SAM/RCM/2

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

**South American Regional Office**

# Meeting on MET Implementation Progress Review

# FINAL REPORT

**(Virtual platform, 23 to 25 May 2022**

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# HISTORY OF THE MEETING

## ii-1 PLACE AND DURATION

The Meeting on MET Implementation Progress Review was held by virtual means (Zoom platform) from 23 to 25 May 2022.

## ii-2 OPENING CEREMONY AND OTHER MATTERS

Mr. Jorge Armoa, Regional Aeronautical Information Management and Meteorology Officer of the ICAO South American (SAM) Regional Office welcomed the participants, highlighting the importance of the topics to be discussed and of their implementation in the Region to face the challenges of the provision of meteorological services for international air navigation, thus opening the Meeting.

## ii-3 WORK SCHEDULE, ORGANISATION, WORKING METHODS, OFFICERS, AND SECRETARIAT

Mr. Celestino Lamboglia, Head of the Aeronautical Meteorology Department of the Civil Aeronautical Authority of Panama was elected as Chairperson of the Meeting, and Mr. Armoa, Regional AIM/MET Officer, acted as Secretary of the Meeting.

The Meeting agreed to hold its sessions from 08:30 to 14:30 hours.

## ii-4 WORKING LANGUAGES

The working languages of the Meeting were Spanish and English.

## ii-5 AGENDA

The following agenda was adopted:

**Agenda Item 1:** Follow-up to the recommendations of the MET Coordination Meeting

**Agenda Item 2:** Review of Planning and Implementation of the exchange of OPMET information in IWXXM format and preparation for SWIM

**Agenda Item 3:** Review of the Implementation of the MET Quality Management System (QMS/MET)

**Agenda Item 4:** a) Review and follow-up of the IAVW for the SAM Region; and
b) Review and monitoring of the Contingency Plans for Volcanic Ash and Release of Radioactive Material

**Agenda Item 5:** Review of ATS/MET, CNS/MET, AIS/MET operational agreements and other operational agreements

**Agenda Item 6:** Monitoring of the Coordination Project for the issuance of homogeneous and continuous SIGMET

**Agenda Item 7:** Monitoring of *Space Weather* surveillance activities

**Agenda Item 8:** Other business

ii-6 **ATTENDANCE**

The Meeting was attended by 12 States of the SAM Region (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Panama, Paraguay, Peru, Suriname, Uruguay, and Venezuela), totalling 53 participants. The list of participants appears on page iii-1.

## LISTA DE PARTICIPANTES / LIST OF PARTICIPANTS

**ARGENTINA**
1. Roxana Vasques Ferro
2. Claudia Ribero
3. Daniel Cortés
4. Lilian Gisela Velázquez
5. Gustavo D' Antiochia
6. Raúl Drandich
7. Candelaria Poggio
8. Maximiliano Panaccio
9. Fernando Daniel Calvo

**BOLIVIA**
10. Paula Ramos Illanes
11. Sandro René Mercado Jáuregui
12. Eloy Andrés Mamani Pucho

**BRASIL/BRAZIL**
13. Joabson Lira Cremes
14. Fernando de Abreu Pinto
15. Karlos André Câmara Ramalho
16. Luiz Alexandre Almeida
17. Quilson de Aragão
18. Juliana Pereira da Silva
19. Marcelo Pinheiro Amorim
20. Fábio Pereira de Oliveira

**CHILE**
21. Rodrigo Fajardo
22. Marcelo Rojas

**COLOMBIA**
23. Juan Carlos Pulido Bernal

**ECUADOR**
24. Arturo Lomas
25. Gabriela Román
26. Edison Lagos
27. César Acosta

**PANAMÁ/PANAMA**
28. Daniel De Avila
29. Xenia Gabriela Guardia
30. Celestino Lamboglia
31. Luis Ortega
32. Iván De León

**PARAGUAY**
33. Andrea Melissa Villar Caballero
34. Carlos Santa Cruz
35. Luz Ferreira
36. Alejandro Coronel Abadie

**PERÚ/PERU**
37. Hugo Rosado
38. Julio Quezada Pacheco
39. Pamela Arce

**SURINAM/SURINAME**
40. Lorenso Kasmani
41. Chanelle Djojobesari
42. Truusje Warsodikromo
43. Ranoe Bidesie
44. Radjan Phalai
45. Kalawatie Radha Atwaroe

**URUGUAY**
46. Mario Dávila
47. Natali Betancor
48. César Vecino

**VENEZUELA**
49. Orlando José Sánchez Alvarado
50. Reidy José Zambrano Méndez
51. Antonio Espinoza
52. Fernando Reina
53. Aura Romero

**OACI / ICAO**
54. Jorge Armoa Canete

**Agenda Item 1: Follow-up to the recommendations of the MET Coordination Meeting**

1.1 Under this agenda item, the following paper was reviewed:

- WP/02 –*Examination of the recommendations of the First MET Coordination Meeting* (presented by the Secretariat)

1.2 The Meeting analyzed the recommendations of the first MET Coordination Meeting.

1.3 The Meeting recalled that the recommendations issued during the first MET Coordination Meeting were the following:

a) Follow-up to the implementation of amendments 79 and 80 to ICAO Annex 3;
b) Monitoring of Contingency Plans for Volcanic Ashes;
c) Cooperation agreements with the National Volcanological Observatories;
d) Conclusion RCM/01-1- Proposal for amendment to Annex 3 to notify 2 or more volcanic clouds in SIGMET messages;
e) Evaluation of international traffic below FL100 and FL150, to decide whether or not the inclusion of an Air Navigation Agreement for the international distribution of AIRMET and GAMET messages is necessary;
f) SIGMET Guide for the SAM Region.

1.4 **Appendix A** contains the follow-up to the implementation of amendments 79 and 80 to ICAO Annex 3. In relation to literals b, c and f, the follow-up is reported in Item 4.

1.5 In relation to literal d) of the Twentieth Edition of Annex 3, numeral 29 of Table A6-1A has been amended to allow referring to two or more volcanic ash clouds, according to the proposed conclusion, for which it is considered as finished.

1.6 In relation to the task of literal e), the analysis of international traffic below FL100 or FL150 resulted in non-homogeneous conclusions among all the States. The information in this regard can be seen in the Table in **Appendix B**.

1.7 The Meeting decided to recommend implementing the international exchange of AIRMET and GAMET through bilateral agreements between Uruguay and Brazil, as well as between Ecuador and Colombia. This exchange would be carried out for one year to evaluate its use for the planning and safety of air operations, before recommending the inclusion of an Air Navigation Agreement.

**Monitoring Table of Implementation of Amendment 79 to ICAO Annex 3**

| **Implementation of Amendment 79 to ICAO Annex 3 – SAM Region** | | | |
|---|---|---|---|
| **STATE** | **Action implemented by the Authority** | **Action implemented by the Service Provider** | **Date of probable full implementation** |
| **Argentina** | | Implemented:<br>Regarding Item 2.1 of the Discussion of WP/03 of the First MET Coordination Meeting:<br>c) Implementation of SIGMET coordination is pending. It could be said that the preliminary steps for transnational implementation were initiated and that in the course of 2022 it would be implemented at the national level (STAGE 1).<br>f) N/A<br>g) N/A<br>j) N/A<br>l) To be confirmed<br>The rest of the items are implemented | Ready for implementation |
| **Bolivia** | The amendment to RAB 93 (Fifth Edition. Amendment 6. R.A. 239 dated 12/10/2020) was made based on ICAO Annex 3 amendment 79. | It was socialized by the Service Provider | Application date 15 December, 2020. |
| **Brazil** | Update of the following standards, with the respective amendments 79 and 80 included:<br><br>a) ICA 105-17/2020 - Meteorological centers<br>- Tropical cyclone warning centers (2.7)<br>- Volcanic ash advisory (Annex B) | The topics standardized by the Authority were internalized and socialized by the Service Providers. | September 2022 |

| | | | |
|---|---|---|---|
| | b) ICA 105-15/2021 - Surface weather stations - Technical specifications on meteorological observations and reports (Annex A) - Template for SIGMET messages (Annex J); and<br><br>c) ICA 105-1/2021 - Dissemination of meteorological information.<br><br>The other elements are being included in the ICA 105-17/2022 standard - Meteorological centers. | | |
| **Chile** | Adoption of the amendment in the Regulation of the Civil Aviation Authority | | |
| **Colombia** | Implemented RAC203 | To be implemented | 2nd semester of 2022 |
| **Ecuador** | Draft update of Regulation 203 based on amendment 79 and the 2nd edition of LAR203 | None. Waiting for the new Regulation 203<br>Regulation not yet implemented | 2nd semester of 2022<br>Postpone it for the first half of 2023 |
| **Guyana** | | | |
| **French Guyana** | | | |
| **Panama** | Amendments 79 and 80 are included in the RACP-Book XXX | The SMS was consulted and it was agreed to carry out a risk matrix for the influx of flights in the FIR-Panama below FL-100 | 2nd semester of 2022<br>Continue this date |
| **Paraguay** | Regulations have been updated. | Will provide the information by mail | |
| **Peru** | 1. Adoption of amendments 79 and 80 in the New Edition of RAP303<br>Amendment 3. On 22 November, the pre-publication stage | 1. Coordination actions with the DGAC for the implementation of amendment 79.<br>2. Risk assessment of the need to issue the AIRMET and GAMET products. | 2023 |

| | | | |
|---|---|---|---|
| | ended and the final edition stage began. The publication is estimated in the month of December 2021.<br>2. Guidelines on MET personnel competencies are included in Appendices K to L. Coordination actions with the DGAC for the implementation of Amendment 79.2. Risk assessment of the need to issue AIRMET and GAMET products.<br>3. Specific training in Space Weather is planned for operational MET personnel.<br>4. A selection commission appointed for the acquisition of the 2023 SAM/RCM-NE/03 RAP 303 New Edition Amendment 3.3 is installed. The National Air Navigation Plan provides the roadmap to ensure compliance of the new amendments to the Annex 3.4. Intermediation between interested parties for the development of contingency plans. | 3. Specific training in Space Weather is planned for operational MET personnel.<br>4. A designated selection commission is installed for the acquisition of the new AMHS system that contemplates the capabilities for the exchange of meteorological information in IWXXM format. | |
| **Suriname** | | | |
| **Uruguay** | LAR 203 second edition 2020, with amendments 79 and 80- fully implemented | | |
| | | | |
| **Venezuela** | The AAC (prepared the adoption of | None | Awaiting approval by |

| | | | |
|---|---|---|---|
| | Amendment 79 to ICAO Annex 3 in the Venezuelan Aeronautical Regulation (RAV277-MET) | | INAC Legal Consultancy Will send the information by mail |

**Tracking Table for Assessment of international traffic below FL100 and FL150**

| International Traffic below FL100 and FL150 | | | |
|---|---|---|---|
| **STATE** | **International traffic below FL100 and FL050 has been evaluated** | **Conclusions of the Evaluation** | **Recommends an Air Navigation Agreement for the preparation and issuance of GAMET and AIRMET** |
| **Argentina** | They issue Pronarea instead of AIRMET, GAMET | There are international flights at those levels but the density is low. | No |
| **Bolivia** | The AIRMET does not apply. They issue ARFOR.<br>There are no International flights below Level FL100 and 150 | | No |
| **Brazil** | Flights are above FL100 levels, however, they issue graphic SIGMET, so as AIRMET, GAMET to support general aviation. | | No |
| **Chile** | No international flight below FL150 Level | Prepared but not issued internationally | No |
| **Colombia** | No international flight below FL150 Level | Prepared but not issued internationally | No |
| **Ecuador** | The statistics show a very low density. | Ecuador does not prepare AIRMET | Yes, where there are international flights below FL100 |
| **Guyana** | | | |
| **French Guyana** | | | |
| **Panama** | There is no AIRMET, GAMET | There are | No |

| | | | |
|---|---|---|---|
| **Paraguay** | The request for information was made but there was no response.<br>Flight Folder Requirement showed that the density is very low | Does not prepare AIRMET nor GAMET but a WINTEMP product is provided through the institution's website | No |
| **Peru** | A study was still in progress. There are indicators that would give a low density. | | Yes, would justify it to density, would agree |
| **Suriname** | Is in development | Do not produce GAMET nor AIRMET due to low density although they do forecast for low levels very similar to GAMET | Yes it should be done, agree |
| **Uruguay** | The evaluation is in the development process and will be completed in these months if they have international traffic in the summer months | They believe it is necessary to issue AIRMET and GAMET to support the safety of these flights | Yes, agree |
| **Venezuela** | No international flight below FL100 | Does not apply | No |

**Agenda Item 2: Review of Planning and Implementation of the exchange of OPMET information in IWXXM format and preparation for the SWIM**

2.1 Under this Agenda Item, the following papers were reviewed:

- WP/03 - *Follow-up to the Implementation of the exchange of OPMET messages in IWXXM format* (presented by the Secretariat).
- IP/02 - *IWXXM Implementation Project in the SAM Region* (presented by the Secretariat)

2.2 The Secretariat followed up on the implementation of the OPMET Message Exchange in IWXXM format.

2.3 Regarding the implementation of the IWXXM model, the Meeting has been informed that the States of Argentina, Brazil and Guyana are in a position to exchange OPMET messages in IWXXM format.

2.4 Additionally, it has been reported that Paraguay has started testing the system, as well as training for the OPMET exchange in IWXXM format. Likewise, it was reported that they have planned the exchange tests with the International OPMET Bank of Brasilia, for the end of May 2022.

2.5 The Secretariat informed of the offer of the Bank of Brasilia for the use of the webservice for the exchange of OPMET messages in IWXXM format. It was reported that the Secretariat had sent the List of institutional emails received for admission to this service. In this regard, it was noted that some States had not yet communicated the requested mail.

2.6 Representatives of the State of Brazil indicated that these States could be added by sending an email, making reference to the letter sent by the Secretariat.

2.7 Additionally, the Meeting was informed that the Secretariat had requested a demonstration of the use of the webservice from the State of Brazil. The State of Brazil responded that on **5 July, 2022, at 13:30 UTC**, we could hold a coordination meeting to verify the possibility of carrying out the exchange tests through the webservice.

2.8 The current status of IWXXM implementation in the States of the SAM Region can be found in the Table of the **Appendix** to this part of the Report.

2.9 The Meeting took note that the eCRPP/4 reviewed the Project Charter presented by the SAM Region, in relation to the implementation of IWXXM in the SAM Region.

2.10 The Meeting was informed that the Project was welcomed by the CRPP. However, in its analysis, the CRPP observed that the Project could have technical considerations applicable to the States of the CAR Region, therefore, it was recommended that these States review it during the month of May in order to extend the scope of the project. The Meeting took note that, once the review process is completed, the Project will be submitted to GREPECAS for approval via fastrack procedure.

| IWXXM Implementation – Región SAM Region | | | |
|---|---|---|---|
| **STATE** | **Implemented** | **Current status of the process** | **Date of probable implementation** |
| **Argentina** | Implemented | Exchange tests | |
| **Bolivia** | No | | Without date |
| **Brazil** | Implemented | Exchange tests with States of the SAM, CAR and EURNAT Regions | |
| **Chile** | No | | March/2022 |
| **Colombia** | No | | 2nd Semester/2022 |
| **Ecuador** | No | Exchange tests with the OPMET Bank – It 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 format | March 2022 |
| **Peru** | No | Exchange tests with the OPMET Bank – It 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 | It has a module that converts from TAC format to IWXXM format | Second semester of 2022 via webservices until the process is completed by the AMHS |
| **Venezuela** | No | Exchange tests with the OPMET Bank – It has a module that converts from TAC format to IWXXM format | End of 2022 |

**Agenda Item 3: Review of the Implementation of the MET Quality Management System (QMS/MET)**

3.1 Under this agenda ítem, the following paper was reviewed:

- WP/04 - *Implementation status of the Quality Management System in the MET Processes of the SAM Region* (presented by the Secretariat)

3.2 The Meeting reviewed the current status of implementation of quality management systems in meteorological processes to support international air navigation.

3.3 In the following table, you can see the implementation status:

| QMS/MET Implementation – SAM Region | | | | |
|---|---|---|---|---|
| **State** | **Implemented** | **Certified** | **In process of Certification** | **Re-certification date** |
| **Argentina** | Implemented by SMN<br>EANA S.E. has started the process including a specialist in the team<br>The process of conducting the second part of an audit has been initiated | Certified | | November 2022 – SMN |
| **Bolivia** | Implemented<br>When changing the company name from A.A.S.A.N.A. to N.A.A.BOL, the process must be started again.<br>They will finish it in 2023 | Certified<br>Certification has been lost, but they would opt for it by 2023 | | |
| **Brazil** | Implantado, pero no certificado. Están realizando auditorías internas, esperando las Auditorías de Certificación. | No. | Yes | June 2023 |
| **Chile** | Implemented | Certified | Re-certification audit by the end of 2023 or beginning of 2024 | 2023 |
| **Colombia** | IDEAM – Implemented<br>MET Group – UAEAC - Implemented<br>Changes in the UAEAC imply a revision of the documentation | IDEAM- Certified<br>UAEAC – No | The processes associated with MET should be certified and for this reason obtaining certification has been extended | Second half of 2023 |

| | | | | |
|---|---|---|---|---|
| **Ecuador** | In process of implementation<br>The highest authority does not get involved | Not started | Not started | The issue should be addressed to the RD |
| **Guyana** | GAP Analysis to migrate to the 2015 version of ISO 9001 | Not started | Not started | |
| **French Guyana** | | | | |
| **Panama** | Implemented | Certified but failed to re-certify - Dec/2021 – Re-certification audit (Second semester of 2022) | | Will be certified for this year. |
| **Paraguay** | Implemented | Certified but failed to re-certify - June/2022 – Re-certification audit subject to budget availability | Pre-Audit for July.<br>Certification Audit by the end of August 2022 | |
| **Peru** | Implemented | Certified | The procedures for the second re-certification are being carried out. 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 the 2015 version with a probable Recertification Audit for September/2022 | Internal audit planned in August.<br>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 updating | A Roadmap was prepared, and they are | Not started<br>There is no defined date or planning for it. | Will inform in writing after completing the |

| | | | | |
|---|---|---|---|---|
| | Implementation by October 2022. | currently in Phase 3 of the Roadmap.<br>Internal Audit has no defined date. | | implementation process |

3.4 The Secretariat observes with concern that, despite delivering courses aimed at service providers in relation to the training of Lead Auditors of the Quality Management System, a group of States have stalled in the implementation for six years, and that, due to the pandemic, some States have lost their certification, experiencing a setback in the implementation of the QMS in the SAM Region for meteorological services.

3.5 The Secretariat has urged the States that have not registered progress, to involve the high authorities to raise awareness about the importance of implementing the quality management system in the MET processes.

3.6 The Meeting must be aware that it is difficult for the Secretariat to plan the delivery of courses and workshops related to the QMS if they are not accompanied by progress results in the States, for which it urged them to accelerate the implementation processes of the QMS/MET and seek subsequent certification.

**Agenda Item 4:** **a) Review and follow-up of the IAVW for the SAM Region; and**
**b) Review and monitoring of the Contingency Plans for Volcanic Ash and Release of Radioactive Material**

4.1 Under this agenda item, the following papers were reviewed:

- WP/05 - *Review and update of IAVW Contact List* (presented by the Secretariat)
- WP/06 - *Review and update of the Contingency Plan for Volcanic Ash and Release of Radioactive Material* (presented by the Secretariat)

4.2 The Meeting reviewed the contact points contained in Doc. 9766 - *HANDBOOK ON THE INTERNATIONAL AIRWAYS VOLCANO WATCH (IAVW) (OPERATIONAL PROCEDURES AND CONTACT LIST).*

4.3 The Meeting noted that the Contact List, contained in Part V of the aforementioned document, must be updated in the different ATS/MET units in order to ensure that information on volcanic ash or volcanic eruption reaches users at the necessary time. .

4.4 The Meeting proposed that the Secretariat circulate a letter, with the Contact List for review and updating. Additionally, a procedure has been proposed for its periodic review and communication to the Secretariat in the event that there is a change in the information contained in part V of the aforementioned document.

4.5 Regarding the Volcanic Ash Contingency Plans, the Secretariat informed the States of the need to keep this Plan up to date, and establish drills to keep all parties involved trained in the event of a real situation. The Table in **Appendix A** shows the implementation status of the Contingency Plan, including the agreements with Volcanological Observatories for the issuance of VONA.

4.6 From the Table in Appendix A, it can be deduced that a high percentage of the States of the SAM Region have a Volcanic Ash Contingency Plan with established procedures for its periodic review and updating.

4.7 In relation to the Contingency Plan for the Release of Radioactive Material, the Secretariat followed up on its implementation. The current implementation status can be seen in the Table in **Appendix B** to this part of the report.

4.8 From the table it can be gathered that the States have opportunities for improvement in this aspect.

4.9 The Secretariat insists on establishing procedures with the ATS units to direct them the information they could receive from the Specialized Regional Meteorological Center, on cases of Radioactive Material Release.

| Volcanic Ash Contingency Plans – SAM Region | | | | |
|---|---|---|---|---|
| **STATE** | **Areas involved** | **Validity date** | **Action taken for updating** | **National Volcano Observatory** |
| **Argentina** | ANAC<br>Airport administrator<br>EANA<br>PFA (SEI)<br>Airport operator<br>PSA<br>Medical service<br>Buenos Aires VAAC<br>MWOs/AMOs (5)<br>AMOs only (4)<br>International AMS<br><br>Volcano observatory (SEGEMAR)<br>VONA implemented<br><br>Obs: SEGEMAR Agreement with NWS only.<br>ANAC-SEGEMAR-EANA-NWS agreement in process | | Updated 19-05-2021<br>Additional comments:<br>a) Volcanic ash control plan<br>ANAC<br>Resolution<br>IF-2021-13698153-APN-DGYSA#ANAC<br><br>Resolution 2021-148-APN-ANAC#MTR | |
| **Bolivia** | Plan already implemented and disseminated | Version 1.0. (first edition) October 2018 | In process of amendment | |
| **Brazil** | It has an implemented and socialized plan. The areas involved are described in the CIRCEA 63-2/2015 - Standard - Operating Procedures for the Dissemination of Information on Volcanic Ash. | No. | In the process of updating due to the restructuring of the meteorological offices, with the creation of the Integrated Center of Aeronautical Meteorology - CIMAER.<br>Target date of entry into force: August 2022 | No. |

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| **Chile** | Chile renewed the agreement with the Volcano Observatory | | | |
| **Colombia** | Has a plan and VONA | In the process of updating the national protocol. The Air Force, State aviation involved | March 2022 | |
| | | | | |
| **Ecuador** | Agreement between DGCA – Geophysical Institute | Automatically renewed every 5 years since September 2014 | It stands | |
| **Guyana** | | | | |
| **French Guiana** | | | | |
| **Panama** | Contingency plan (not yet approved); no VONA | | | |
| **Paraguay** | Was updated | | | |
| **Peru** | CORPAC: Area control centre (ACC), meteorological watch office (MWO). IGP: National vulcanological centre – CENVUL | Date of entry into force: 15 October 2020. To be reviewed every 3 years | Date of entry into force: 15 October 2020. To be reviewed every 3 years | |
| **Suriname** | The plan is to be evaluated and then updated. | | | |
| **Uruguay** | Ash contingency plan | | | |
| **Venezuela** | 1.- The CAA notified the METP (SERMETAVIA) of the commitment made in the SAM/RCM regarding the development of a Volcanic Ash Contingency Plan, as part of the functions of the MWO, in accordance with the provisions set out in RAV277.- Chapter C. Section 277.13.<br><br>2. The METP (SERMETAVIA) will coordinate the drafting of said plan with the air navigation service (ANS) | Following drafting by METP (SERMETAVIA) and approval by CAA/ANS | Monitoring and verification of data on volcanic ash occurrences in adjacent FIRs | |

| | | | | |
|---|---|---|---|---|
| | 3. The CAA will supervise and oversee the implementation and enforcement of the Plan | | | |

| Implementation of Contingency Plans for the Release of Radioactive Material – SAM Region | | | | | |
|---|---|---|---|---|---|
| **Estado /State** | **Implantado / Implemented** | **Situación actual del Proceso / Current Status** | **Áreas Involucradas / Areas Involved** | **National authority responsible for radioactive material** | **Contact with national authority responsible for radioactive material** |
| **Argentina** | Implemented | Partially implemented - EANA is not yet included in the Plan. Under discussion | | | |
| **Bolivia** | Not implemented | Under development | ATS/MET | | |
| **Brazil** | Partially implemented, through CIRCEA 100-58/2015 "Procedures of the SISCEAB Bodies in Service to Aircraft Involved in Accidents with Chemical, Biological, Radiological and Nuclear Materials" | Standard in update, in coordination with other government bodies, for the insertion of CIMAER in the activation plan of the Brazilian Air Force in cases of Release of Radioactive Material. | ATS, AIS, MET and OPM (Military operations) | National Nuclear Safety Authority (ANSN) | +55 21 2586-1100 |
| **Chile** | Implemented | | | | |
| **Colombia** | NO | Holding meetings with the Ministry of Energy in order to articulate the warnings of the global system. | ATC IDEAM MET and AIM | | |

| | | | | | |
|---|---|---|---|---|---|
| **Ecuador** | Not implemented | In discussions with the Under-Secretariat for Nuclear Control and Applications (SCAN) of the Ministry of Energy and Non-Renewable Natural Resources (MERNNR) | DGAC / MERNNR | | |
| **Guyana** | | | | | |
| **French Guiana** | | | | | |
| **Panama** | | | | | |
| **Paraguay** | | | | | |
| **Peru** | Pending implementation. Initial contact with the Peruvian Nuclear Energy Institute (IPEN), the national authority that oversees compliance with standards for the safe operation of nuclear and radioactive facilities. Contingency plan to be implemented in 2022. CORPAC: Area Control Centre (ACC) and Meteorological Watch Office (MWO) in the Lima FIR. IPEN: Radiation Safety | Pending implementation. Initial contact with the Peruvian Nuclear Energy Institute (IPEN), the national authority that oversees compliance with standards for the safe operation of nuclear and radioactive facilities. Contingency plan to be implemented in 2022. CORPAC: Area Control Centre (ACC) and Meteorological Watch Office (MWO) in the Lima FIR. IPEN: Radiation Safety Sub-Directorate. | Pending implementation. Initial contact with the Peruvian Nuclear Energy Institute (IPEN), the national authority that oversees compliance with standards for the safe operation of nuclear and radioactive facilities. Contingency plan to be implemented in 2022. CORPAC: Area Control Centre (ACC) and Meteorological Watch Office (MWO) in the Lima FIR. IPEN: Radiation Safety Sub-Directorate. | | |

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| | Sub-Directorate. | | | | |
| **Suriname** | | | | | |
| **Uruguay** | Executive Decree 180/018 (setting out the responsibilities of each agency. Deadline: first semester 2023. | The MWO has working instructions on which warnings to issue. Work is underway on updating the ATS-AIS letter of agreement and on a contingency plan. | | | |
| **Venezuela** | In process of implementation | Under study and implementation by METP (SERMETAVIA). | 1.- The CAA notified the METP (SERMETAVIA) of the commitment acquired in the SAM/RCM regarding the drafting of a Contingency Plan for the Release of Radioactive Material, as part of the functions of the MWO, in accordance with the provisions set forth in RAV277.- Chapter C. Section 277.12. Paragraph (b). Subparagraph (9).<br><br>2. The METP (SERMETAVIA) will coordinate the drafting of said plan with the air navigation service (ANS)<br><br>3. The CAA will supervise and oversee the | | |

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| | | | implementation and enforcement of the Plan. | | |

**Agenda Item 5: Review of ATS/MET, CNS/MET, AIS/MET Operational Agreements and other operational agreements**

5.1 Under this agenda ítem, the following papers were reviewed:

- WP/07 - *ATS and CNS/MET Coordination Agreements* (presented by the Secretariat)
- WP/08 - *AIS/MET Service Level Agreements (SLA)* (Presented by the Secretariat)

5.2 The Meeting reviewed the ATS/MET, CNS/MET and AIS/MET Coordination Agreements.

5.3 The Meeting noted that ICAO Doc 9377 provides guidelines for the preparation of the ATS/MET Agreement, as well as related operational agreements.

5.4 The Meeting considered that, from 8 to 20 October, an ATS/AIS/COM/MET Coordination Meeting is scheduled to be held, in which the review of these agreements is expected, so it would be important for the States to review their ATS/MET Coordination Agreements, and if necessary, update them.

5.5 In the Table of **Appendix A**, to this part of the report, you can find the description of the current status of the ATS/MET Coordination Agreements.

5.6 Regarding the AIS/MET Service Level Agreements (SLA), the Secretariat informed the States that it is a recommendation to sign Service Level Agreements between the AIS and the originators of information or data that are managed by the AIS for the AIP or the preparation of Supplements to the AIP and issuance of NOTAMs, as well as to include information related to meteorological services in Table 10 of the Data Catalog.

5.7 The State of Uruguay presented an example of an SLA signed between the AIS provider and the meteorological service provider (INUMET).

5.8 The Table in **Appendix B** shows the information related to the status of establishment of Service Level Agreements between the AIS provider and the MET provider in the States.

5.9 From the Table, it follows that it is necessary to recommend and urge the States to sign this Agreement.

| 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 renew it for 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 SLLP. SLCB and SLVR are ready | Not valid subject to change. The review is annual | One year validity in SLLP, SLCB and SLVR | Based on Doc. 9377, Annex 3, Annex 10, Annex 11, PANS-ATM, Doc 7030, RAB93, RAB97, Doc 7910, Doc 8733, MPMET |
| **Brazil** | The CIRCEA 63-1/2020 Standard "Procedures Relating to the Exchange of Meteorological Information between the MET, ATS, SAR and AIS Agencies" contemplates 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 DGAC. There is one at the macro level, between administrations. Signed in February 2015<br>At the level of international and | 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 |

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| | national airports, they have since 2015, based on the Macro Agreement. | | | |
| **Guyana** | | | | |
| **French Guyana** | | | | |
| **Panama** | Letters of Agreement between ATS/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 ATS/MET/SAR services<br>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 the 2021 | National and ICAO documents. DINAC R3, Doc. 9328, Doc. 9377 – PANS-ATM |
| **Peru** | ATS/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 AIS/CON/ATM units. No date has been agreed, but it is under discussion.<br>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 ATS/MET Agreement | | The review is as required by ATS or MET according to the reference documentation.<br>This year, after the last audit, the letters of agreement are being reviewed. | Doc 9377, Doc 9328, 4444 PANS_ATM<br>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 Agreement (SLA) | | | | |
|---|---|---|---|---|
| **STATE** | **AIS/MET Service Level Agreement** | **Validity date** | **Actions to update** | **Based on Doc. 9377 and PANS-AIM** |
| **Argentina** | No SLA | | | |
| **Bolivia** | A SLA is being worked on with AIS | | | |
| **Brazil** | The CIRCEA 63-1/2020 Standard "Procedures Relating to the Exchange of Meteorological Information between the MET, ATS, SAR and AIS Agencies" contemplates coordination between AIS/MET. | No. | Updates when needed. | 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 minor adjustments need to be made | | Yes |
| **Guyana** | | | | |

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| **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** | There is no SLA | | | |

**Agenda Item 6: Follow-up of the Coordination Project for the issuance of homogeneous and continuous SIGMETs**

6.1 Under this agenda ítem, the following paper was reviewed:

- IP/03 - *Monitoring of the Coordination Project for the issuance of homogeneous and continuous SIGMETs* (Presented by the Secretariat)

6.2 The Meeting was informed that the CRPP decided to close the MET Program Projects for having fulfilled the generation of material and procedures for the implementations, replacing them with an Implementation Follow-up Project.

6.3 In addition, the Meeting was informed that, if new projects are proposed, they must adhere to the following guidelines:

a) Preparation of information related to meteorological phenomena en route that could affect the safety of aircraft operations (homogeneous SIGMET); either
b) Implementation of the ICAO Weather Information Exchange Model (IWXXM); either
c) Preparation of meteorological messages for exchange in a System Wide Information Management (SWIM) environment.

6.4 The Meeting decided to prepare two Projects, one for item a) and the other for b).

6.5 For item a), the Project will be prepared by the States of Argentina, Chile, Panama and Paraguay. The Secretariat will send the Project Charter, before the end of December, and the draft must be submitted to the Secretariat, no later than 15 February.

6.6 The Meeting invited the States to submit volunteers to prepare a project for item b). At this point, after the Meeting, the communication from Peru to lead a Project was received.

**Agenda Item 7: Follow-up to Space Weather surveillance activities**

7.1 Under this agenda ítem, the Meeting reviewed the Table in the **Appendix** to this part of the Report.

7.2 The Secretariat expressed concern about the reception, at MET units, of advisory information messages on space weather phenomena.

7.3 In the Table of the Appendix to this part of the report, you can see the advisory messages received by the States this year, as well as the recommendations for better performance in relation to these messages.

7.4 In the Table it can be seen that some States have prepared an alert system that notifies the personnel of the MET units about the reception of these advisory messages.

7.5 Additionally, it is noted that some States have prepared procedures for the use of these messages and their subsequent distribution to users.

7.6 The Meeting agreed that training would be required, both for MET personnel and for users, for a better use of advisory messages on space phenomena.

7.7 Brazil informed the Meeting of the intention that the National Institute for Space Research (INPE), in alliance with CIMAER, can organize a Space Weather Regional Center for the SAM Region.

7.8 Argentina also reported courses on Space Weather organized and delivered by the Regional Center of Argentina, as well as by the University of Buenos Aires (UBA).

**Monitoring of Space Weather surveillance activities**

| State | Advisory Messages on Spaces Weather Received | Actions by the State after receipt | Recommendation |
|---|---|---|---|
| **Argentina** | Received them but could not define the number of messages received. | | Forecasters have been trained on Space Weather. Continue to work with users (Airlines, Dispatchers, and pilots) to familiarize with Advisory messages about Space Weather |
| **Bolivia** | They received few messages, but of test. No real Advisory Messages received due to AMHS connection problems and addressing issues | | 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 Consortium (Russia-China). | There were no operational actions, as these were only test messages. Operational messages will be sent to CIMAER. | Receive tests also from the other Centers. |
| **Chile** | They received the messages, but test. 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. |

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| **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 they will take it to training in mid-June | | Preparing training courses.<br>After this training they will prepare the procedures.<br>There is a need for training at the regional level. |
| **Suriname** | Unable to provide further information on the subject. They will inform 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 messages from Advisory about Space Weather.<br>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<br>Training of Space Weather at the UBA. |
| **Venezuela** | They do not have information on receiving messages | | |

**Agenda Item 8: Other Business**

8.1 Under this agenda item, the following presentations were reviewed:

- PPT – *Presentation on Sub-Tropical Cyclone developed off the coasts of Uruguay and Brazil* (presented by Uruguay).
- PPT – *Presentation on the Activities of the MET Panel* (presented by Argentina and Chile)

Development of a Sub-Tropical Cyclone off the coasts of Uruguay and Brazil

8.2 Uruguay made a presentation on the latest events of sub-tropical cyclones in the SAM Region, mainly affecting the Montevideo and Curitiba FIRs, in order to resume the possibility of designating a cyclone advisory center for the region, already discussed. at the last meeting of GREPECAS MET Projects in 2019.

8.3 According to the presentation, it can be concluded that, from the observed data and studies carried out, it stands out that there is a greater documented frequency of extra-tropical cyclones in the region.

8.4 Sub-tropical and tropical cyclones have been reported in recent years in South America, but there is little literature on the matter, so it is not possible to have a valid conclusion about the trend of these systems in South America.

8.5 In relation to the last event, which occurred in mid-May 2022, the Miami TCAC was consulted to request support in this regard, who responded that they did not have the resources to provide the correct advice.

8.6 The Meeting noted that Brazil has prepared SIGMET TC, and has named the 2021 and 2022 cyclones as **Raoni** and **Yakecan**, respectively. When asked by the Meeting about what was the procedure for naming these cyclones, by Brazil, the answer was that the Navy of the mentioned State was the institution that gave the name to the cyclones.

8.7 The name was chosen by the Navy and made official through Special Circular 356/2022, published on 16 May. In Brazil, the choice of cyclone names in the South Atlantic is based on an alphabetical list of Tupi-Guarani terms, defined in a meeting with representatives of the Navy, DECEA, INPE (National Institute for Space Research) and INMET (National Institute of Meteorology), contained in the Standard of the Maritime Authority for Maritime Meteorological Activities 19 (NORMAM-19 – Appendix A). attached. Any of the 15 designations listed may be used and reused in other years.

8.8 List of cyclone names approved for use by the Brazilian Navy:

a) Arani (time of anger)

b) Bapo (rattle)

c) Cari (white man)

d) Deni (Indian tribe)

e) Eçaí (small eye)

f) Guará (wolf of the cerrado)

g) Iba (evil)

h) Jaguar (wolf)

i) Kurumí (child)

j) Mani (Indian goddess)

k) Oquira (leaf bud)

l) Potira (flower)

m) Raoni (great warrior)

n) Ubá (Indian canoe)

o) Yakecan (the sound of heaven)

8.9 According to STANDARD 19, when a Tropical or Subtropical Cyclone is forecast, the CHM (Navy Hydrographic Center) will analyze the meteorological products generated by sources external to the CHM and, if necessary, will make contacts to obtain the contributions of one or more of the following institutions, among others: INMET, CIMAER, Centro de Previsão Center for Weather Prediction and Climate Studies (CPTEC) of INPE, National Meteorological Service of Argentina (SMN), National Hurricane Center of the United States (NHC) and the Weather Prediction Center of the United States.

8.10 The Meeting requested to retake item 2 of the third meeting on the GREPECAS MET Projects program of 2019 in order to conclude the implementation process of a Tropical Cyclone Advisory Center (TCAC) for the SAM Region.

8.11 Additionally, the Meeting asked the Secretariat and the States to evaluate whether, with the current tools, we are in a position to prepare SIGMET TC, sub-tropical and extra-tropical.

8.12 Likewise, the Meeting mentioned the need for training forecasters in sub-tropical and tropical cyclones, as well as the need to document and investigate these events, and thus support with data and information the requirement to establish a TCAC for South America.

Briefing on the activities of the MET Panel

8.13 Argentina and Chile, through their representatives before the ICAO MET Panel, presented a briefing on the current activities of the MET Panel and the planning of changes in its structure, as well as the probable amendments to the MET documentation.

8.14 The delegates of the States mentioned indicated that the MET Panel is currently undergoing restructuring, as can be seen in the *power point* mentioned in point 8.1. Additionally, they reported the planning of Amendment 81 to ICAO Annex 3, which highlights the preparation of the PANS-MET.

8.15 In the presentation they highlighted the time-line for the socialization process of the proposal for Amendment 81, as well as its approval process.