



| ICAO

# INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

Collaborative SIGMET Issuance  
Workshop, English Session

*Virtual, 25 November 2025*



# Challenges related to the provision of SIGMET Information

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## SIGMET Information

**A3 STD 7.1.1** SIGMET information shall be issued by a **meteorological watch office** and shall give a concise description in abbreviated plain language concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations, and of the development of those phenomena in time and space.

***Safety impact:*** The safety of aircraft operations is enhanced with access to improved information on current and expected atmospheric conditions.

***Environmental impact:*** More precise planning for mitigation of hazardous meteorological conditions, as well as space weather, produces safer and more efficient routes, less fuel burn, and reduction of emissions due to fewer ground hold/delay actions and environmentally optimized routing

***Efficiency impact:*** The efficiency of aircraft operations is enhanced with more timely access to and incorporation of digital meteorological information in flight planning, flow management and aircraft management. Improved information about space weather events will improve route selection and fuel-loading decisions and minimize the need for rerouting flights due to the potential impacts of space weather events.

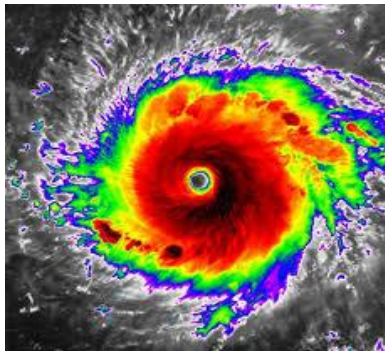


# Phenomena requiring SIGMET issuance

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**TS**



**TC**



**SEV TURB**



**SEV ICE**



**MTW**



**HVY DS**



**HVY SS**



**VA**



**RDOACT CLD**

# Importance of SIGMET for users

Importance for users :

- **High impact;**
  - ✓ *Safety impact*
  - ✓ *Environmental impact*
  - ✓ *Efficiency impact*
- **Pre-flight and in-flight Decision-making;**
- **Risk assessment for hazard avoidance;**
- **More important for Trajectory-based operations (TBO)**



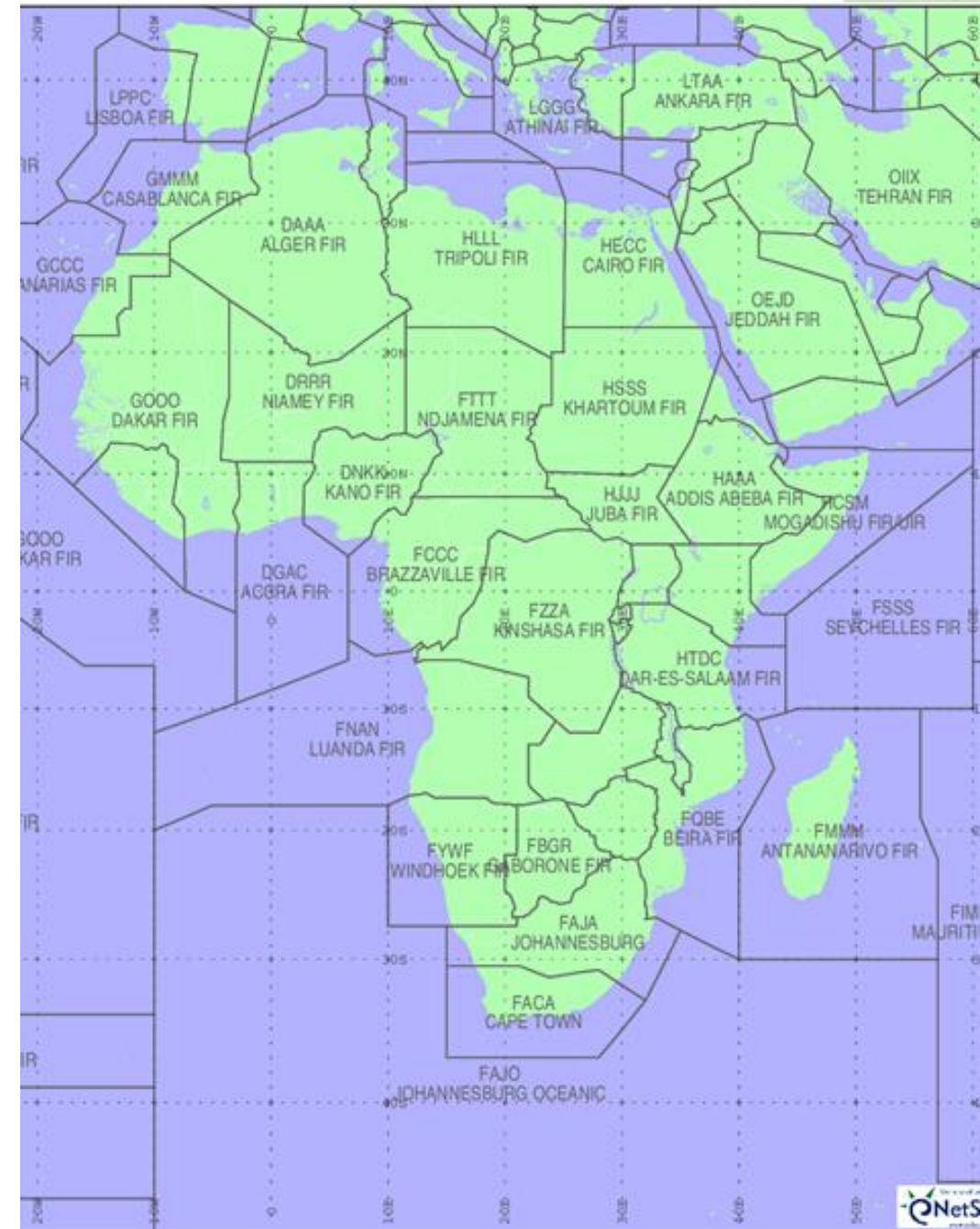
## Responsibility for the provision of SIGMET services



- **Responsible Meteorological Watch Offices** for the provision of SIGMET information in the AFI Region is provided in the Table MET II-1 of Vol II of the AFI eANP.
- **FIR or CTA Where Meteorological Offices Services are Required** are listed in Table MET II-1 of Vol II of the AFI eANP.
- **Meteorological Services To Be Provided by Meteorological Watch Offices** are provided in Table MET II-1 of Vol II of the AFI eANP.
- **VAAC Toulouse and TCAC La Reunion** are providing advisory information for volcanic ash and tropical cyclones in the AFI Region.
- The AFI Volcano Observatory States participating in the monitoring of volcanic activities are listed in Table MET I-1 of Vol I of the AFI eANP.

## Challenges – Monitoring & Coordination

- Large oceanic FIRs – **challenges in monitoring of TS**
- General **lack of coordination** across FIR boundaries

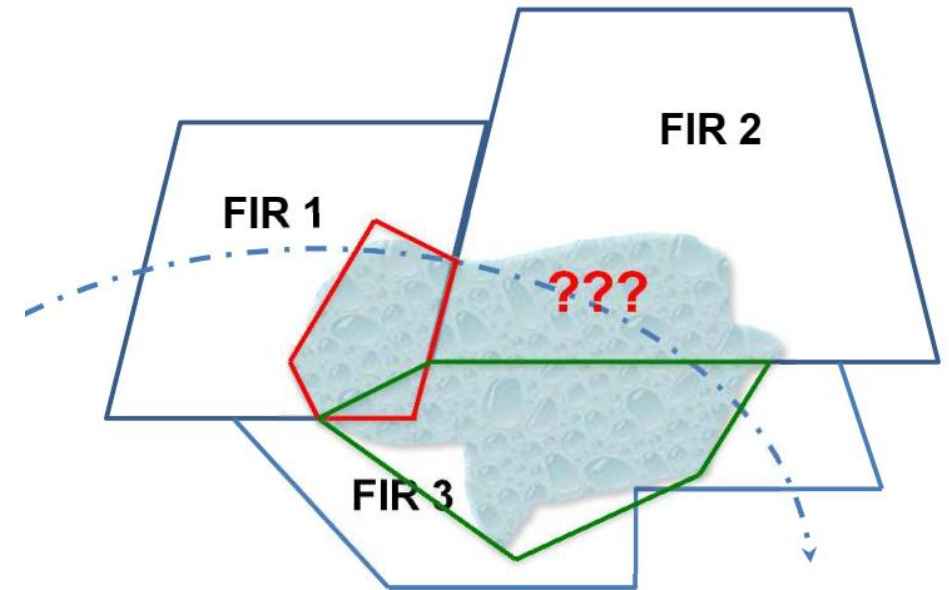




# Challenges – Lack of information

## Lack of information on en-route hazardous weather

- 1) Three (3) **separate** SIGMET messages should be issued.
  - Lack of information would cause;
    - **Unexpected encounter** to hazardous weather (SAFETY RISK)
    - **Inefficient flight route** (EFFICIENCY RISK)
- 2) Issuance of SIGMET **should be improved**

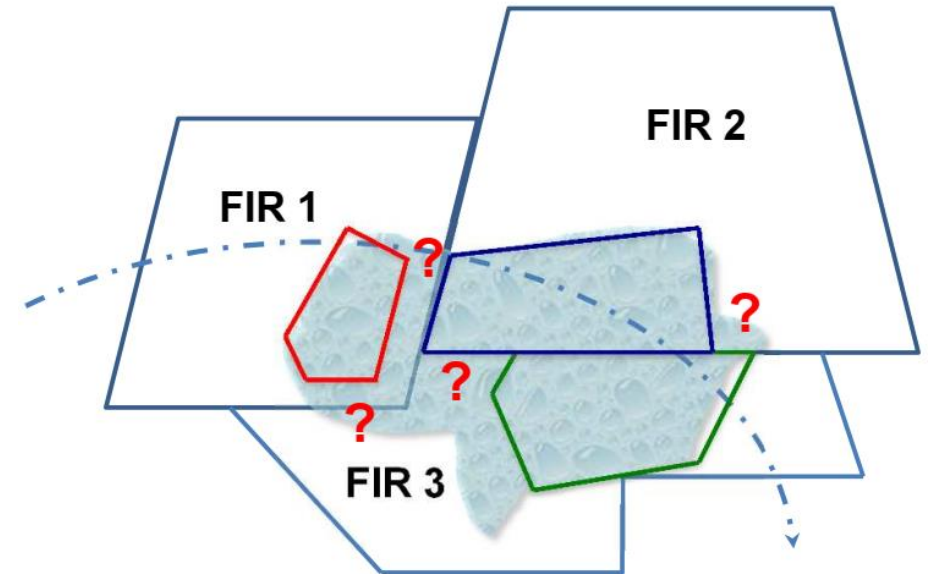




# Challenges – Inconsistency

## Inconsistency of SIGMETs across the FIRs

- 1) Three (3) **separate** SIGMET messages should be issued;
- 2) **Gaps and discontinuity** of SIGMETs between FIR boundaries are another risk
- 3) **Coordination among MWOs** for “seamless” cross-border SIGMET information is required



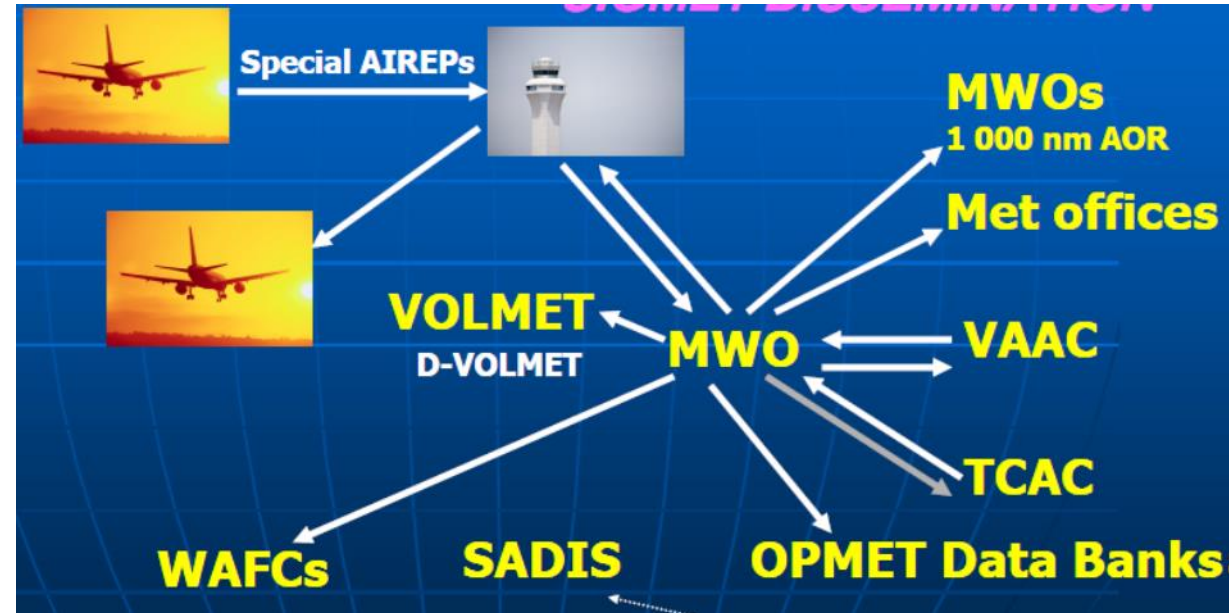
# Challenges – Timely dissemination of SIGMET information

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Timely dissemination of SIGMET information in required formation through:

- **A3, Appx 6: §1.2.1:** Dissemination of SIGMET Information to MWOS, others Met Offices, WAFCs, VAAC (in accordance with regional air navigation agreement)
- **A3, Appx 6: §1.2.2:** Dissemination of SIGMET messages to international OPMET databanks and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services

1.1.6 As of 5 November 2020, SIGMET information shall be disseminated in IWXXM GML form in addition to the dissemination of SIGMET information in accordance with 1.1.1.



*Note.— The technical specifications for IWXXM are contained in the Manual on Codes (WMO-No. 306), Volume I.3, Part D — Representation Derived from Data Models. Guidance on the implementation of IWXXM is provided in the Manual on the Digital Exchange of Aeronautical Meteorological Information (Doc 10003).*

## Challenges - Deficiencies

### Deficiencies to be addressed *(List not exhaustive)*

- A **lack of MWO resources**, in terms of infrastructure and competent personnel to support the issuance of SIGMET;
- **Significant deficiencies in SIGMET format compliance and incorrect routing of SIGMET** which prevents users from receiving these time critical messages due to incorrect format that leads to the rejection of messages in automated systems;
- **A lack of coordination between neighboring FIRs** causing inconsistencies in hazardous weather warnings across boundaries, worsened by disparities in infrastructure, training, and work practices between MWOs;
- **Short lead times in the availability of SIGMET and the lack of precision in the location of “warnings”** make strategic re-routing practically impossible.; and
- **Difficulty of ingesting existing SIGMET messages into automatic flight planning systems** due to non-interoperable formats.

## Actions to address the challenges



## Main Objectives of the Workshop

- To help improve the **availability, reliability and quality** of SIGMET information issued by MWOs in the AFI Region
- To address **the harmonization and alignment** of SIGMET information across international boundaries
- **To Improve “warning”** of airspace likely to be impacted by hazardous meteorological conditions.
- To grant that **information remains consistent across FIR boundaries.**
- Assist the aeronautical meteorological personnel of the designated Meteorological Watch Offices (MWOs) in the AFI Region for which the provision of SIGMETs is required.
- **To learn and share** knowledge, experience and best practices on the process of SIGMET issuance through presentations, exercises/cases studies, and discussions.





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Thank You!