

Volcanic Ash & PACOTS



**Federal Aviation
Administration**

Volcanic Ash & PACOTS Generation

- ICAO Doc 9974 Chapter 2 states:
- THE AIRCRAFT OPERATOR
- 2.3 ICAO's generic safety risk assessment process is described in the *Safety Management Manual (SMM)* (Doc 9859). An approach, aligned with an operator's SMS, would be equally appropriate. The material in this document is designed to provide States with information to support operators in developing the safety risk assessment, within their SMS, covering the volcanic cloud hazard.
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- 2.4 Responsibilities
- **The operator is responsible for the safety of its operations.**
- In order to decide whether or not to operate into airspace forecast to be, or aerodromes known to be, contaminated with volcanic ash, the operator should have in place an identifiable safety risk assessment within its SMS.
- *Note.— Guidance on the production of a safety risk assessment is provided in Appendices 1 (Guidelines for completing a safety risk assessment), 2 (Procedures to be considered when conducting a safety risk assessment) and 3 (Hazards and risks to be considered by aircraft operators). Each operator should develop its own list of procedures and hazards since these have to be relevant to the specific equipment, experience and knowledge of the operator, and to the routes to be flown.*



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- ICAO's safety risk assessment process is described in the *Safety Management Manual* (SMM) (Doc 9859). An approach, aligned with an organization's SMS, would be equally appropriate.
- 2.10 The State is advised that the CAA exercising oversight of an operator that intends to undertake operations into airspace forecast to be, or aerodromes known to be, contaminated with volcanic ash should establish a methodology for evaluating the safety risk assessment process of the operator's SMS particular to volcanic ash. **The operator should not be prevented from operating through, under or over, airspace forecast to be affected by a VAA, VAG or SIGMET provided it has demonstrated in its SMS the capability to do so safely.** The guidance set out in Appendix 6 indicates a process that the CAA can use to achieve this outcome.

The ATC responsibilities are covered in ICAO Doc 4444 par 15.8:

15.8 PROCEDURES FOR AN ATC UNIT WHEN A VOLCANIC ASH CLOUD IS REPORTED OR FORECAST

15.8.1 If a volcanic ash cloud is reported or forecast in the FIR for which the ACC is responsible, the controller should:

- a) relay all information available immediately to pilots whose aircraft could be affected to ensure that they are aware of the ash cloud's position and the flight levels affected;**
- b) suggest appropriate re-routing to the flight crew to avoid an area of known or forecast ash clouds;**
- c) inform pilots that volcanic ash clouds are not detected by relevant ATS surveillance systems;**
- d) if the ACC has been advised by an aircraft that it has entered a volcanic ash cloud the controller should:**
 - 1) consider the aircraft to be in an emergency situation;**
 - 2) not initiate any climb clearances to turbine-powered aircraft until the aircraft has exited the ash cloud; and**
 - 3) not initiate vectoring without pilot concurrence.**

Note.— Experience has shown that the recommended escape maneuver for an aircraft which has encountered an ash cloud is to reverse its course and begin a descent if terrain permits. The final responsibility for this decision, however, rests with the pilot.

Volcanic Ash CECL

- In the event of an Ash Plume:
- Critical Event Contact List (CECL)
 - 24 Hour Emergency Email Contact List
 - Collect Emails
 - Cell Phone #, Text Notification



Oakland VA Active PACOTS Guidance

- Plot the current affected area to determine the affected area and altitudes. Consider how the forecasted ash cloud drift (6, 12 and 18 hour forecasts) will affect traffic.
- Volcanic Ash plumes at F240 and below are not a factor for PACOTS Tracks.
- Issue a NOTAM advising of the potential risk if a PACOTS track is affected by Volcanic Ash (VA). A sample NOTAM is included in Attachment 1.

Oakland VA Active PACOTS Guidance

- Determine if published PACOTS tracks are affected by the VA.
- If the published PACOTS are affected consult with the Oceanic FLM.
- If aircraft for the affected PACOTS are airborne it will be necessary for the controller to issue advisories of the Ash Plume to the aircraft.
- This will likely cause aircraft to request re-routes away from the VA.

Oakland VA Active PACOTS Guidance

- If time permits, have the ATCSCC schedule a teleconference with the International Operators, Japan ATMC and Anchorage ARTCC.
- The telecon would ideally be at least 1 hour from the current time to allow the operators to get the correct personnel on the telecon, however timing may not permit advance notification to the operators.
- When conducting a Volcanic Ash Telecom send a High Priority email to the Oceanic Critical Event Contact List advising of the telecom details.



Oakland VA Active PACOTS Guidance

- On the telecom discuss the VA plume and options for managing the traffic. Get operator feedback and develop a plan.
 - How will airborne aircraft be managed?
 - Do the published PACOTS need to be republished in a different location.
 - Instead of moving PACOTS Tracks an alternative is to publish an additional avoidance Track(s) and issue a NOTAM that states that certain Tracks may be affected by VA. A sample NOTAM is included in Appendix 1.

Oakland VA PACOTS Generation Guidance

- Determine if future PACOTS tracks will be affected by the VA.
- Volcanic Ash plumes at **F240** and below are not a factor for PACOTS Tracks.
- Determine the PACOTS Track effective times and ensure the VAA ash plume forecast covers all of the effective times of the PACOTS Track. If necessary, delay PACOTS generation until the VAA forecast covers the entire effective times of the PACOTS Tracks being generated.

Oakland VA PACOTS Generation Guidance

- Plot the VAA to determine the affected area and altitudes.
- Determine if PACOTS to be generated are affected by the VA.
- If the PACOTS will be affected by the VA:
 - consult with the Oceanic FLM, and:
 - TMU will coordinate with the ATCSCC to schedule a telecom with the International Operators, Japan ATMC, the (VAC) and Anchorage ARTCC. The telecom would ideally be at least 1 hour from the current time to allow the operators to get the correct personnel on the telecom.

Oakland VA PACOTS Generation Guidance

- When conducting a Volcanic Ash Telecom TMU will send a High Priority email to the Oceanic Critical Event Contact List advising of the telecom details.
- On the telecom discuss the VA plume and options for managing the traffic.
- If the determination is made that the PACOTS Tracks will be affected, suggest on the telecom that Oakland will generate the PACOTS Tracks 25 nm clear of the VAA forecast.



Oakland VA PACOTS Generation Guidance

- Get operator feedback on the proposed plan and attempt to develop a consensus plan.



Action by the meeting

- The meeting should discuss Volcanic Ash Avoidance procedures and provide feedback on the proposed procedures.

