

Recommendations for Volcanic Contamination Exercises (VOLCEX)

Background

ICAO has conducted a number of Volcanic Contamination Exercises over the recent years to check the system is functioning correctly. Prior to the Eyjafjallajökull (E15) eruption in 2010, IFALPA participation in these exercises was practically non-existent. The involvement in the EUR/NAT Volcanic Ash Task Force and ICAO's International Volcanic Ash Task Force (IVATF) has resulted in a need to provide front-end user input. While the post-E15 rewrite of the EUR/NAT Volcanic Ash Contingency Plan brought major improvements to the response to a large-scale volcanic event, the work of IVATF will result in further amendments of ICAO procedures.

Volcanic exercises are useful where frequent eruptions of volcanoes do not occur or when (major) system changes have been implemented. Both on-going event reviews and VOLCEX reviews should be conducted at least every three years. A complete (system wide) exercise for volcanic contamination is an extremely complex undertaking as such an event involves a great number and variety of stakeholders. Naturally an exercise is a simulation of a real event and the need to keep the air transport network functioning normally limits the accuracy of the exercise, nevertheless they remain a useful planning tool.

Recommendations for future VOLCEXs

- ▶ Base the exercise on System Wide Information Management (SWIM); Collaborative Decision Making (CDM); and regional harmonised contingency procedures
 - ▶ Who provides what information? And How?
 - Information should be made widely available; on dedicated regional websites for example.
 - ▶ Who processes what information?
 - Information processing should be left to specialists such as the VAACs.
 - Where information is processed by different entities a process should be established to ensure harmonized and consistent output.
 - ▶ Who distributes information to whom?
 - ▶ Who uses what information and how?
 - ▶ Who makes which decisions?
 - ▶ Every effort should be undertaken to apply the same procedures on a regional (ideally global) basis
- ▶ Promote critical review of existing guidance material (e.g. EUR/NAT Volcanic Ash Contingency Plan)
- ▶ Scenario agreed by all participants (remember it is an exercise - this allows testing of some proposals for improvement that might not yet be mature; primary purpose however is to test the existing provisions)
 - ▶ The aims and objectives need to be clearly defined (not too broad)
 - ▶ How to deal with non-participating States/organisations?
 - Gaps in coverage should be treated as applying the same procedures as the neighbours. An exercise is not intended as a challenge to national sovereignty.
- ▶ Encourage users to document their needs and to suggest solutions
- ▶ Focus on particular elements of the whole aviation system to make each exercise (and its review) manageable. Address other elements in subsequent exercises.
 - ▶ Information provision
 - ▶ Flight operations
 - ▶ ATM Services
 - ▶ Communications

- ▶ Target specific groups for specific tasks (to limit the amount of information produced to a manageable size and/or to enable comparison of different concepts)
 - ▶ A sample of pilots of a predetermined number of operators to provide Volcanic Activity Reports (VARs) supported by their operator's dispatch and electronic forms (target: 10 % of flights passing the active area should provide reports)
 - ▶ Some operators to focus on Volcanic Ash Advisory (VAA) intervals
 - Would it be useful to have more frequent advisories? (3 or 4 hours instead of 6; maybe for the first 12 hours of the forecast period is sufficient)
 - Would long term previews (even if their accuracy will be limited) help operational planning?
 - What is a suitable planning horizon for operators?
 - 48 hours?
 - 72 hours?
 - ▶ Some States/ANSPs (forming a contiguous group) apply a particular procedure; some applying for the trial a proposed new procedure so that its practicality can be compared to the existing procedure. We have to expect a number of substantial changes from IVATF that should be examined in close detail before full global implementation.
- ▶ Encourage feedback of participants to improve future VOLCEXs
- ▶ Debrief should identify problems with existing ICAO and national provisions; solutions should be sought and suggested through the appropriate channels

Potential elements for future (EUR/NAT) VOLCEXs

- ▶ Danger Areas (as the preferred airspace management method)
 - ▶ Danger Areas to be established for all contaminated airspace (according to lower cut-off value determined by IVATF; in the absence of such an internationally agreed value, 0.2 mg/m³ should be used intermistically)
 - ▶ Operators with a valid Safety Risk Assessment (SRA) use the airspace according to this SRA
 - ▶ Operators without a valid SRA must avoid the airspace and apply a (horizontal and vertical) safety margin to its boundaries
- ▶ Optimum intervals for VAAs
- ▶ Long-term VAA previews
- ▶ User-friendly information formats
- ▶ Promote use of VAR (AIREP-S)

Additional Information

Click [here](#) for IFALPA's Position on the operation of aircraft near volcanic ash plumes

Click [here](#) for manufacturer advice on operation of aircraft near volcanic ash plumes