



APPENDIX 4A

GUIDANCE FOR CONDUCTING VOLCANIC ASH EXERCISES IN THE AFI REGION

1. Overview

1.1 As indicated in the Forward section of the ICAO African and Indian Ocean region Volcanic Ash Contingency Plan, annual Volcanic ash exercises should be conducted to practice and develop inter-agency response to volcanic activity, in order to maintain safety, regularity and efficiency of aviation in the event of a volcanic eruption. In this regard, the AFI ATM/MET Task Force, which has been tasked by APIRG to handle the planning of issues pertaining to volcanic ash in the region, will arrange and coordinate the regional volcanic ash exercises. This guidance recognizes that there is significant regional variation in the nature, frequency, observation of and response to volcanic eruptions.

1.2 AFI Volcanic ash exercises is facilitated by the AFI ATM/MET Task Force and support the regular assessment of system performance (in accordance with quality management principles), in particular the assessment of the safety performance which is required by ICAO Safety Management provisions, such as ICAO Annex 11 – Air Traffic Services, 2.27.3c).

1.3 Reports of the exercises or performance assessments will be reviewed by the AFI ATM/MET Task Force. The focus of these reviews will be the development of improved provisions. Recommendations for improvements to global ICAO provisions, based on the regional review of the exercises, will be brought to the attention of APIRG and to the International Airways Volcano Watch Operations Group (IAVWOPSG).

1.4 In the AFI region, the AFI ATM/MET Task Force, is also the Volcanic Ash Exercises Steering Group which co-ordinates all aspects of the organization and conduct of the exercises. The AFI ATM/MET Task Force will have representatives from, as a minimum, concerned volcanic ash advisory centres (VAACs), air navigation service providers (ANSPs), airspace users and regulators.

2. Exercises and Performance Assessments

2.1 AFI Volcanic ash exercises will be held at annual basis. The date of the exercises will be determined by the ESAF and WACAF Regional Offices, ATM and MET in coordination with VAAC, Toulouse, air navigation service providers (ANSPs), airspace users and regulators.

2.2 Volcanic ash exercises are designed to test volcanic activity alerting, aeronautical information service (AIS) and meteorological (MET) message routing, volcanic ash information, air traffic control procedures, air traffic flow and capacity management and aircraft operator response and the Collaborative Decision Making (CDM) between the various actors in accordance with regional and global procedures.

2.3 Exercises can only simulate a real event, while operation of the aviation system must continue normally and be unaffected by the exercise. The planning of the exercise needs to ensure that detrimental effects on the system performance are avoided, but that nevertheless useful experience and information is generated.

2.4 A complete, system-wide, exercise for volcanic ash contamination is an extremely complex undertaking since such an event involves a great number and variety of stakeholders. It might therefore be useful to constrain exercises to specific parts of the whole system, with other parts of the system being subject to testing at subsequent exercises.

3. Objectives



3.1 The exercises should be designed to:

- a) Practice the conduct of volcanic activity response in accordance with AFI volcanic ash contingency plan (AFI VACP);
- b) Verify existing information, AIS and MET message routing via AFTN addresses, relevant e-mail addresses, telephone and fax numbers; internet addresses (URLs);
- c) Maintain appropriate information and message routing between all involved agencies and organizations;
- d) Provide volcanic activity response training for key personnel involved;
- e) Allow the regulators to assess the preparedness and operational response in terms of planning, process and procedures of operators; and
- f) Provide, when appropriate, recommendations for amendment of the reference documents, in accordance with the lessons learned and conclusions contained in the final exercise report.

3.2 Exercises may also be designed to test suggested new procedures on a limited scale before regional/global implementation.

3.3 Exercise and system performance assessments should be aimed at a critical review of existing provisions and their further improvement.

4. Concepts

4.1 Each exercise involves a simulated volcanic contamination (e.g. eruption of a volcano or re-suspended ash) affecting aviation. Simulated ash clouds may cross international boundaries, depending on the objectives of the exercise and may affect more than one VAAC area of responsibility. Exercises may utilize real-time meteorological conditions, archived data or a scenario.

4.2 Each exercise may have different objectives, which the scenario will be designed to address. For example any or all of the activities listed below may be tested depending on the scope of the exercise:

1. AFTN, e-mail addresses, websites, message routing and voice communications;
2. Alerting and observation of ash (e.g. use of VONA and VAR);
3. VAAC Response e.g. Volcanic ash information;
4. ATS response (including ATC and AIS for NOTAM issuance);
5. ATM response;
6. Aircraft Operator response (including SRA);
7. Met Watch Office response (i.e. SIGMET); and
8. Suitability of information, its frequency, format and content.

5. Planning and Reporting

5.1 The AFI ATM/MET Task Force will establish an appropriate structure focal point group for the conducting of regional volcanic ash exercises and system performance assessments. For each exercise, an Exercise Leader will be appointed and a planning meeting held approximately three months before the exercise is due to take place.



5.2 An exercise directive will be published prior to the exercise which clearly describes the exercise scenario, participating agencies and any special instructions.

5.3 After the exercise, initial exercise reports will be prepared by all participating agencies. A debrief meeting will be held soon after the exercise to discuss the exercise reports. The Exercise Leader will then produce a consolidated final exercise report for consideration by the AFI ATM/MET Task Force and APIRG.

6. ICAO reference material

- ✓ Annex 3 – Meteorological Service for International Air Navigation
- ✓ Annex 11 – Air Traffic Services
- ✓ Annex 15 – Aeronautical Information Services
- ✓ Procedures for Air Navigation Services – Air Traffic Management (Doc 4444)
- ✓ Manual on Volcanic Ash, Radioactive material and Toxic Chemical Clouds (Doc 9691)
- ✓ Global Air Navigation Plan (Doc 9750)
- ✓ Handbook on the International Airways Volcano Watch – Operational Procedures and Contact List (Doc 9766)
- ✓ Global ATM Operational Concept (Doc 9854)
- ✓ Manual on Flight Safety and Volcanic Ash – Risk management of flight operations with known or forecast volcanic ash contamination (Doc 9974)
