



SAFE SKIES.
**SUSTAINABLE
FUTURE.**

ESAF Regional Aeronautical Meteorology Seminar

Hilton Garden Inn Windhoek, Namibia
4-6 June 2024





Theme: *Aeronautical meteorology in the ESAF Region: building capacity & strengthening collaboration*

PROGRAMME

- Available on the meeting's webpage
- Presentations will also be uploaded on the same page



Theme: *Aeronautical meteorology in the ESAF Region: building capacity & strengthening collaboration*

INTRODUCTIONS

- Your name
- Job Title and Organisation
- Name one specific aspect of climate change that concerns you the most as a meteorologist.

Latest Developments from ICAO and Regional Aeronautical Meteorology Activities

Ms. Chinga Mazhetese

Regional Officer Environment/ Aeronautical Meteorology, ICAO ESAF

ICAO ESAF Regional Seminar on Aeronautical Meteorology
Building capacity & strengthening collaboration

Windhoek, Namibia, 4-6 June 2024

Presentation Overview

01

ICAO 80th Anniversary and Air Navigation Capacity & Efficiency

02

ICAO Annex 3 latest amendments

03

ICAO System Wide Information Management (SWIM)

04

Regional MET Opportunities and Challenges

05

Upcoming activities

06

Conclusion

- **From 1944 to 2024**

- 2024 marks the 80th anniversary of the establishment of the International Civil Aviation Organization (ICAO).
 - presents a valuable opportunity to demonstrate ICAO's dedication to a safe, secure and environmentally sustainable aviation sector..
- highlights ICAO's key achievements over the past eight decades and the contributions of its member States:
 - and articulate ICAO's vision for the future.

Why celebrate this milestone for Aeronautical Meteorology (MET)?

- celebration emphasizes the critical role that meteorology plays in aviation.
- Recognizing Progress: opportunity to reflect on the significant advancements made in aeronautical meteorology since ICAO's establishment, which have greatly enhanced aviation safety and efficiency.
- Strengthening partnerships e.g. ICAO & the WMO
- anniversary provides a platform for meteorologists, aviation professionals, policymakers, and researchers to come together and discuss future challenges and opportunities in MET.

Air Navigation Capacity and Efficiency

7



ICAO CAPACITY AND EFFICIENCY

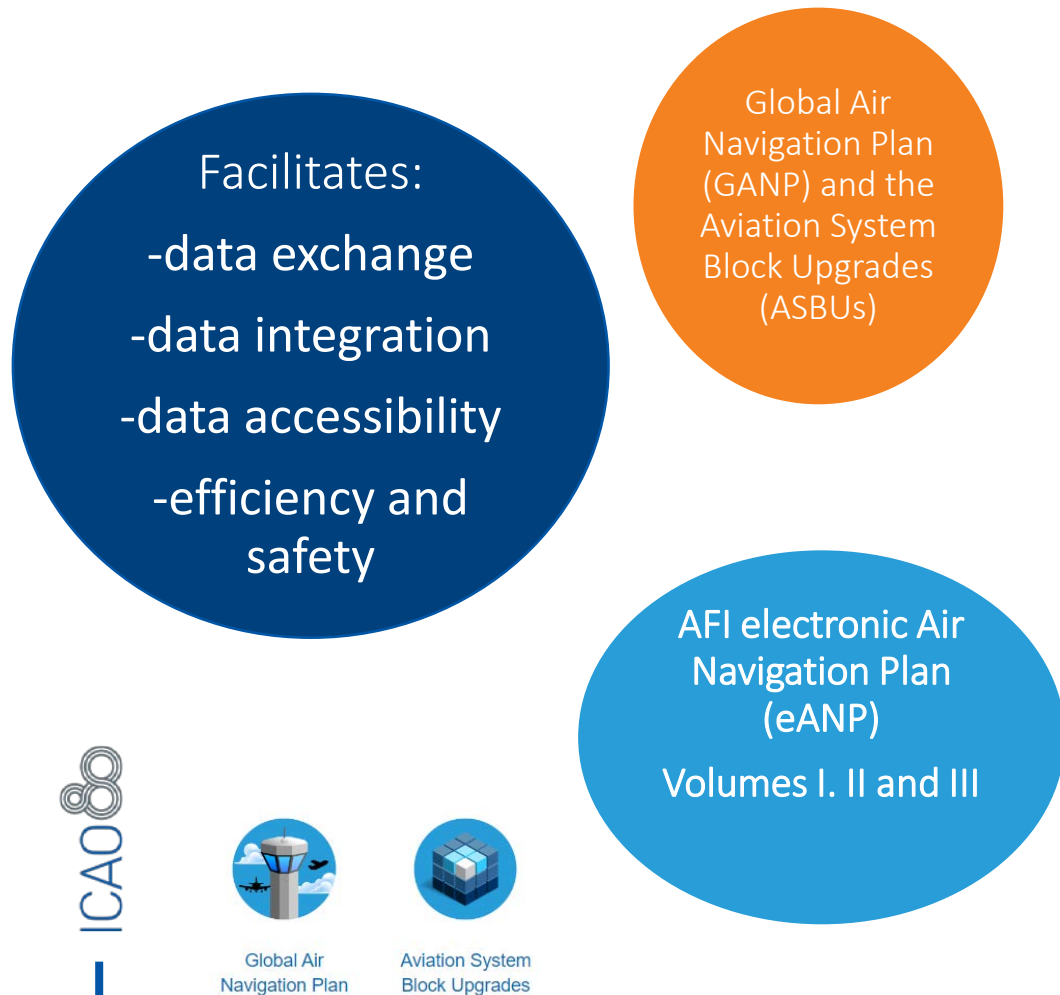


- ICAO's Global Air Navigation Plan (GANP)
 - Air Navigation Capacity and Efficiency is not just about accommodating more flights;
 - it's about *creating a safer, more efficient, and more sustainable aviation system* that can meet the growing demands of the 21st century.
- Aeronautical meteorology (MET) plays a crucial and multifaceted role in ICAO's Global Air Navigation Plan (GANP)

Importance of ICAO System Wide Information Management (SWIM)

8

an enabler for the Aviation System Block Upgrades (ASBUs)



ICAO SWIM (System Wide Information Management) :

- a global initiative aimed at **modernizing the way aviation information is managed and exchanged.**
- provides a standardized framework and infrastructure for the seamless sharing of aeronautical data among various stakeholders
 - air navigation service providers, airlines, airports, and meteorological agencies.
- Exchanging weather information
 - Aeronautical Fixed Telecommunication Network (AFTN)- older system.
 - Aeronautical Message Handling System- AMHS- newer internet-based system.

Amendment 81 to Annex 3



Global Air
Navigation Plan



Aviation System
Block Upgrades

State Letter AN 10/1-23/1 arising from the 5th meeting of ICAO's Meteorology Panel (METP)

Restructured Annex 3 and new PANS-MET:

- Annex 3 has always contained:
 - Part 1- SARPs
 - Part 2- Appendices and Attachments
- The new PANS-MET, Doc 10157
 - Repacking of Part 2 of Annex 3
- Restructured Annex 3
 - Contains only SARPs
 - Same chapters as the current Annex 3 but with a few amendments
 - Changes
 - Space weather, IWXXM, WAFS etc.
 - Virtual ESAF/WACAF workshop in March 2023

• Restructured Annex 3

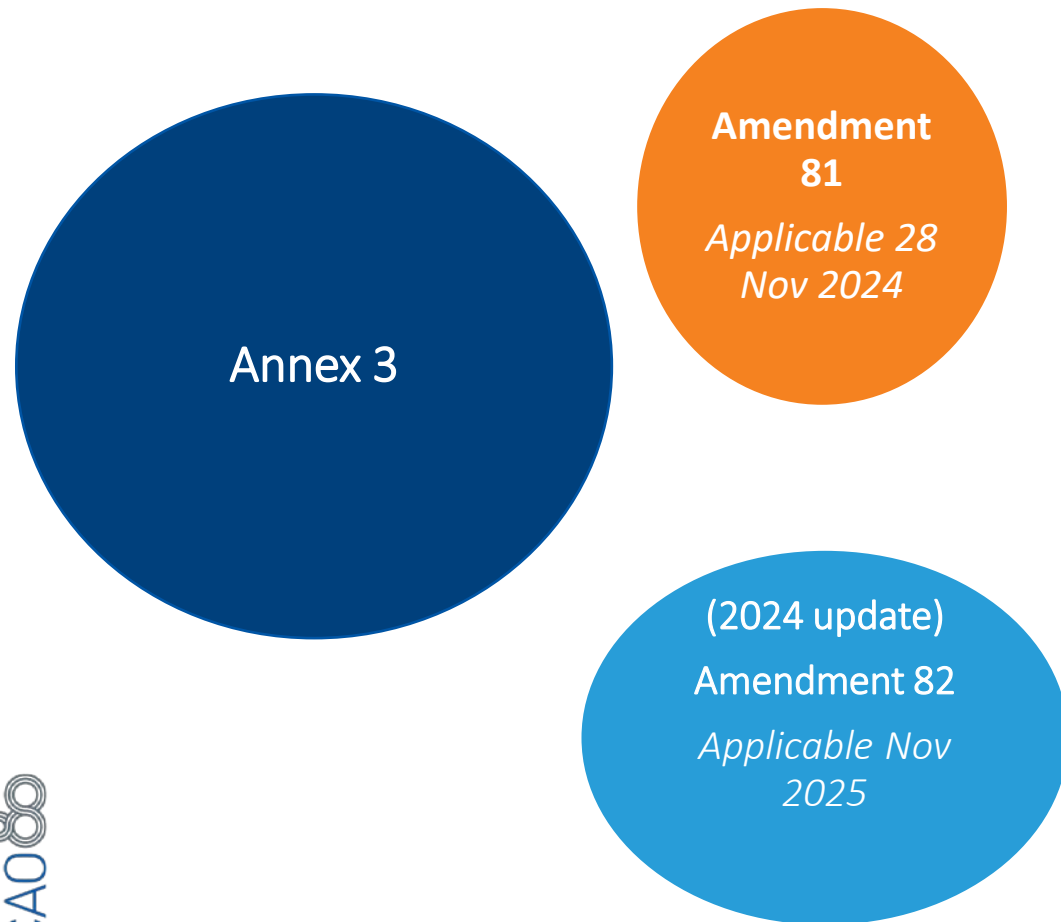
- Contains only SARPs
- Same chapters as the current Annex 3 but with a few amendments

• The new PANS-MET

- Creation recommended by the Meteorological MET Divisional Meeting (2014)
- Contains technical specifications
- Chapters, appendices and attachments
- Reason for creation- *To better document the move from "product centric" to an "information centric" environment under SWIM*

Amendments to Annex 3- Important Note!!!

10



Restructured Annex 3 and new PANS-MET:

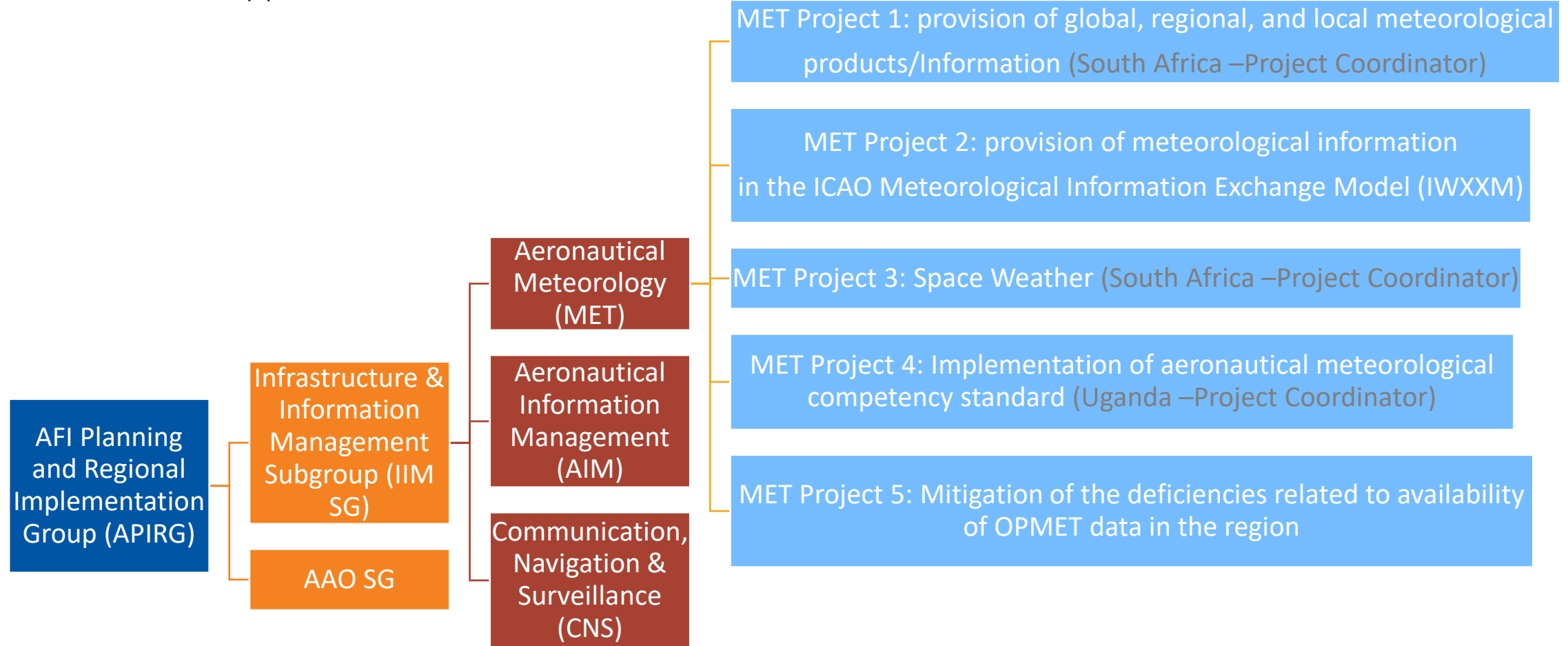
- change to the introduction date of what was proposed for Amendment 81 and the PANS-MET.
- There will be an amendment 81 in November 2024
 - but it will **not** contain most of the MET changes that were part of the State consultation (SL. AN 10/1-23/1)
- still under the final review by the Air Navigation Commission (ANC)
- with the expected applicability date of November 2025 as the 82nd amendment to Annex 3 and a new PANS-MET.

Regional Activities

APIRG MET Projects

12

Created to support States with identified challenges in the Region



Encouraging ESAF States to nominate experts to participate in these Projects

Unavailability of OPMET data- plan to remove air navigation deficiencies in the MET field (Dashboard)

13

20th meeting of the AFI Planning and Regional Implementation Group (APIRG)

(Yamoussoukro, Côte d'Ivoire; 30 November - 2 December 2015)

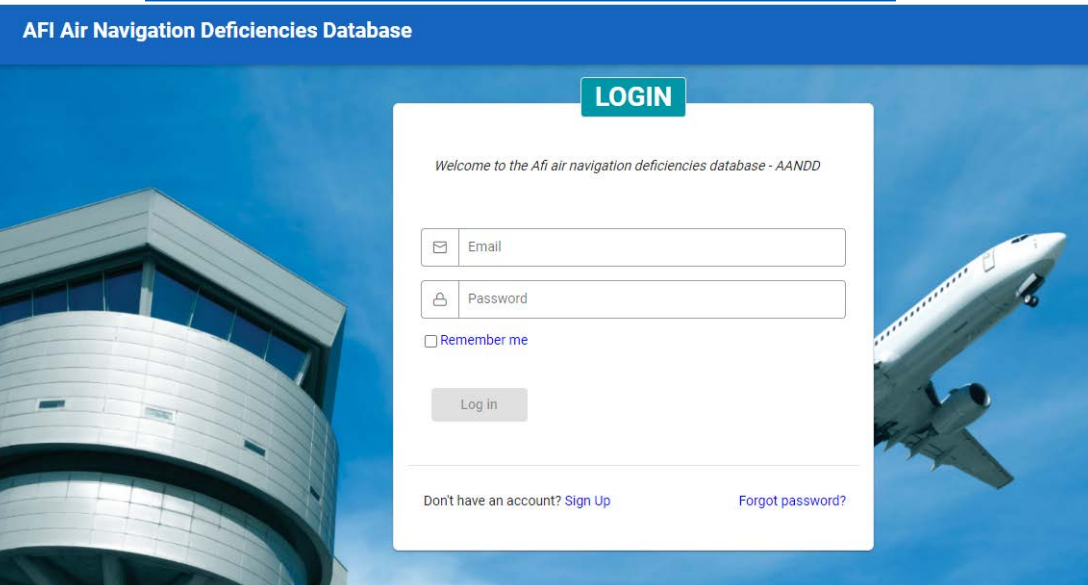
AFI Planning and Regional
Implementation Group (APIRG)



APIRG Conclusion 20/43: Action plan to remove air navigation deficiencies in the MET field

That:

- a) ICAO Regional Offices in Dakar and Nairobi, update the air navigation deficiencies in the MET field in the remaining non-visited AFI States;*
- b) AFI States where deficiencies still persist, endeavour to establish and implement an action plans aimed at removing air navigation deficiencies in the MET field; and*
- c) AFI Regional OPMET Data Banks (RODBs) present statistics on availability of OPMET data, using the following thresholds: “above 97% availability, between 50% and 97% availability and below 50% availability”.*



Ongoing Regional Activities

14

Key activities

APIRG Meetings

- IMSG (annually)
 - Next SG from 5-9 August 2024 in Dakar, Senegal
- APIRG27 Meeting (annually)
 - Next meeting in November in South Africa

SIGMET Tests

- Once per year around the Nov and Dec period

Volcanic Ash Exercise

- Every two years
 - Last one was in 2023

Cooperative Development of Aeronautical MET Services in the AFI Region (CODEVMET) Project

- Only Botswana is a CODEVMET member from the ICAO ESAF Region
 - Signed the MSA and paid the annual contribution

Important links to Key Documents

15

IWXXM Guide

- <https://www.icao.int/ESAF/Pages/AFI-IWXXM.aspx>

AFI MET Bulletin Exchange (AMBEX) Handbook

- https://www.icao.int/WACAF/Documents/edocs/AMBEX%20Handbook-7thEdition_Amend.%204%20Dec.14.pdf

AFI SIGMET Guide

- <https://www.icao.int/WACAF/Documents/edocs/AFI%20SIGMET%20Guide%20Edition%202021.pdf>

APIRG Reports

- <https://www.icao.int/WACAF/Pages/apirg.aspx>

AFI electronic Air Navigation Plans (Volumes I-III)

- MET under Part V
 - <https://www.icao.int/ESAF/Pages/AFI-eANPs.aspx>

AFI electronic Air Navigation Plans (Volumes I-III)

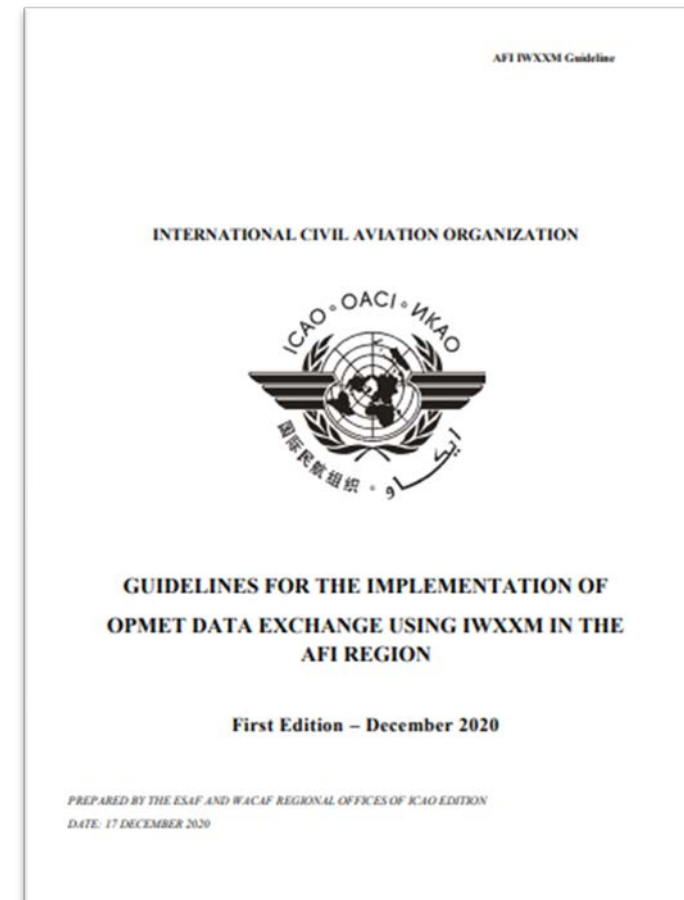
- https://aandd.icao.int/?_gl=1*_vlhb37*_ga*_MzUxMzY2Mjc4LjE2NTU2Njg3MzE.*_ga_992N3YDLBQ*_MTcxNjI5MTU3My41NTYuMS4xNzE2MjkxOTQ2LjAuMC4w

IWXXM Implementation

16

IWXXM (ICAO Meteorological Information Exchange Model) is a standardized format designed by the International Civil Aviation Organization (ICAO) and the World Meteorological Organization (WMO) for the exchange of Operational meteorological (OPMET) information in aviation.

- ICAO:
 - mandated the transition from traditional alphanumeric codes (TAC) to IWXXM for the exchange of meteorological information:
 - Progress still slow for ESAF States.
 - [AFI IWXXM Guideline](#)



Unavailability of OPMET data

- Communication infrastructure is the main challenge
 - Older system: Aeronautical Fixed Telecommunication Network (AFTN)/ Newer system: Aeronautical Message Handling System (AMHS)

Low of participation in annual SIGMET Tests

- Tropical cyclone; Volcanic Ash and Weather Phenomena
- Less than 50% of MET Watch Offices (MWOs) participate.
- In most countries, the national meteorological service or a specific department within it acts as the MWO

Air Navigation Deficiencies

- ICAO launched the AFI Air Navigation Deficiency Database (AANDDD)

Status of ASBU Implementation

- Information from the MET Service Providers
 - Data required for updating the AFI eANP Vol III
 - ASBU Modules and Elements

Example

- *Module:* AMET-B0: Global, regional and local meteorological information to support flexible airspace management, improved situational awareness, collaborative decision-making and dynamically optimized flight trajectory planning.
- *Elements:*
 - AMET-B0/1 Meteorological observations products
 - AMET-B0/2 Meteorological forecast and warning products
 - AMET-B0/3 Climatological and historical meteorological products
 - AMET-B0/4 Dissemination of meteorological products

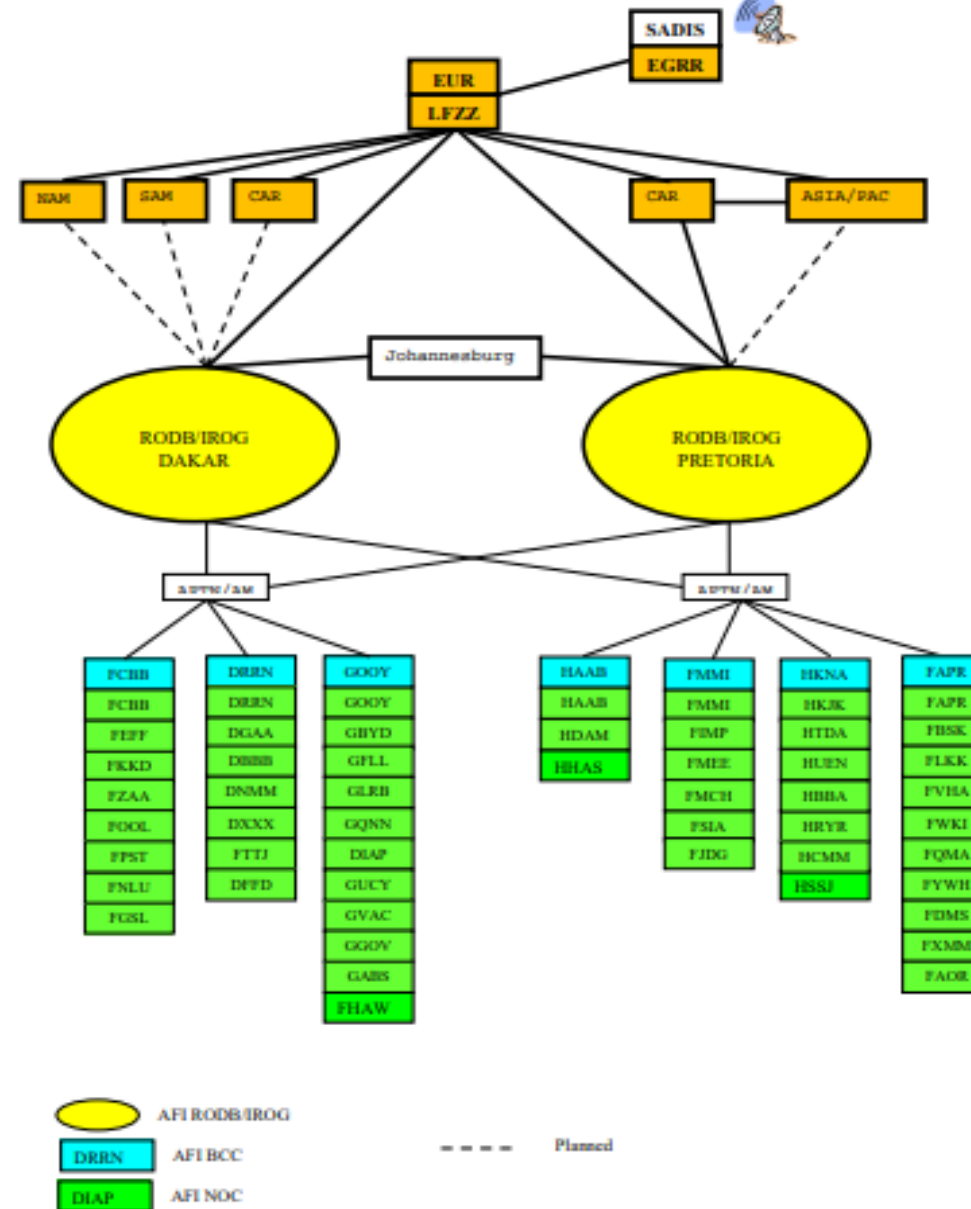
ESAF is currently developing an ASBU Dashboard for States to input data. Expected to be ready by Sep 2024.

MSPs are a very important stakeholder- providing the status of ASBU implementation.

AFI MET Bulletin Exchange (AMBEX) Handbook

AMBEX Scheme

DIAGRAMME 1: AMBEX SCHEME



Upcoming Activities

19

- Questionnaire on Competency requirements (SL to be shared in June 2024)
- Virtual Workshop on the ESAF ASBU Dashboard_ Q3 of 2024
- AFI Week and DGCA _ *July 2024 (Libreville, Gabon)*
- IIM SG Meeting_ *August 2024 (Senegal)*
- APIRG Meeting_ *November 2024 (South Africa)*
- *Virtual workshop on SIGMETs_ November 2024*





JOIN OUR TEAM

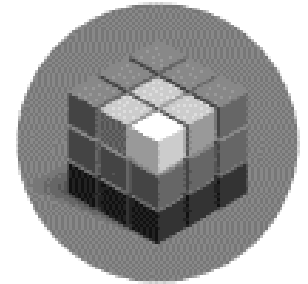
Secondment Opportunity at ESAF Office

- Regional Officer: Aeronautical Meteorology (P3)
 - to be based in Nairobi
 - SL shared with States from ICAO HQ (deadline was 28 May 2024)

- ICAO
 - To continue collaborating with Focal Points on MET
 - To collaborate with the WMO on areas of potential collaboration in the region
- ESAF States
 - To consider participating in ICAO Regional activities on MET
 - IIMSG and APIRG meetings
 - Participating in ICAO APIRG MET Projects



Global Air
Navigation Plan



Aviation System
Block Upgrades



Questions?

<https://www.icao.int/ESAF/Pages/default.aspx>



Thank You!