



COM AMHS/3

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**

**RLA/06/901**

**THIRD WORKSHOP / MEETING OF  
SUPERVISORS / OPERATORS OF  
COM AMHS CENTERS  
(COM AMHS/3)**

**SUMMARY OF DISCUSSIONS**

**(Teleconferences, 21 to 24 February 2022)**

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

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## **HISTORY OF THE WORKSHOP/MEETING**

### **ii-1 WORKSHOP/MEETING DETAILS**

The Third Workshop/Meeting (Virtual) of Supervisors/Operators of AMHS Centers of the SAM Region, was held through teleconferences (Zoom), from 21 to 24 February 2022.

### **ii-2 OPENING**

Mr. Francisco Almeida, CNS Regional Officer of the ICAO South American Regional Office, welcomed the participants, highlighted the topics to be addressed and desired success in the deliberations. He then opened the workshop/meeting.

### **ii-3 LANGUAGES**

The working languages of the workshop/meeting were Spanish and English (simultaneous interpretation). The documentation was presented in both languages.

### **ii-4 PARTICIPANTS AND ORGANIZATION**

The Meeting was attended by representatives of the 13 States of the Region (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Panama, Paraguay, Peru, Suriname, Uruguay y Venezuela) and ICAO Officers, totaling 51 people. The list of participants appears on page iii-1.

Mr. Francisco Almeida, CNS Regional Officer, acted as Secretary of the Meeting.

**LIST OF PARTICIPANTS****ARGENTINA**

1. Gustavo Denami
2. Jimena Reyna
3. Jorge Ramos
4. Juan Francisco Castro
5. Juan Segovia
6. Mariana Cajal
7. Manuel Alberto Nuñez
8. Marcos Lemos

**BOLIVIA**

9. Leopoldo Condori
10. Ana María Tovar
11. Edgar Eliseo Blanco Pérez
12. Edwin Luis Espinoza Alcon
13. Javier Campos
14. Luis Angel Gutierrez

**BRAZIL**

15. Arthur Fernandes Silva
16. Euler Costa

**CHILE**

17. Jorge Poblete V.
18. Ricardo Velasquez

**COLOMBIA**

19. Claudia Sepúlveda
20. Luis Fernando Ramires León

**ECUADOR**

21. Darwin Yazbeck
22. José Paredes

**GUYANA**

23. Matthew Maycock

**PANAMA**

24. Daniel De Avila
25. Edgar Roberto Roca Valdes
26. Nimio Alvarez

**PARAGUAY**

27. Edilberto Astorga Ramírez
28. Luz Ferreira
29. Andrea Melissa Villar

**PERU**

30. Carlos Jesús Silva Pflucker
31. Adolfo Salvador Jiménez Ramírez
32. Wilfredo Meza Aramburú
33. Tania Noemí Miranda Garzón
34. Edson Diego Yataco Ochoa
35. Graciela Luz Obregón Egoavil
36. Henry Loza Campos
37. Juan Carlos Prado Mosquera
38. Martina Carmen Ramón Aquisel
39. Mike Moisés Valera Ríos
40. Raúl Anastacio Granda

**SURINAME**

41. Jurgen Cicilson

**URUGUAY**

42. Alicia Padilla
43. Andrés Barboza
44. Horacio Berretta Kramer
45. Jennyfer Patrik
46. Mary Casaña

**VENEZUELA**

47. Maricel Berroterán
48. Marla Sánchez
49. Sabrina Rodriguez

**ICAO**

50. Francisco Almeida
51. Javier Vittor

**Agenda Item 1: Approval of the agenda and meeting schedule**

1.1 Under this agenda item, the Meeting adopted the agenda and schedule of the workshop/meeting, which are included as **Appendices A and B** of this part of the Summary of Discussions.

**APPENDIX A****RLA/06/901 REGIONAL PROJECT****THIRD WORKSHOP/MEETING OF SUPERVISORS/OPERATORS OF  
COM AMHS CENTERS OF THE SAM REGION (COM AMHS/2)**  
(Teleconferences, February 21 to 24 2022)**PROVISIONAL AGENDA**

- Agenda Item 1: Adoption of the agenda and schedule of the meeting
- Agenda Item 2: Presentation of the approved contingency plans for message service prepared by SAM Region States
- Agenda Item 3: Review of routing tables and updating of information in the AMHS Address Management Centre (AMC) of EUROCONTROL
- Agenda Item 4: Review of the information constant in Vol II of the ANP CAR/SAM
- Agenda Item 5: Other issues

**EXPLANATORY NOTES OF THE PROVISIONAL AGENDA****Agenda Item 1: Adoption of the agenda and schedule of the meeting**

The Provisional Agenda and the Schedule proposed by the Secretariat for the Workshop/Meeting, will be submitted for consideration and approval by the participants.

**Agenda Item 2: Presentation of contingency plans for message service prepared by SAM Region States**

The States of the SAM Region shall submit the approved Contingency Plans prepared since the First Workshop/Meeting (Virtual) of Supervisors/Operators of COM AMHS Centres of the SAM Region (COM AMHS/1), held in September 2020.

**Agenda Item 3: Review of routing and exchange tables of updated information on AMHS addresses attributed in each State**

Under this agenda item, the routing tables between the COM Centers of the SAM Region and also with the COM Centers of other regions will be reviewed. Participants will also have the opportunity to update (on-line) the information in the AMHS Address Management Centre (AMC) of Eurocontrol and exchange experiences on the use of the resources available in the AMC web application.

**Agenda Item 4: Updating information at EUROCONTROL's AMHS Address Management Centre (AMC)**

Participants will review the information constant in *Table CNS II-1 – Aeronautical Fixed Telecommunications Network (AMHS/AFTN) Plan* of the CAR/SAM Air Navigation Plan.

**Agenda Item 5: Other issues**

Under this issue of the Agenda, participants will be able to discuss other matters related to the message service.

## APPENDIX B

## RLA/06/901 REGIONAL PROJECT

THIRD WORKSHOP/MEETING OF SUPERVISORS/OPERATORS OF COM AMHS CENTERS OF THE SAM REGION  
(COM AMHS/3)

(Teleconferences, February 21 to 24, 2022)

<b>HOUR (UTC)</b>	<b>Monday 21 February 2022</b>	<b>HOUR (UTC)</b>	<b>Tuesday 22 February 2021</b>	<b>HOUR (UTC)</b>	<b>Wednesday 23 February 2021</b>	<b>HOUR (UTC)</b>	<b>Thursday 24 February 2021</b>
13:45 14:00	Registration of participants	13:30 14:15	Agenda Item 2	13:30 14:15	Agenda Item 3	13:30 14:15	Agenda Item 4
14:00 14:15	Opening						
14:15 15:00	Agenda Items 1 & 2	14:15 15:00	Agenda Item 2	14:15 15:00	Agenda Item 3	14:15 15:00	Agenda Item 4
15:00 15:10	<b><i>Brake</i></b>	15:00 15:10	<b><i>Brake</i></b>	15:00 15:10	<b><i>Brake</i></b>	15:00 15:10	<b><i>Brake</i></b>
15:10 16:10	Agenda Item 2	15:10 16:10	Agenda Item 3	15:10 16:10	Agenda Item 3	15:10 16:10	Agenda Item 4
16:10 17:10	<b><i>Lunch Braek</i></b>	16:10 17:10	<b><i>Lunch Break</i></b>	16:10 17:10	<b><i>Lunch Break</i></b>	16:10 17:10	<b><i>Lunch Break</i></b>
17:10 18:00	Agenda Item 2	17:10 18:00	Agenda Item 3	17:10 18:00	Agenda Item 3	17:10 18:00	Agenda Item 5
18:00 18:10	<b><i>Brake</i></b>	18:00 18:10	<b><i>Brake</i></b>	18:00 18:10	<b><i>Brake</i></b>	18:00 18:10	<b><i>Brake</i></b>
18:10 19:00	Agenda Item 2	18:10 19:00	Agenda Item 3	18:10 19:00	Agenda Item 3	18:10 19:00	Closing Session

**Agenda Item 2:           Presentation of the approved contingency plans for message service prepared by SAM Region States**

2.1           Under this item of the agenda, the States were encouraged to prepare their Contingency Plans of the COM AMHS Centers and have them approved by the competent authority, for effective application by the Supervisors and Operators of the respective centers.

2.2           It was highlighted that this type of document is dynamic and constant revisions must be made. Likewise, it was indicated that the realization of simulations allows to evaluate the effectiveness of the Contingency Plan, identifying improvements in the procedures.

2.3           Another important aspect is that the staff of the COM AMHS Centers must have a list of the people and contacts of the other centers. **Appendix** of this part of the Summary of Discussions presents a table with this information.

2.4           The participants discussed the solutions adopted by the COM AMHS Center of La Paz, during a long period of contingency, due to the ineffectiveness of the P1 connections with the adjacent centers (Brasilia, Ezeiza and Lima).

2.5           Initially, the COM AMHS Center in Lima supported by relaying the messages to Bolivia via Internet e-mail. Similarly, the staff of the COM Center of La Paz transmitted the messages with recipients outside Bolivia to the Lima Center, via Internet, and the operators of Lima entered the messages into the AMHS system.

2.6           Subsequently, the Argentine staff supported with the installation of a UA (User Agent) of the Ezeiza COM AMHS Center in La Paz, via a REDDIG II TCP/IP circuit, allowing messages destined for users in Bolivia to be received by this terminal. Likewise, the personnel of La Paz directed the messages to other States, through this AMHS terminal.

2.7           Brazil has also supported with a similar solution, but with the installation of an AFTN terminal in La Paz, through a serial circuit via REDDIG II.

2.8           The representatives of Bolivia reiterated their thanks to the teams of Argentina, Brazil and Peru for the invaluable support provided during the contingency period.

2.9           The participants of the Workshop/Meeting were encouraged to consider the solutions adopted by the COM AMHS Center of La Paz and to review their contingency plans for the adoption of similar measures, if they deem them pertinent.

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**List of Personnel and Contacts of the SAM Region AMHS COM Centers**

<b>Estado/State</b>	<b>Nombre/Name</b>	<b>Email</b>	<b>Teléfono Público/ Public phone</b>	<b>Teléfono REDDIG/ REDDIG phone</b>
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### List of Personnel and Contacts of the SAM Region AMHS COM Centers

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**Agenda Item 3: Review of routing tables and updating of information in the AMHS Address Management Centre (AMC) of EUROCONTROL**

3.1 Under this issue of the agenda, the States proceeded to review the routing of the AFTN and AMHS tables of AMC (AMHS Address Management Center), using the access of the SAM Regional Officer, which allows only the visualization of the data.

3.2 The Secretariat requested the representatives of the States, mainly the CCC Operators (formerly AMC External Operator), who have access to make changes to the AMC web application, so that after reviewing the suggestions for changes proposed during the Workshop/Meeting, they update the information in the AMC web application.

3.3 The CCC Operators themselves can upload the tables, through the AMC web application. Another possibility is to send (via email) the tables to the AMC Operator (AMC.Operator@nats.co.uk) and AMC Support Operator (amc.support@eurocontrol.int), requesting the update of the routing information in the subsequent AIRAC cycle. The originator of the email must be a CCC Operator, using the email address registered in the AMC web application.

3.4 The CCC Operator must be involved with the operation of the COM AMHS Center (Supervisor or Operator, for instance) and is responsible for reviewing the information presented in the Bulletin Board on the AMC web application for each AIRAC cycle, as well as reporting the necessary changes regarding its specific COM Center.

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**Agenda Item 4: Review of the information constant in Vol II of the ANP CAR/SAM**

4.1 Under this item of the Agenda, the participants were informed that, by mandate of GREPECAS, the update of Volumes I and II is being carried out, as well as the elaboration of the new Volume III of the Regional Air Navigation Plan CAR/SAM (ANP CAR/SAM).

4.2 In this sense, during the SAM/IG/26 Meeting (Virtual, from September 20 to 23, 2021), the CNS/ANP Subgroup was activated, through the *Conclusion SAM/IG/26-03 - Review of the CNS tables of Vol. II of the CAR/SAM Air Navigation Plan and support in the preparation of Vol. III of the CAR/SAM ANP, on CNS issues*. The Appendix to this part of the Summary of Discussions presents Conclusion SAM/IG/26-03.

4.3 Through Letter SA5479 of 20 October 2021, the SAM Office has requested States to designate participants for the CNS/ANP Subgroup of the Interop TF.

4.4 The Secretariat of the Workshop/Meeting highlighted the importance of the components of the COM AMHS Centers supporting the work of the representatives of the States in the CNS/ANP Subgroup, specifically with table **CNS II-1 – Aeronautical Fixed Telecommunication Network (AFTN/AMHS) Plan**.

4.5 The participants of the Workshop/Meeting noted that, during the Workshop/Meeting GT INTEROP/3 (Virtual, from 14 to 17 March 2022), the components of the COM AMHS Centres will be able to collaborate with the representatives of the CNS/ANP Subgroup.

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### Appendix

<b>Conclusion SAM/IG/26-03</b>		<b>Review of the CNS tables of Vol. II of the CAR/SAM Air Navigation Plan and support in the preparation of Vol. III of the CAR/SAM ANP, on CNS issues</b>	
<b>That:</b>		<b>Expected impact:</b>	
<ul style="list-style-type: none"> <li>a) The CNS/ANP Subgroup, activated at the SAM/IG/26 Meeting, review the CNS tables contained in Vol. II of the CAR/SAM Air Navigation Plan, referring to the information of the SAM States and provide support in the preparation of Vol. III of the CAR/SAM ANP, on CNS issues;</li> <li>b) The Secretariat circulate a letter to the SAM States for them to nominate participants of the CNS/ANP Subgroup; and</li> <li>c) The SAM States nominate representatives in a sufficient number to carry out the tasks assigned to the CNS/ANP Subgroup.</li> </ul>		<ul style="list-style-type: none"> <li><input type="checkbox"/> Political / Global</li> <li><input type="checkbox"/> Inter-regional</li> <li><input type="checkbox"/> Economic</li> <li><input type="checkbox"/> Environmental</li> <li><input checked="" type="checkbox"/> Technical/Operational</li> </ul>	
<b>Why:</b>			
Update the information in Vol. II of the CAR/SAM Air Navigation Plan and provide support in the preparation of Vol. III of the CAR/SAM ANP, which concerns CNS planning aspects.			
<b>When:</b>		<b>Status:</b>	
Immediately		Adopted by SAM/IG/26	
<b>Who:</b>			
<input checked="" type="checkbox"/> Coordinators <input checked="" type="checkbox"/> States <input checked="" type="checkbox"/> ICAO SAM Secretariat <input type="checkbox"/> Others:			

## Agenda Item 5: Other issues

5.1 Under this agenda item, the participants received other information related to the operation/implementation of the COM AMHS Centers.

### *Use of the Web Service*

5.2 The participants of the workshop/meeting were informed that the current trend is that the data used in the aeronautical context is being exchanged, less and less, with text messages (AFTN/AMHS) and become more common the use of new formats and modern techniques of information exchange (database to database).

5.3 A widely used form of data exchange today is through a web service. A web service is an application that can be described, published, located through a network, generally the Internet.

### *Regional OPMET Data Base of Brasilia*

5.4 The current Regional OPMET Data Base of Brasilia is an example of a web service implementation. Even though it maintains the possibility of sending and receiving meteorological information via the Aeronautical Message Handling Service (AMHS), a web server was implemented that provides the interconnection from system to system, allowing the exchange of information in a more effective way. Figure 5-1 describes the concept of the OPMET Regional Bank of Brasilia.

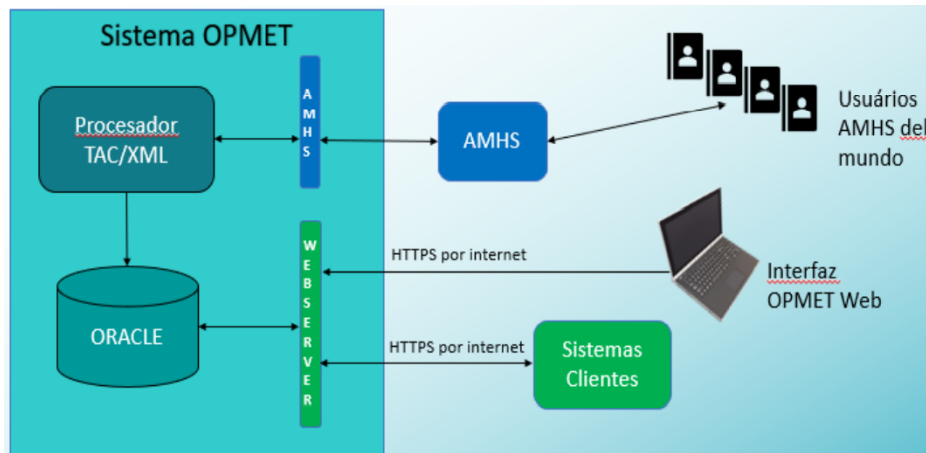


Figure 5-1 – Concept of the Regional OPMET Data Base of Brasilia

5.5 The systems can be connected through a private (Intranet) or public (Internet) network. The meteorological information received by the message service (AMHS) are encoded texts and the receiver needs to know the encoding used to understand the content. On the other hand, a system connected to the web server of the Regional OPMET Data Base system can provide its users with a more user-friendly presentation of meteorological information, using sensory resources (images, colors, sound, graphics, tables, etc.), allowing a better understanding of the transmitted information.

5.6 Figure 5-2 shows the presentation of meteorological information on the REDEMET website, through the use of a web service. It is important to observe the quality of the information provided with a graphic display of a map, a box with the meteorological information of the selected locality (SBFN

- Fernando de Noronha Island) presented in plain text (**Visibility:** Greater than or equal to 10 km, **Temperature:** 29 °C, etc.), in addition to providing the local METAR and TAF encoded texts.



Figure 5-2 – Meteorological information presented on the REDEMET website

### **SWIM concept**

5.7 The SWIM (System Wide Information Management) concept is made up of standards, infrastructure and governance that allow the management of ATM information and its exchange between qualified parties through interoperable services.

5.8 SWIM is considered as an ATS information repository and in this sense ICAO is supporting the joint efforts that SESAR and NEXTGEN are making to reach a global solution.

5.9 The SWIM infrastructure is a set of software components distributed in a network infrastructure that allows interoperability between ATM systems (civil and military), including aircraft. It provides connected systems with the technical means to support application services in the invocation of information services and non-functional services. All of these services are interoperable through the use of standard technology and a common data representation. Figure 5-3 presents the components of the SWIM concept.

### **AIRM (ATM Information Reference Model)**

5.10 The information exchanged between interested parties must be defined, so that it can be used correctly by consumers and producers. AIRM (ATM Information Reference Model) is a reference model that helps to guarantee the harmonization of ATM information models, reducing costs in the exchange of information in different environments.

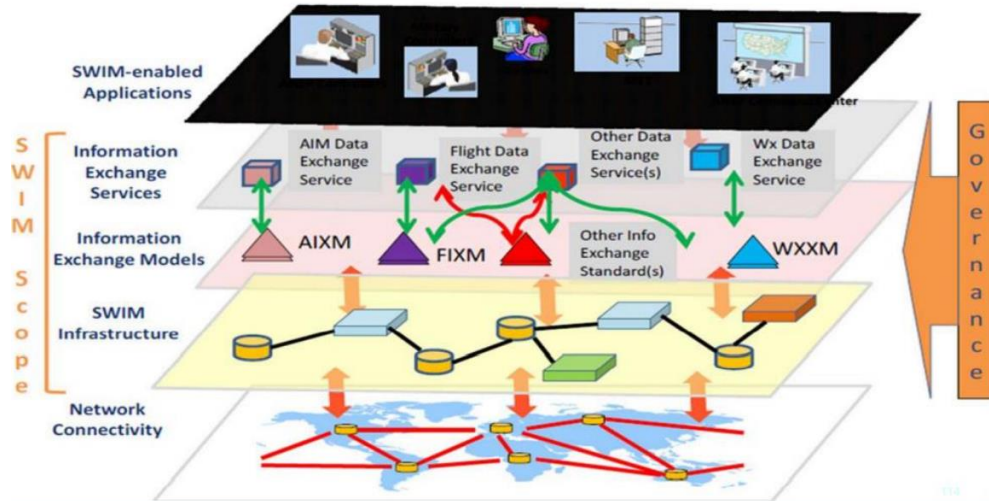


Figure 5-3 –SWIM Concept

5.11 The main AIRM information exchange models are:

- FIXM: Flight Information Exchange Model (globally standardized flow and flight information exchange model).
- AIXM: Aeronautical Information Exchange Model (AIS information exchange model in digital format).
- IWXXM: ICAO Meteorological Information Exchange Model (aeronautical meteorological information exchange model).
- AMXM: Aerodrome Mapping Exchange Model (information exchange model for aerodrome mapping database).

5.12 The AIRM information exchange models use XML/GML as the coding syntax for the information exchanged. XML is a markup language created by the World Wide Web Consortium (W3C) to define a syntax for encoding documents that humans and machines can read. It does this through the use of labels (tags) that define the structure of the document, as well as the way the document should be stored and transported.

5.13 The Geography Markup Language (GML) is the XML grammar defined by the Open Geospatial Consortium (OGC) to express landforms. GML serves as a modeling language for geographic systems, as well as an open exchange format for geographic transactions on the Internet.

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