

## INTERNATIONAL CIVIL AVIATION ORGANIZATION

**Fourth meeting of the AFI Volcanic Ash Exercises Steering Group  
(AFI VOLCEX/SG4)***(Virtual, 1 April 2025)***Agenda Item 3.1 : Provision of Volcanic Ash Information in the AFI region****WP3.1 System for the Provision of Volcanic Ash Information in the AFI region***(Presented by the Secretariat)*

SUMMARY
<p>This paper provides an update on the system established for the provision of information on volcanic eruptions and volcanic ash in the AFI region</p> <p>Action by the meeting in paragraph 3</p>
<p><b>REFERENCE(S):</b></p> <ul style="list-style-type: none"><li>▪ AFI eANP Vol I and II, Part V</li><li>▪ Doc 9766 Handbook on the IAVW</li></ul>
<p><b>Related ICAO Strategic Objective(s):</b></p> <ul style="list-style-type: none"><li>• <b>A</b> – <i>Safety</i>, <b>B</b> – <i>Air Navigation Capacity and Efficiency</i></li></ul>

**1. INTRODUCTION**

- 1.1. The International Airways Volcano Watch (IAVW) is a global system established by ICAO and the World Meteorological Organization (WMO) to monitor and provide timely warnings about volcanic eruptions that could pose a hazard to aviation.
- 1.2. The primary goal of the IAVW is to ensure the safety of aircraft operations by providing accurate and timely information on volcanic ash clouds. Volcanic ash can cause severe damage to aircraft engines, avionics, and visibility, making it a significant risk to aviation safety.
- 1.3. Key Functions of the IAVW include:
  - a) Detection and Monitoring of Volcanic Activity:
    - Uses satellite imagery, ground-based observations, and pilot reports to identify eruptions.
    - Collaboration with Volcanic Ash Advisory Centers (VAACs) for real-time monitoring.
  - b) Issuance of Volcanic Ash Advisories (VAA):
    - VAACs issue advisories with information on ash cloud location, movement, and expected dissipation.

- Helps pilots, air traffic controllers, and airlines make informed decisions on flight routing.
- c) Coordination between Agencies:
  - Works with Air Traffic Management (ATM), aeronautical meteorological services, and ICAO Regional Offices to ensure a coordinated response.
  - WMO and ICAO guidance ensure standardized communication and procedures.
- d) Enhancing Aviation Safety and Efficiency:
  - Reduces the risk of aircraft encounters with volcanic ash.
  - Supports contingency planning and re-routing strategies to minimize operational disruptions.
- e) Continuous Improvement and Research:
  - Encourages scientific advancements in volcanic ash detection and dispersion modeling.
  - Regular updates to ICAO procedures (Annex 3 – Meteorological Service for International Air Navigation).

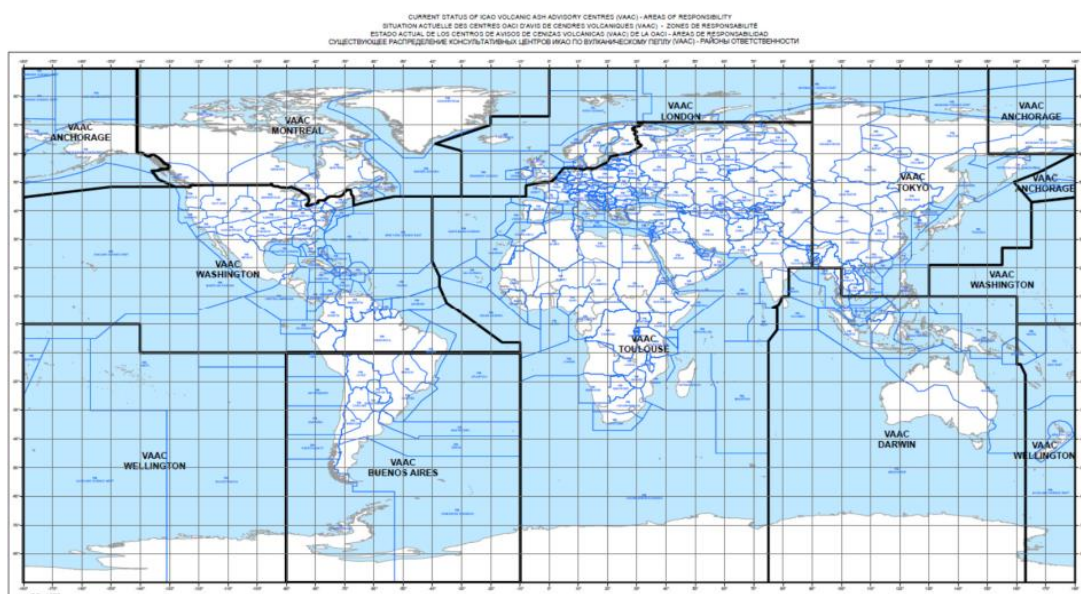
1.4. The mechanism in place to monitor the volcanoes activities and provide information on volcanic ash to users is provided in the AFI eANP.

## 2. DISCUSSION

2.1. As per the provisions of the eANP Vol I Part V, in the AFI Region, the Volcanic ash advisory centre (VAAC) Toulouse has been designated to prepare and provide volcanic ash advisory information (Fig. 1 refers).

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*Handbook on International  
Airways Volcano Watch*



*Figure 1 Volcanic Ash Advisory Centres*

**Table 1 AFI Volcanic Ash Advisory Centre(s) and their Responsibilities**

Volcanic Ash Advisory Centre and their area of Responsibilities			MWOs to which advisory information is to be sent		ACCs to which advisory information is to be sent	
Volcanic ash advisory centre	ICAO loc. ind.	Area of responsibility	Name	ICAO loc. ind	Name	ICAO loc. ind
Toulouse (France)	LFPW	<ul style="list-style-type: none"> <li>• AFI Region down to the South Pole;</li> <li>• EUR Region (except for Finland*, Kobenhavn, London, Norway*, Scottish, Shannon and Sweden FIRs);</li> <li>• West of E09000 and South of N7100:</li> <li>• MID Region, and ASIA Region;</li> <li>• West of E09000 North of N2000 (plus Mumbai, Chennai (West of E08200); and</li> <li>• Male FIRs)</li> </ul>	Angola	FNLU	Luanda	FNAN
			Botswana	FBGR	Gaborone/Sir Sereste Khama	FBSK
			Burundi	HBBA	Bujumbura	HBBA
			Cape Verde	GVAC	Sal	GVSC
			Chad	FTTJ	N'Djamena	FTTT
			Congo	FCBB	Brazzaville	FCCC
			Democratic Republic of Congo	FZAA	Kinshasa	FZAZ
			Eritrea	HHAS	Asmara	HHAA
			Ethiopia	HAAB	Addis Ababa	HAAA
			Ghana	DGAA	Accra	DGAC
			Kenya	HKJK	Nairobi	HKNA
			Liberia	GLRB	Roberts	GLRB
			Madagascar	FMMI	Antananarivo	FMMM
			Malawi	FWLL	Lilongwe Int	FWLI
			Mauritius	FIMP	Mauritius	FIMM
			Mozambique	FQMA	Beira	FQBE
			Namibia	FYWH	Windhoek	FYWH
			Niger	DRRN	Niamey	DRRR
			Nigeria	DNKN	Kano	DNKK
			Rwanda	HRYR	Kigali	HRYR
			Senegal	GOOY	Dakar	GOOO
			Seychelles	FSIA	Seychelles	FSSS
			Somalia	HCMM	Mogadishu	HCSM
			South Africa	FAJS	Cape Town Johannesburg Johannesburg Oceanic	FACA FAJA FAJO
			Togo	DXXX	Gnassingbe Eyadema Int.	DXXX
			Uganda	HUEN	Entebbe	HUEC
			United Republic of Tanzania	HTDA	Dar-es-Salaam	HTDC
			Zambia	FLLS	Lusaka	FLFI
			Zimbabwe	FVHA	Harare Int	FVHA

2.2. Volcano Observatories serve as the first line of detection and reporting within the IAVW system, ensuring that accurate, timely, and reliable volcanic activity information reaches aviation authorities to enhance flight safety and operational efficiency.

### 2.3. Key Responsibilities of Volcano Observatories in the IAVW:

- a) Monitoring and Detection of Volcanic Activity and providing Timely Eruption Alerts/Information. That includes:
  - A3, Chap. 3, STD 3.6 : Contracting States with active or potentially active volcanoes shall arrange that State volcano observatories monitor these volcanoes and when observing, a) significant pre-eruption volcanic activity, or a cessation thereof, b) a volcanic eruption, or a cessation thereof; and/or c) volcanic ash in the atmosphere, shall send this information as quickly as practicable to their associated ACC/FIC, MWO and VAAC.
  - Issue alerts when volcanic activity is detected, specifying eruption onset, intensity, and duration.
- b) Coordinating with VAACs for Ash Cloud Information:
  - Share real-time eruption data with VAACs, which analyze ash cloud dispersion and issue Volcanic Ash Advisories (VAA).
  - Provide updates on the eruption status and potential impact on aviation.
- c) Supporting Aviation Decision-Making:
  - Help airlines, pilots, and ATM units by supplying critical information about ongoing volcanic hazards.
  - Assist in establishing No-Fly Zones or alternative flight routes based on the ash cloud forecast.
- d) Continuous Data Exchange and Scientific Research:
  - Work with meteorological agencies, geological institutes, and ICAO to improve ash detection and modeling techniques.
  - Contribute to research and advancements in predicting ash cloud movement and impact on aviation.

2.4. In the AFI Region, selected State volcano observatories have been designated for notification of significant pre-eruption volcanic activities, a volcanic eruption and/or volcanic ash.

*Table 2 AFI Selected Volcano Observatories*

<b>Name of the State responsible for the provision of a volcano observatory</b>	<b>Name of the volcano observatory</b>
Cameroon	Institut de recherches géologiques et minières de Yaoundé
Cabo Verde	Serviço Nacional de Meteorologia e Geofísica, P.O. Box 76, Ilha do Sal
Comoros	Observatoire Volcanologique du Karthala, Moroni
Democratic Republic of the Congo	Centre de Recherches en Sciences Naturelles (CRSN) Lwiro, Bukavu

<b>Name of the State responsible for the provision of a volcano observatory</b>	<b>Name of the volcano observatory</b>
Eritrea	University of Asmara, Geophysics Section
Ethiopia	Geophysics Observatory, Addis Ababa University
France (Réunion)	Observatoire volcanologique du Piton de la Fournaise
Kenya	Geology Department, University of Nairobi

### 3. ACTIONS BY THE MEETING

#### 3.1. The meeting is invited to:

- a) Note the information in this paper; and
- b) provide guidance as appropriate.

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