258		cnmhaiti@yahoo.fr
NOF			MTPPYNYX			
HONDURAS						
FIR CENTRAL AMERICAN						
ACC	Tegucigalpa	MHTG	MHTGZQZX	(504) 2331 503	(504) 2331 219	
MWO ¹	Tegucigalpa	MHTG	MHTGYMYX	(504) 2331 111 (504) 2337 114	(504) 2349 500	met_aerohonduras@smn.gob.hn
NOF	Tegucigalpa	MHTG	MHTGYNYX	(504) 2331 141/42/43 (504) 2331 349 (504) 2342 407	(504) 2331 141 (504) 2331 349	
JAMAICA						
FIR KINGSTON						
ACC	Kingston		MKJKZQZX			
MWO	Kingston	MKJP	MKJPYMYX	(876) 924 8055	(876)924 8670	metoffice@cwjamaica.com
NOF			MKJPYNYX			
MEXICO						
MEXICO Volcano Observatory or Organization FIR	Centro Nacional de Prevención de Desastres (CENAPRED)			(5255) 56068837 (5255) 5424 6100	(5255) 5606 1608	rqw@cenapred.unam.mx http://www.cenapred.unam.mx
	Centro Universitario de Investigación en Ciencias del Ambiente, Universidad de Colima			(52312) 3161 137 Ext. 51151	(52312) 3161 137 Ext. 31152	galindo@ucol.mx http://www.ucol.mx/volcan
	Instituto de Geofísica, UNAM Observatorio de volcanes, Universidad de Colima			(52312) 3161 134 Ext. 47208	(52312) 3161 134 Ext. 47208	tonatiuh@cgic.ucol.mx
FIR MAZATLÁN OCEANIC						
FIC	Radio Mexico	MMID	MMIDZQZX	(52999) 9461 347	(52999) 9461 237	centromerida@hotmail.com
MWO	México	MMMXX	MMMXYMYT	(5255) 5716 6678	(5255) 5802 8519	hvergast@sct.gob.mx

STATE	Name	ICAO Loc. Indicator	AFTN	Telephone (24 hours)	Fax (24 hours)	E-mail
FIR MEXICO						
ACC	Centro Mexico Centro Merida Centro Mazatlan Centro Monterrey	MMEX MMID MMZT MMTY	MMEXZQZX MMIDZQZX MMZTZQZX MMTYZQZX	(5255) 5716 6655 (52999) 9461 347 (52669) 9181 092 (5281) 8369 0846	(5255) 5716 4199 (52999) 9461 237 (52669) 9822 820 (5281) 8369 0884	centro_mexico@yahoo.com centromerida@hotmail.com josegalindo@hotmail.com felipe1822@yahoo.com.mx
MWO	Centro de Análisis y Pronósticos Meteorológicos Aeronáuticos (CAPMA), SENEAM, SCT.	MMM	MMMXYMYT	(5255) 5716-6678	(5255) 5802 8519	hvargast@sct.gob.mx capma@sct.gob.mx
NOF	México	MMM	MMMXYNYX	(55) 5716-6615	(5255) 5716 6615	javillanu@sct.gob.mx
NETHERLANDS ANTILLES						
FIR CURACAO						
ACC	Curacao		TNCFZQZX			
MWO	Curacao	TNCC	TNCCYMYX	(599) 9839 3360	(599) 9869 2699	cur-met@meteo.an
NOF			TNCCYNYX			
PANAMA						
Volcano Observatory or Organization	Instituto de Geociencia			(507) 523 2071 (507) 523 2072 (507) 269 5744	(507) 2637671	igc2@ancon.up.ac.pa
FIR PANAMA						
ACC	Panamá	MPZL	MPZLZQZX MPPCICPX	(507) 5019807	(507) 5019849	mailto@aeronautica.gob.pa
MWO	Panamá	MPTO	MPTOYMYX	(507) 2382611 (507) 2382650	(507) 2384678	meteortoc@aeronautica.gob.pa
NOF	Panamá	MPTO	MPTOYNYX	(507) 2382615 (507) 2382616	(507) 2382617	aisnof@aeronautica.gob.pa
PERU						
Volcano Observatory or Organization	Instituto Geofísico del Perú Arequipa	N/A	N/A	(5154) 251 373	(5154) 251 373	Orlando Macedo omacedo@geo.igp.gob.pe
	Instituto Geofísico del Perú Lima	N/A	N/A	(511) 317 2325	(511) 317 2321	Edmundo Norabuena enorab@nazca.igp.gob.pe
FIR LIMA-CALLAO						
ACC	Lima-Callao	SPIM	SPIMZQZX	(511) 630 1157 (511) 630 1158 (511) 575 0886 (511) 575 1995		acclima@corpac.gob.pe jmontalvo@corpac.gob.pe
MWO	Lima-Callao	SPIM	SPIMYMYX SPZZMAMX	(511) 630 1181 (511) 630 1180	(511) 630 1180	pronostico@corpac.gob.pe
NOF	Lima-Callao	SPIM	SPIMYNYX SPIMYOYX	(511) 630 1173 (511) 630 1172 (511) 414 1435	(511) 414 1435	aisaro@corpac.gob.pe

- C5 -

STATE	Name	ICAO Loc. Indicator	AFTN	Telephone (24 hours)	Fax (24 hours)	E-mail
				(511) 414 1288		
SURINAME						
FIR PARAMARIBO						
ACC	Paramaribo	SMPM	SMPMZRX	(597) 325 203	(597) 325 453	atssur@sr.net
MWO	Zandery	SMJP	SMZZMAMX	(597) 325 206	(597) 325 206	meteoan@yahoo.com
NOF	Zandery	SMJP	SMJPFYX	(597) 325 270	(597) 325 270	aislvd@surimail.sr
TRINIDAD AND TABAGO						
FIR PIARCO						
ACC	Porto f Spain	TTZP	TTZPZQZX	(1 868) 669 4852	(1 868) 6694 259	
MWO	Port of Spain	TTPP	TTPPYMYX	(1 868) 669 4392	(1 868) 6694 727	
NOF	Port of Spain	TTPP	TTPPYNYX	(1 868) 669 4128 (1 868) 625 9843	(1 868) 6691 716	
UNITED STATES						
FIR SAN JUAN						
ACC	San Juan	TJZS	TJZSZQZX	(787) 2538665	(787) 253 8685	NA
MWO ²	Kansas City AWC	KWBC	KWBCYMYX	816 584 7269		
NOF	San Juan		TJZSYNYX	(305) 233 2600		
FIR NASSAU (LOWER AIR SPACE) AND MIAMI OCEANIC (UPPER AIR SPACE)						
ACC	Nassau	MYNA	MYNAZQZX	(242) 377 7108	(242) 377 2375	NA
ACC	Miami	KZMA	KZMAZQZX	(305) 716 1588	(305) 716 1511	NA
MWO ²	Kansas City AWC	KWBC	KWBCYMYX	816 584 7269		
NOF	Nassau		MYNAYNYX	(242) 377 7116		
VENEZUELA						
FIR MAIQUETIA						
ACC	Maiquetía	SVZM	SVZMZQZX	(58212) 355 - 2216	(58212) 355 2216	acc@inac.gov.ve
MWO	Maiquetía	SVMI	SVMIYMYX	(58212) 303 - 1522	(58212) 303 1522	ovmmaiquetia@inac.gov.ve
NOF	Maiquetía	SVMI	SVMIYNYX	(58212) 355 - 1325	(58212) 355 1325	nofmaiquetia@inac.gov.ve notam.maiquetia@inac.gov.ve

¹ MWO Tegucigalpa should coordinate the preparation of SIGMET(s) (WS, WV y WC) with the Aerodrome Meteorological Offices of all the Central American States and Belize and send them to the corresponding Aerodrome Meteorological Office.

² In accordance with CAR/SAM FASID Table MET 1B (page 1B-5).