



INTERNATIONAL CIVIL AVIATION ORGANIZATION

**Fifth Meeting of the APIRG Infrastructure and Information Management Sub-Group
(IIM/SG4)***(Virtual, 26th – 29th July 2022)***Agenda Item 3: Achievements in AIM, CNS and MET****WP3.1D1 Summary of achievements of APIRG IIM regional Projects
(Aeronautical Meteorology (MET) Project 1)**

Implementation of information concerning en-route weather phenomena which may affect the safety of aircraft operations (SIGMET), Quality Management System for aeronautical meteorology (QMS/MET) service and Digital OPMET data Exchange (DOPMET), in the AFI region

[Presented by: Met Project 1 PTC (South Africa)]

SUMMARY
<p>This working paper provides the summary of achievements on the implementation of APIRG Projects under APC IIM SG Meteorology Project 1, and highlights the challenges encountered by the team for consideration by the meeting.</p> <p>Action by the meeting are as presented in paragraph No.3</p>
<p>REFERENCE(S):</p> <ul style="list-style-type: none">▪ ICAO State Letter reference T17/6.11 (C) -0320 dated 20 July 2021 and T17/6.11(C) -0357 dated 3rd August 2021▪ APIRG 23rd meeting Report, Con 23/20,21,22, and 27 & Decision 23/38▪ Doc 9750, Global Air Navigation Plan▪ Electronic Air Navigation Plan— Africa-Indian Ocean Region (eANP- AFI)▪ APIRG Procedural Handbook
<p>This working document relates to ICAO Strategic Objectives:</p> <p>A – Aviation Safety, B – Air Navigation Capacity and Efficiency,</p> <p>KPIS and concerned ASBU B0 Modules:</p> <p>B0/1-AMET PFF – 1, ASEP, FRTO, CDO and CCO</p>

1. INTRODUCTION

1.1. Aeronautical meteorological service provision is integral to the realization of a safer and more efficient globally interoperable air transport system. In this regard, Aeronautical Meteorology (MET) is required to provide information to satisfy the needs of the future ATM system. As the future ATM system evolves, the demands on MET will require improved or new systems, information, and products to support it.

In line with the latest edition of the Global Air Navigation Plan (GANP) approved by ICAO Council and the associated Aviation System Block Upgrades (ASBU) methodology, the overarching

outcome of MET/14 is that the future development of MET services shall be fully aligned and integrated into the future System Wide Information Management (SWIM) system.

APIRG Infrastructure and Information Management Sub – Group, Meteorology Project one (APIRG IIM/SG MET Project 1) was established in 2017, during the first meeting of APIRG IIM/SG meeting held in Nairobi, Kenya from 27 to 30 June 2017. The main objective for its establishment has been to assist AFI states with the implementation of:

- a) SIGMET and standards and recommended practices of Annex 3 and Part V – MET of the AFI Air Navigation Plan (ANP), Volumes I, II, III concerning the issuance and distribution of en-route weather phenomena including volcanic ash clouds (WV), tropical cyclones (WC) and other phenomena (WS - thunderstorms if the thunderstorm is obscured or obscured with hail, embedded or embedded with hail, frequent or frequent with hail, squall line or squall with hail, severe turbulence, severe icing or severe icing due to freezing rain, severe mountain wave, heavy dust storm and heavy sandstorm), likely to affect the safety of aircraft operations, and the evolution of such phenomena in time and space (SIGMET WV, WC and WS);
- b) QMS/MET and certification where applicable, by developing a regional QMS/MET guide to assist States in the production of MET documentation under ISO 9001, enhancing the training of MET personnel in States that have not implemented QMS, encouraging States to institute cost recovery mechanism to support QMS maintenance in accordance with ICAO Annex 3 and Part V – MET of the AFI ANP, and conducting audit trials.
- c) An action plan to assist concerned States in their effort to remove air navigation deficiencies in the MET field listed in the APIRG report; and
- d) The transition plan from current aeronautical meteorological information to the future SWIM-enabled environment in the AFI region by encouraging AFI States to progressively develop capability of handling OPMET data in digital format (XML/GML) and to start using XML/GML codes in operational environment by the timelines stipulated in Annex 3.

1.2. The tasks of APIRG IIM SG Met Project 1 were developed to be undertaken by experts in the field of aeronautical meteorology as nominated by AFI States. South Africa is the Project-Team Coordinator (PTC) and the Project Facilitators are the Regional Officers (ROs/MET-ENV) from ICAO Dakar and Nairobi Offices.

1.3. In addition to the above nominated APIRG IIM SG Met Project 1 team members, further formal appointments of new members were approved by the ICAO IIM/SG held Virtually from the 10th to the 12th of August 2020.

1.4. Activities of APIRG IIM SG MET Project 1 officially started in March 2018 and the revision of its Deliverables and project description were approved by APIRG through APIRG conclusion 23/27 in November 2020 and further amendments were made in 2022 (through decision 24/25).

2. DISCUSSIONS

Outcomes of MET Project I meetings and activities

2.1 The meeting may recall that Conclusions 20,21,22 & 27 of the APIRG 23 formulated several intervention areas to improve the coordination mechanisms of the IIM Projects. In this regard, APIRG IIM SG Met Project 1 has undertaken several activities as part of the implementation of its tasks and the status of which is reported below.

The IIMSG Met Project 1 activities implementation status reported in the table below:

NO	TASK	RESPONSIBLE PERSON	PLANNED DATE	COMMENTS / STATUS
1	PTC and experts' appointment finalisation	States / Organizations	Immediately (2018)	Completed
2	Project Team Activities	PTC	2018 and updated in August 2020 and November 2021	completed
3	Project Terms of Reference (ToR) and Description	PTC and Team Members	2018 and revised in March 2020	Completed
4	Project link finalisation	PTC	August 2018 updated as and when necessary	Completed, however the linkages with AAO have not been finalised
5	Project Questionnaires	PTC and Team Members	2020, January 2021	Completed
6	Project Costing	PTC	2021	Completed
7	Project Deliverables	Workstream leaders	Jan 2020 – December 2022	SIGMET: SIGMET Guide and SIGMET Trial Procedure reviewed QMS: Questionnaire distributed, and outcome analysed MET Deficiencies: on hold D OPMET Exchange: States are encouraged to enter into bilateral agreement
8	Conclusions and Decisions	PTC	December 2022	
9	Reframing of Met Project-1 deliverables	PTC	June 2022	Completed

IIM SG Met Project 1 questionnaires

- 2.1 The Met Project 1 team developed three questionnaires in the areas of **QMS**, **IWXXM** and **AAND** in Aeronautical Meteorology. With the assistance of ICAO AFI regional Officers, the team managed to have the questionnaires distributed to the AFI States, whilst the third one is still on hold due to the pending process of defining the minimum reporting requirements for Air Navigation Deficiencies within the AFI region. Outcomes of the two questionnaires related to the readiness of AFI States to exchange Met information in ICAO Meteorological Information Exchange Model (IWXXM) and the implementation of Quality Management System have also been analysed.

IWXXM Training seminars/workshops

- 2.2 In accordance with APIRG 20 Resolution 20/45, training/seminars in the AFI Regional were required in order to (a) develop capacity building for handling OPMET data in digital format; and (b) to increase awareness to users of exchange of OPMET in digital format and expedite transition for handling OPMET in digital form. In this regard, virtual workshop on the implementation of IWXXM took place on the 25th of August 2021.

Questionnaire to assess the implementation level were distributed through State Letter ES AN 8/4-0239 and States were also encouraged to enter bi-/multi-Lateral TAC to IWXXM agreement with states who have already developed the capacity to do so. Distributed questionnaire sort to establish how far AFI States have progressed in the process of developing capabilities to handle OPMET data in IWXXM.

Quality Management System

- 2.3 Guided by METP/4 Decision 8/1 which called for the discontinuation of the Manual on the Quality Management System for the Provision of Meteorological Service for International Air Navigation (ICAO Doc 9873). ICAO Doc 9873 was replaced by WMO-No. 1100 (Guide to the Implementation of Quality Management Systems for National Meteorological and Hydrological Services and other Relevant Service Providers) and this document is serving as an official guide for QMS Implementation. This change was in line with Amendment 79 to the International Standards and Recommended Practices, Meteorological Service for International Air Navigation (Annex 3 to the International Convention on International Civil Aviation) and received recognition through APIRG conclusion 23/27.

National Meteorological and Hydrological Services were informed through State Letter No. AN 10/1.1-20/16 issued by the ICAO Office. This was followed by State Letter No. T10/27 – 0127 informing States about the Virtual workshop on the implementation of quality management system for Aeronautical Meteorological Service providers.

The link to the QMS questionnaire was distributed to States through State Letter ES AN 1/6 – 0018 on the 4th of March 2021. The questionnaire was meant to establish the implementation level of QMS within the AFI region and the outcome was also analysed.

Aeronautical Met Competency Assessment

- 2.4 APIRG 24 Decision 24/25: Aeronautical Meteorological Personnel Competency Assessment: To improve States' aeronautical meteorological personnel competency, the IIM Subgroup Met Project 1, in coordination with States, to develop a process for assessing the competency of Aeronautical Meteorology Personnel within the AFI Region. The work is ongoing, to determine the base line, the team is awaiting the outcome of the Training organised by WMO, which is planned to take place from 29th of August until the 02nd of September 2022.

Annual AFI SIGMET Tests

- 2.5 The annual AFI SIGMET Test was conducted on the 1st, 2nd, and 3rd of December 2021. Based on the results of the AFI SIGMET Trials, IIM SG Met Project 1 team noted the participation rate by the Meteorological Watch Offices as indicated below:

- 2.5.1 A decrease from 60% to 40% on the SIGMET Test for WC
- 2.5.2 An increase from 31.03% to 37,93% on the SIGMET Test for WV
- 2.5.3 A decrease from 51.72% to 41,38% on the SIGMET Test for WS

The overall participation rate has improved from 51,72% in 2020 to 58.6% in 2021 and the report has also shown that the quality of SIGMET messages has increased.

The virtual workshop on SIGMET Tests in the AFI Region is planned to take place on the 23rd of November 2022 and it is invited through State letter T10/25 – 0164 dated 16th of June 2022. Participants are encouraged to register before the 21st of November 2022. This is aimed at addressing the quality of SIGMET Messages as well as the participation rate.

IIM SG Met Project 1 costing

2.6 The project costing was calculated and presented to IIMSG/4 in 2021.

APIRG 24: Conclusions and decisions

2.7 Refer to Appendix: XX: Project Implementation Status: Most of the conclusions which relates to Met Project 1 are on track whilst one has not moved besides the effort made.

Reframing of Met Project 1 deliverables

2.8 Refer to Appendix: XX to this working paper.

Challenges and Way forward

2.9 The IIM SG Met Project 1 encountered few challenges during the implementation of its activities:

- (a) Low rate of response to questionnaires by AFI states delays the work of the project team.
- (b) Lack of participation to the annual SIGMET tests by AFI MET Watch Offices (MWOs).

Way forward

The secretariat encourages States to:

- a) Participate in the planned SIGMET workshop planned for November 2022,
- b) to participate in the annual AFI SIGMET Tests planned to take place in November/December 2022 and
- c) Enter into bi-/multi-lateral TAC to IWXXM agreement with states who have developed the capacity to do so (to improve implementation level within the region).

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
- a) note of the information provided in this paper
 - b) review and provide input, the status of ASBU Threads/Elements related to ASBU Block 0 - AMET and encourage states to update their status of implementation
 - c) Encourage States to provide support to the nominated experts, that will enable them to provide meaningful contribution to the work of the project teams.

- 3.2 **Draft Conclusion/Decision 4/xx: Adoption of the Re-alignment of the IIM/SG Meteorology Project 1 activities to the 6th edition of GANP of IIMSG MET Project 1**

That ;

- a) APIRG IIM/SG/5 considers and adopts the reframed MET Project 1 Tasks and deliverables as contained in Appendix A: and

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