



**Twentieth Meeting of the CAR/SAM Regional Planning and Implementation Group
 (GREPECAS/20)**

Salvador, Brazil, 16 – 18 November 2022

Agenda Item 2: Global and Regional Developments
 2.3 Programmes and Projects Progress Report

REPORT OF THE MET PROGRAM FOR THE SAM REGION

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This paper presents the MET activities that the SAM Region has developed since eCRPP/04.	
Action:	The suggested action is presented in Section 3.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none"> • Air Navigation Capacity and Efficiency • Economic Development of Air Transport • Environmental Protection
<i>References:</i>	<ul style="list-style-type: none"> • Annex 3 – Meteorological Services for International Air Navigation • Minutes of the Fourth Virtual Meeting of the GREPECAS Programmes and Projects Committee (ePPRC/4) • Meeting on MET Implementation Progress Review in the SAM Region • RLA/06/901 - ATS/AIS/MET Coordination Meeting • OPMET message exchange tests in IWXXM format. •

1. Introduction

1.1 The Secretariat has been monitoring the implementation of the MET area in accordance with the SARPs contained in ICAO Annex 3.

1.2 At the GREPECAS eCRPP/4 Meeting, three projects have been presented, one referring to the CAR Region and two referring to the SAM Region.

1.3 The SAM Region has held the Meeting on MET Implementation Progress Review to follow up on area implementations.

1.4 The SAM Region plans to carry out the ATS/AIS/MET Coordination Meeting, in October of this year, to review the issues that require coordination between the aforementioned areas.

1.5 The SAM Region has reviewed the Focal Points for the International Airways Volcano Watch (IAVW) and has issued recommendations in this regard.

2. Analysis

2.1 The Secretariat has worked on the implementation of the recommendations introduced by Amendment 79 to ICAO Annex 3, specifically regarding the issuance of homogeneous SIGMET messages, exchange of OPMET messages in IWXXM format, among other issues.

2.2 At the eCRPP/4 Meeting, the following Projects were presented:

- a) Assistance to States in the implementation of QMS MET for the CAR Region;
- b) SIGMET Coordination Project between MWOs covering adjacent Flight Information Regions (FIRs);
- c) Regional implementation of the ICAO Meteorological Information Exchange Model (IWXXM)

2.3 The Meeting, considering that the projects described in paragraphs b and c were for the SAM Region, through Conclusion eCRPP/4/03, their transmission to the States of the CAR Region was requested for their review and comments in order to extend the scope of the aforementioned Projects and convert them into CAR/SAM Projects. In this regard, the Secretariat informs that the two projects will have a CAR/SAM scope.

2.4 The Secretariat, with the support of the International OPMET Data Bank of Brasilia, carried out tests of exchange of OPMET messages, in IWXXM format, with the States of Cuba and Paraguay.

2.5 Additionally, teleconferences have been held among the OPMET Data Banks of Brasilia, Washington and London, in order to establish contacts and establish technical requirements for the exchange of OPMET messages, in IWXXM format, among the aforementioned Data Banks.

2.6 In addition, the Secretariat carries out follow-up activities, as well as capacity building, which are detailed below.

2.7 The Secretariat, with the support of Project RLA/06/901, is in the process of contracting an ISO 9001:2015 Lead Auditor Course for the States that make up the project. This course is for the purpose of generating capacities in the States to implement or maintain the Quality Management Systems implemented in the MET Processes.

2.8 The Secretariat carried out the ATS/AIS/MET Meeting to review the Coordination Agreements of the three areas, as well as the Contingency Plans that involve these areas. In this context, a VOLCEX (Volcanic Ash Exercise) will be planned for 2024, with the participation of all the parties involved. The Meeting has planned the holding of teleconferences during 2023 and a face-to-face meeting, for 2024, in order to carry out the necessary coordination for the VOLCEX.

2.9 Additionally, the Secretariat carried out the Meeting on MET Implementation Progress Review in May of this year. Due to the fact that one of the topics discussed in this meeting was the exchange of OPMET messages in IWXXM format, another meeting was held as a complement, on 4 July, to discuss

the requirements for the web-service that the OPMET Bank of Brasilia will made available to States. The results of the progress reviews can be seen in **Appendices A through G to this working paper**.

2.10 Regarding the IAVW, States have been urged to review the List of Focal Points and communicate to ICAO any difference found between the information available in the AIP and that found in ICAO Doc. 9766 – IAVW, and additionally to establish a procedure for constant updating.

2.11 Related to the revision of the Basic Building Blocks (BBBs), the proposal for the Seventh Edition of the Global Air Navigation Plan includes a mapping between the Protocol Questions (PQ) of the USOAP and the BBBs. Applying this mapping, it is possible to obtain and monitor the implementation of the BBBs for the MET area.

2.12 Considering that the delivery of aeronautical meteorological information, with assured quality, correct format and on time, is an enabler for the processes of Collaborative Decision Making (CDM), Collaborative Decision Making at the Aerodrome (A-CDM) and SWIM , the Meeting could consider the States, once again, to complete the implementation of the QMS processes and the exchange of OPMET messages in IWXXM format, and to establish the contingency plans for Volcanic Ash and Release of Radioactive Material.

2.13 The Meeting should also consider urging States to train MET personnel in order to comply with the Basic Training Package contained in WMO Publication 1083.

3. Suggested action

3.1 The Meeting is invited to:

- a) note the information in this working paper;
- b) support the actions required in items 2.9, 2.11, and 2.12; and
- c) present other actions that the meeting deems necessary.

APPENDIX A
Follow-up to the Implementation of the OPMET Message Exchange in IWXXM format

IWXXM Implementation – SAM Region			
STATES	Implemented	Current status of the Process	Date of probable implementation
Argentina	Implemented	Exchange tests	
Bolivia	No		Undated
Brazil	Implemented	Exchange tests with States of the SAM, CAR and EURNAT Regions	
Chile	No		March/2022
Colombia	No		Second semester/2022
Ecuador	No	Exchange tests with the OPMET Bank – Has a module that converts from TAC format to IWXXM format	First semester of 2022 via web-services until the process is completed by the AMHS (second semester of 2023)
Guyana	Implemented	Exchange tests with the OPMET Bank	
French Guyana			
Panama	No		End of 2022
Paraguay	No	Acquisition of the module to convert from TAC format to IWXXM	March 2022
Peru	No	Exchange tests with the OPMET Bank – Has a module that converts from TAC format to IWXXM format	End of 2022
Suriname	No	In process of acquisition	End of 2022
Uruguay	No	Has a module that converts from TAC format to IWXXM format.	Second semester of 2022 via web services until the process is completed by the AMHS
Venezuela	No	Exchange tests with the OPMET Bank – Has a module that converts from TAC format to IWXXM format	End of 2022

Monitoring of the Volcanic Ash Contingency Plan

Volcanic Ash Contingency Plans – SAM Region				
STATE	Areas involved	Validity date	Actions for their update	National Volcanological Observatory
Argentina	ANAC Airport Manager EANA PFA (SEI) Airport operator PSA Medical service VAAC Buenos Aires MWOs/AMOs (5) AMOs exclusively (4) International EMAs Volcanological Observatory (SEGEMAR) VONA Implemented Obs: SEGEMAR Only Agreement with SMN. Pending ANAC-SEGEMAR-EANA-SMN agreement.	Actions to update it	Updated 05-19-2021 Additional comments: a) Volcanic Ash Control Plan ANAC Resolution IF-2021-13698153-APN-DGYSA#ANAC Resolution 2021-148-APN-ANAC#MTR	
Bolivia	Have a Plan implemented and socialized	Version 1.0. (first edition) October 2018	In update process	
Brazil	There is a plan implemented and socialized. The areas involved are described in the CIRCEA 63-2/2015 standard - Operational Procedures for Dissemination of Information on Volcanic Ash.	No.	In the process of being updated due to the restructuring of the meteorological offices, with the creation of the Integrated Center for Aeronautical Meteorology - CIMAER.	No.

			Expected date for entry into force: August 2022.	
Chile	Chile renewed the agreement with the Volcanological Observatory			
Colombia	Has a Plan and VONA	Updating national protocol involves Air Force State aviation	March 2022	
Ecuador	DGAC Agreement – Geophysical Institute	Since September 2014, it is automatically renewed every 5 years	No update action	
Guyana				
French Guyana				
Panama	Contingency Plan (not yet approved) but VONA not yet			
Paraguay	Updated			
Peru	CORPAC: Area Control Center (ACC), Meteorological Watch Office (MWO). IGP: National Volcanic Center - CENVUL	Effective date: 15 October 2020. Establishment of revision every 3 years	Effective date: 15 October 2020. Establishment of revision every 3 years	
Suriname	Will evaluate it and then will make the updates on the Plan			
Uruguay	Ash Contingency Plan			
Venezuela	1.- The CAA notified the METP (SERMETAVIA), of the commitment acquired in the SAM/RCM regarding the preparation of a Volcanic Ash Contingency Plan, as part of the functions of the MWO, in accordance with the provisions	Once prepared by the METP (SERMETAVIA) and approved by AAC/SNA	Monitoring and verification of the data corresponding to the volcanic ash events of the Adjacent FIRs	

	<p>established by RAV277 .-Chapter C. Section 277.13.</p> <p>2. The METP (SERMETAVIA), will establish relevant coordination for the preparation of said plan with the Air Navigation Service (ANS)</p> <p>3. The CAA will supervise and control the implementation and compliance of the Plan)</p>			
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Implementation of Contingency Plans for the Release of Radioactive Material – SAM Region					
State	Implemented	Current Satus	Involved Areas	National Authority on Radioactive Material	Contact with National Authority on Radioactive Material
Argentina	Implemented	Partially implemented – It is missing to include EANA in the Plan. It is in discussion phase.			
Bolivia	Not implemented	Under Development	ATS/MET		
Brazil	Partially implemented, through CIRCEA 100-58/2015 "Procedures of the SISCEAB Corps in Service to Aircraft Involved in Accidents with Chemical, Biological, Radiological and Nuclear Materials"	Standard being updated, in coordination with other government agencies, for the insertion of the CIMAER in the activation plan of the Brazilian Air Force in cases of Radioactive Material Release.	ATS, AIS, MET and OPM (Military Operations)	National Nuclear Security Authority (ANSN)	+55 21 2586-1100
Chile	Implemented				
Colombia	NO	In meetings with the Ministry of Energy to be able to	ATC IDEAM MET and AIM		

		articulate the warnings of the global system			
Ecuador	Not implemented	In conversations with the Sub Secretariat for Control and Nuclear Applications (SCAN) of the Ministry of Energy and Non-Renewable Natural Resources (MERNNR)	DGCA / MERNNR		
Guyana					
French Guyana					
Panama					
Paraguay					
Peru	To be implemented. Initial contact with the Peruvian Institute of Nuclear Energy (IPEN), a national authority that oversees compliance with standards for the safe operation of nuclear and radioactive facilities. It is planned to implement the Contingency Plan in 2022.	To be implemented. Initial contact with the Peruvian Institute of Nuclear Energy (IPEN), a national authority that oversees compliance of standards for the safe operation of nuclear and radioactive facilities. It is planned to implement the Contingency Plan in 2022. CORPAC: Area Control Center (ACC) and	To be implemented. Initial contact with the Peruvian Institute of Nuclear Energy (IPEN), a national authority that oversees compliance of standards for the safe operation of nuclear and radioactive facilities. It is planned to implement the Contingency Plan in 2022. CORPAC: Area Control Center (ACC) and Meteorological Watch Office in the Lima FIR (MWO).		

	CORPAC: Area Control Center (ACC) and Meteorological Watch Office in the Lima FIR (MWO). IPEN: Radiation Safety Subdirectorate.	Meteorological Watch Office in the Lima FIR (MWO). IPEN: Radiation Safety Subdirectorate.	IPEN: Radiation Safety Subdirectorate.		
Suriname					
Uruguay	Decree of the executive power 180/018 (which establishes the responsibilities of each body). Deadline: first semester 2023.	The MWO has work instructions on what notices must be issued. Work is under way to update the ATS-AIS letter of agreement and the contingency plan.			
Venezuela	In the process of implementation	It is in currently under study and implementation by the METP (SERMETAVIA).	1.- The CAA notified the METP (SERMETAVIA), of the commitment acquired in the SAM/RCM, regarding the preparation of a Contingency Plan for the Release of Radioactive Material, as part of the functions of the MWO in accordance with the provisions established by RAV277.-Chapter C. Section 277.12. Paragraph (b). Sub paragraph (9).		

			<p>2. The METP (SERMETAVIA) will establish adequate coordination for the preparation of said plan with the Air Navigation Service (ANS)</p> <p>3. The AAC will supervise and control the implementation and compliance of the Plan).</p>		
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ATS/MET Coordination Agreements

STATE	ATS/MET Agreement	Validity date	Actions to update	Based in Doc. 9377
Argentina	They have an Agreement in SABE and will continue with the other airports	04/21/2022 for one year and then it is renewed for being this of continuous improvement		Yes, but they considered other ICAO documents
Bolivia	They do have the ATS/MET and COM/MET operational letter-agreements. The preparation is for each Aerodrome and the ones for SLLP, SLCB and SLVR are ready.	It is not valid subject to modifications. The revision is annual	Validity of one year in SLLP, SLCB and SLVR	Based on Doc. 9377, Annex 3, Annex 10, Annex 11, Doc 444 4- PANS-ATM, Doc 7030, RAB93, RAB97, Doc 7910, Doc 8733 , MPMET
Brazil	CIRCEA Standard 63-1/2020 "Procedures Related to the Exchange of Meteorological Information between MET, ATS, SAR and AIS Agencies" contemplates the coordination between ATS / MET	No.	It is updated when necessary.	Yes.
Chile	They have a regulatory document that contains all aspects of coordination	This document is in force		Based on national and ICAO standards
Colombia	Letters of Agreement in 17 airports and require a general change due to the change of the Authority. Five are approved and the others in draft status.	Usually 2 years	Annual reviews are carried out	Based on national and ICAO standards.
Ecuador	They have an Agreement within the DGCA. There is one at the macro level, between administrations. Signed in February 2015	The most updated is that of 2017 of the SEQM	They are reviewed every year and small changes are made	All are based on Doc. 9377

	At the level of international and national airports, they have since 2015, based on the Macro Agreement.			
Guyana				
French Guyana				
Panama	Letters of Agreement between ATIS/MET dependencies	They do not have a validity period	They are reviewed when required	Doc. 9377, Book 30 of the RAC-Panama
Paraguay	Procedures for provision of ATIS/MET/SAR services Low visibility procedures for each airport.	They do not have a specific validity period	They are reviewed when required by modification of national regulations and the latest version is that of 2021	National and ICAO documents. DINAC R3, Doc. 9328, Doc. 9377 – PANS-ATM
Peru	ATIS/MET Letter of Agreement, signed in 2012	A permanent review is carried out.	They were renewed twice, in 2019 the latest version	Doc. 9377
Suriname	Previous Letter of Agreement, there is a draft version. Discussions have been held, but there is a disagreement between the ATIS/CON/ATM units. No date has been agreed, but it is under discussion. There is also an agreement but it has not yet been signed but it involves MET and the Aerodrome.			Based on Doc 9377
Uruguay	In force since 11/11/2018 the ATIS/MET Agreement		The review is as required by ATIS or MET according to the reference documentation. This year, after the last audit, the letters of agreement are being reviewed.	Doc. 9377, Doc. 9328, 4444 PANS ATM Doc 9766, PAR 203, 211, 215, 212
Venezuela	In force since 2018		Under review by the legal consultancy of the Authority to later submit it to the review of the interested parties	Doc. 9377, and RAC 277.

AIS/MET Service Level Agreements (SLA)

STATE	AIS/MET Service Level Agreement	Validity date	Actions to update	Based in Doc. 9377 and PANS-AIM (Doc. 10066)
Argentina	No SLA			
Bolivia	A SLA is being worked on with AIS			
Brazil	CIRCEA Standard 63-1/2020 "Procedures Related to the Exchange of Meteorological Information between MET, ATS, SAR and AIS Agencies" contemplates the coordination between AIS / MET.	No.	It is updated when necessary.	Yes.
Chile	They do not have an SLA, but they work in coordination with the AIS. There is published regulation DAP0304, which refers to ATS/MET Coordination, involves AIS and indicates how these coordinations are carried out.			
Colombia	There is no SLA. They are involved in the Letters of Agreements, but they are going to prepare an SLA.			
Ecuador	In the Letter of Agreement with AIS, in SLA format.	Some small adjustments need to be made		Yes

Guyana				
French Guyana				
Panama	There is no SLA. They work together and it is an integrated system.			
Paraguay	There is no SLA			
Peru	There is no SLA. Coordination between the AIS and MET is carried out via email.			
Suriname	There is no SLA.			
Uruguay	They have it.			
Venezuela	They do not have an SLA.			

APPENDIX F
Monitoring of Space Weather surveillance activities

State	Advisory messages on Spaces Weather Received	Actions by the State after receipt	Recommendation
Argentina	Received by them but could not define the number of messages received.		Forecasters have been trained on Space Weather. Work must continue with users (Airlines, Dispatchers, and pilots) in familiarizing them with the Advisory messages on Space Weather
Bolivia	They received few messages, but test. No real Advisory Messages were received due to connection and addressing problems in the AMHS.		There is a general lack of knowledge of the user, which is why training should be worked on.
Brazil	Only test messages were received through the OPMET system. All messages were from the CRC (Russia-China) Consortium.	There were no operational actions as these were only test messages. The operational messages will be sent to CIMAER.	Receive tests also from the other Centers.
Chile	They received test messages. Real messages have not been received		There is little homogeneity in the reception. Negotiate with the World Centers regarding the revision of the procedures for issuing the messages.
Colombia	Access to information through the websites of the World Space Weather Centers. They arrive through the AMHS but there is no alert at the time of reception.		Training in this regard must be increased.

Ecuador	Alerts in the WIFS system to be able to identify these messages.	By not working with folders, there is no greater dissemination of information.	It is very complex due to automation.
French Guyana			
Guyana			
Panama	They receive the real messages but they were not useful.		More training should be given to use the information.
Paraguay	It is difficult to check the reception of messages.		Training on information processing
Peru	At the beginning of this month an Advisory arrived and it will be shown in a training course in mid-June		Preparing training courses. After this training they will prepare the procedures. There is a need for training at the regional level.
Suriname	Unable to provide further information on the subject. They will give information later.		
Uruguay	Received tests and real messages (4 in March and 1 in May)	They implemented an alert mechanism in the software, when they receive Advisory messages about Space Weather. Another procedure is to join an email that exists in Argentina. When there is the possibility of a space phenomenon, this system sends an email and puts them on notice	Training with Argentina Training of Space Weather at the UBA.
Venezuela	They do not have information on receiving messages		

APPENDIX G

Monitoring of the Implementation and Certification of the Quality Management System in MET Processes (QMS/MET)

QMS/MET Implementation – SAM Region				
STATE	Implemented	Certified	In process of certification	Date of re-certification
Argentina	Implemented by the SMN. EANA S.E. has started the process including a specialist in the team. The process of carrying out a Second Party Audit has been started	Certified		November 2022 - SMN
Bolivia	Implemented When changing the company name, from A.A.S.A.N.A to NAABOL, the process must be started again. They will finish it in 2023	Certified Certification has been lost, but they would opt for it by 2023		
Brazil	Implemented, but not certified. They are carrying out internal audits, and waiting for the Certification Audits.	No	Yes	June 2023.
Chile	Implemented	Certified	Re-certification audit by the end of 2023 or the beginning of 2024	2023
Colombia	IDEAM – Implemented MET Group – UAEAC - Implemented Changes in the UAEAC imply a revision of the documentation	IDEAM- Certified UAEAC – No	The processes associated with MET should be certified and for this reason obtaining the certification has been extended	Second semester of 2023
Ecuador	In the process of implementation The highest authority is not involved	Not started	Not started	The issue should be escalated to the RD
Guyana	GAP Analysis to migrate to the 2015 version of the ISO 9001 Standard	Not started	Not started	
French Guyana				
Panama	Implemented	Certified but failed to re-certify - Dec/2021 – Re-		Will be certified this year.

		certification audit (Second semester of 2022)		
Paraguay	Implemented	Certified but failed to re-certify - June/2022 – Re-certification audit subject to budget availability	Pre-Audit for July. Certification Audit by the end of August 2022	
Peru	Implemented	Certified	Procedures are being carried out for the second re-certification. In the next few days they will have the re-certification date	
Suriname	There is already a Roadmap to complete the migration process to the 2015 version	Adapted to version 2015 with probable Recertification Audit for September/2022	Internal Audit planned in August. The re-certification audit continues to be planned for the end of 2022	
Uruguay	Implemented with reservation from DINACIA	Probable first Certification Audit in the first half of 2022		Second half of 2023
Venezuela	No change but they are in the process of being updated Implementation by October 2022.	A Roadmap was prepared, and they are currently in Phase 3 of the Roadmap. Internal Audit has no defined date.	Not started There is no defined date nor planning for it.	They will pass it in writing after completing the implementation process