



# AFI Volcanic Ash Exercise Workshop

**ACTION TO BE TAKEN BY THE MWO  
PRIOR TO AND DURING A VOLCANIC ERUPTION**

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# Introduction

## AFI eANP Volume I Part V :

Selected State volcano observatories have been designated for notification of significant pre-eruption volcanic activity, a volcanic eruption and/or volcanic ash in the atmosphere for the Africa-Indian Ocean Region to their corresponding ACCs/FICs, **MWOs** and VAACs - See AFI State VOs in **Table MET I-1**

**The objective of this presentation** : Providing an overview on the role of the MWOs prior and during the volcanic ash event.

Table MET I-1

State	Volcano Observatory
Cameroon	Institut de recherches géologiques et minières de Yaoundé
Cape Verde	Serviço Nacional de Meteorología e Geofísica, P.O. Box 76, Ilha do Sal
Comoros	Observatoire Volcanologique du Karthala, Moroni
Democratic Republic of Congo/RDC	Centre de Recherches en Sciences Naturelles (CRSN) Lwiro, Bukavu
Eritrea	University of Asmara, Geophysics Section
Ethiopia	Geophysics Observatory, Addis Ababa University
France	Observatoire volcanologique du Piton de la Fournaise
Kenya	Geology Department, University of Nairobi



## Action by MWO in pre-eruptive phase

- **State Volcano observatory shall provide the information on the state of the volcano showing pre-eruptive activity and notify their associated ACC, MWO and VAAC in form of the Volcano Observatory Notice for Aviation (VONA), (see App. E of ICAO Doc 9766 (IAVW Handbook); ICAO Annex 3 Appendix 2 §4.1)**
- **If volcanic activity suspected in an area, VOs, VAACs or MWOs could request the appropriate ATS unit(s) to solicit Special air-reports on volcanic ash from suitable aircraft (route and altitude) at appropriate time intervals (e.g. every half hour).**
- **Initial awareness of the event may be provided by means of a Special AIREP, VONA, satellite data, as well as other remote sensors. This information may lead to the production of the initial SIGMET, VAA/VAG, NOTAM as per the On-Going Eruption Phase.**
- **States should ensure that alerting information is distributed expeditiously by the most appropriate means to allow for the early warning of aircraft in flight.**



## Action by MWO during the eruption phase

- MWOs are responsible for producing VA SIGMET for their FIRs making use of information from VAACs and any other locally available information. The accuracy and timeliness of VA SIGMET production is very important for the effectiveness of mitigation actions and the safety and efficiency of air traffic.
- *Action to be taken by MWO in the event of a volcanic eruption:*
  - **Pay attention to VAA/VAG produced by the AFI VAAC Toulouse** as well as supplementary products provided by the MET offices co-located within AFI VAAC;
  - **Monitor information from volcano observatories** in their area of responsibility;
  - **Immediately** after the reception of any of those advisories, check within their area of responsibility for VA contaminated areas and;
  - **Issue SIGMET according to VAAC advisory information**, special air-reports on volcanic ash and any other relevant information and/or measurements available;



## Action by MWO during the eruption phase

- *Action to be taken by MWO in the event of a volcanic eruption (continued):*
  - Assure that VA SIGMET format is compliant with provisions and SIGMET template of ICAO Annex 3 [*Meteorological Services for International Air Navigation*]; templates available in local instructions might help to achieve this;
  - Advise ACC and VAAC whether or not the volcanic ash is identifiable from satellite images/data, ground based or airborne measurements or other relevant sources.
  - Report differences between aircraft observations (e.g. ash encounters) or any other qualified source and the information published in VAA/VAG, SIGMET or NOTAM/ASHTAM to appropriate VAACs and MWO. The information should be passed immediately to adjacent MWO(s) downstream of the moving ash cloud;
  - On reception, forward special air-reports on volcanic ash to AFI VAAC, appropriate Regional OPMET Centre by AFTN which would then route to SADIS (EGZZWPXX) and WIFS (KWBCYMYX); Referencing Annex 3, Appendix 6, the format of a special air-report on volcanic ash is illustrated by the following example:



## Action by MWO during the eruption phase

- *Action to be taken by MWO in the event of a volcanic eruption:*
  - Coordinate as far as practicable with ACCs, adjacent MWOs and the AFI VAAC to ensure as much as possible consistency in VA analysis and forecast.
  - Provide as far as practicable regular volcanic briefings, based on the latest available ash observations and forecasts, to ACCs, ATFM units, airport operators and aircraft operators concerned;
  - Issue a SIGMET message for volcanic ash for a validity period of 6 hours in alphanumerical message format and, if in a position to do so, in graphical format based on the advisory information provided by the VAAC concerned.
  - Update SIGMET information at least every 6 hours.
  - Maintain continuous coordination with the associated ACC/FIC to ensure consistency in the issuance and content of SIGMETs, and ASHTAMs or NOTAMs.



## Action by MWO during the eruption phase

- *Action to be taken by MWO in the event of a volcanic eruption:*
  - Ensure that local instructions address VA contingency procedures;
  - Ensure that all relevant staff are trained regularly to apply the VA contingency procedures;
  - Participate in volcanic ash exercises



## Action by MWO in recovery phase

- The recovery phase commences with the issuance of the first VAA/VAG containing the statement “NO VA EXP” (i.e. “no volcanic ash expected”) — which normally occurs when it is determined that the volcanic activity has reverted to its non-eruptive state and the airspace is no longer affected by volcanic ash.
- Consequently, **appropriate MET** and AIS messages should be issued **in accordance with Annex 3** [*Meteorological Services for International Air Navigation*] and Annex 15 [*Aeronautical Information Services*], respectively.

### VAA and VAG dissemination:

- VAA are sent by the VAACs to the MWOs and ACC/FICs following ICAO Doc 9766 Part 2 on ICAO website
- The VAAs are to be sent onto AFTN.
- They can be retrieved as the VAGs in the VAACs Websites
  - VAAC London: VAAs & VAGs
  - VAAC Toulouse: VAAs & VAGs
- They can be retrieved as well in the secure SADIS FTP site

### Volcano Observatories (VO)

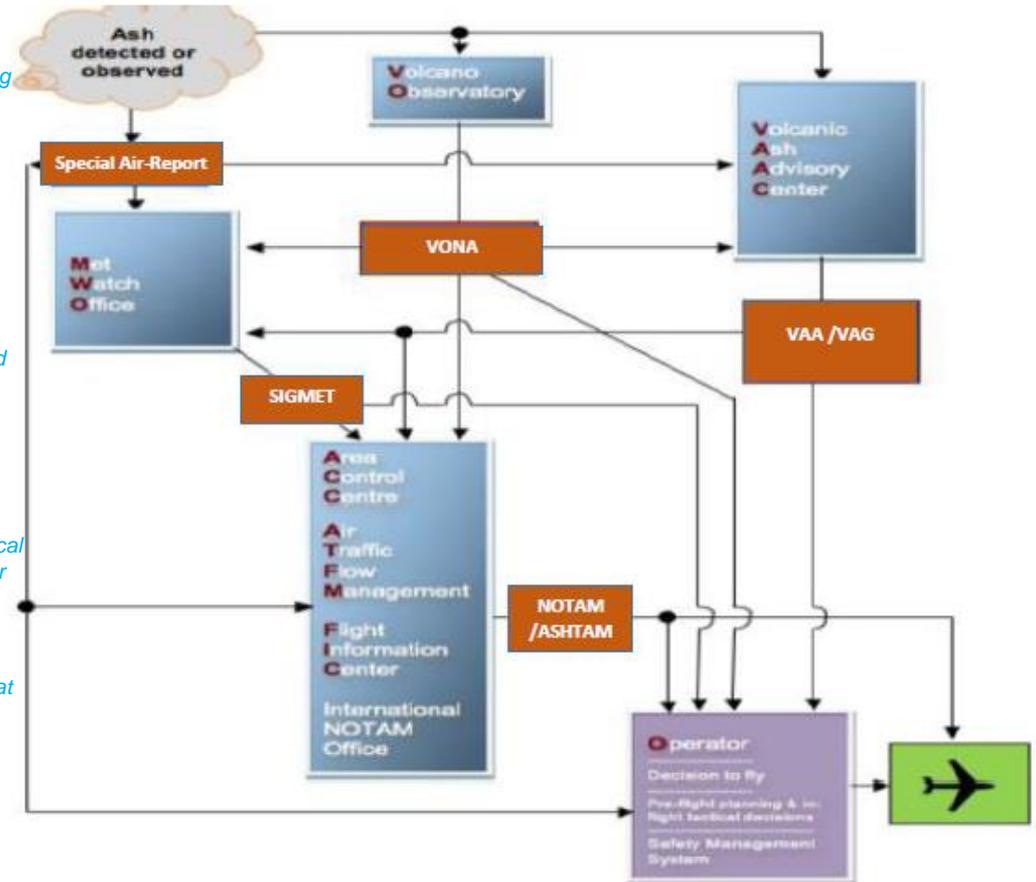
- VONA (Volcano Observatory Notice to Aviation) is a recommended practice (Annex 3).
- VONA template can be found in ICAO Doc 9766 Appendix E.

### MWO

- Volcanic Ash SIGMETs
- a) The VA SIGMET template is described in Annex 3 [Meteorological Services for International Air Navigation], Appendix 6 [Template for SIGMET and AIRMET messages].

### VA SIGMET dissemination

- Appropriate Regional OPMET Centre – in this case, ROC Vienna at AFTN address LOWMMMXX, which would then route to SADIS (EGZZWPXX) and WIFS (KWBCYMYX) and be available to all stakeholders with a SADIS or WIFS account.
- Appropriate VAAC – example: VAAC Toulouse
- Appropriate ACC and ATFM
- Appropriate NOTAM office





ICAO

UNITING AVIATION

NO COUNTRY LEFT BEHIND



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North American  
Central American  
and Caribbean  
(NACC) Office  
Mexico City

South American  
(SAM) Office  
Lima

ICAO  
Headquarters  
Montréal

Western and  
Central African  
(WACAF) Office  
Dakar

European and  
North Atlantic  
(EUR/NAT) Office  
Paris

Middle East  
(MID) Office  
Cairo

Eastern and  
Southern African  
(ESAF) Office  
Nairobi

Asia and Pacific  
(APAC) Sub-office  
Beijing

Asia and Pacific  
(APAC) Office  
Bangkok



THANK YOU