



INTERNATIONAL CIVIL AVIATION ORGANIZATION

Second Meeting of the AFI Volcanic Ash Steering Group (AFI VOLCEX/SG2)

(Virtual, 18 July 2023)

Agenda Item 2 – AFI Exercise VOLCEX 21/01 Lessons learned, Recommendations and Conclusions

WP2.1 Conclusions & Recommendations and Lessons from the AFI first VOLCEX

(Presented by the Secretariat)

SUMMARY

This paper provides an update on the outcomes of the AFI Volcanic Ash Exercise and calls for consideration of the lessons learned and recommendation to improve the conduct of the 2023 VOLCEX.

Action by the meeting in **paragraph 3**

REFERENCE(S):

- APIRG/25 Report
- AFI VOLCEX 21/01 Report
- Doc 9766 Handbook on the IAVW
- ToR of AFI VOLCEX SG

Related ICAO Strategic Objective(s):

- **A** – Safety, **B** – Air Navigation Capacity and Efficiency

1. INTRODUCTION

- 1.1. The ICAO AFI volcanic ash exercise conducted in 2021, named AFI VOLCEX 21/01, simulated the eruption of Fogo volcano (volcano number: 384010, position Lat: 14° 56' N; Long: 24° 20' W) located on Fogo Island, Cabo Verde affecting Sal and Dakar Flight Information Regions (FIRs).
- 1.2. The exercise was conducted on a regional basis, from 09:30 UTC to 12:30 on 30 November 2021. All exercise participants took their respective actions, some of them from their own office locations.

exercice_AFI - ash concentration from FL200 to FL350

valid at 2021/11/30 09:00 UTC

EXERCISE !!! EXERCISE !!! EXERCISE !!!

This is a guidance product, supplemental to the official VAAC Toulouse Volcanic Ash Advisory and Volcanic Ash Graphic products.
All concentrations are subject to a level of uncertainty relative to errors in the estimation of the eruption strength.

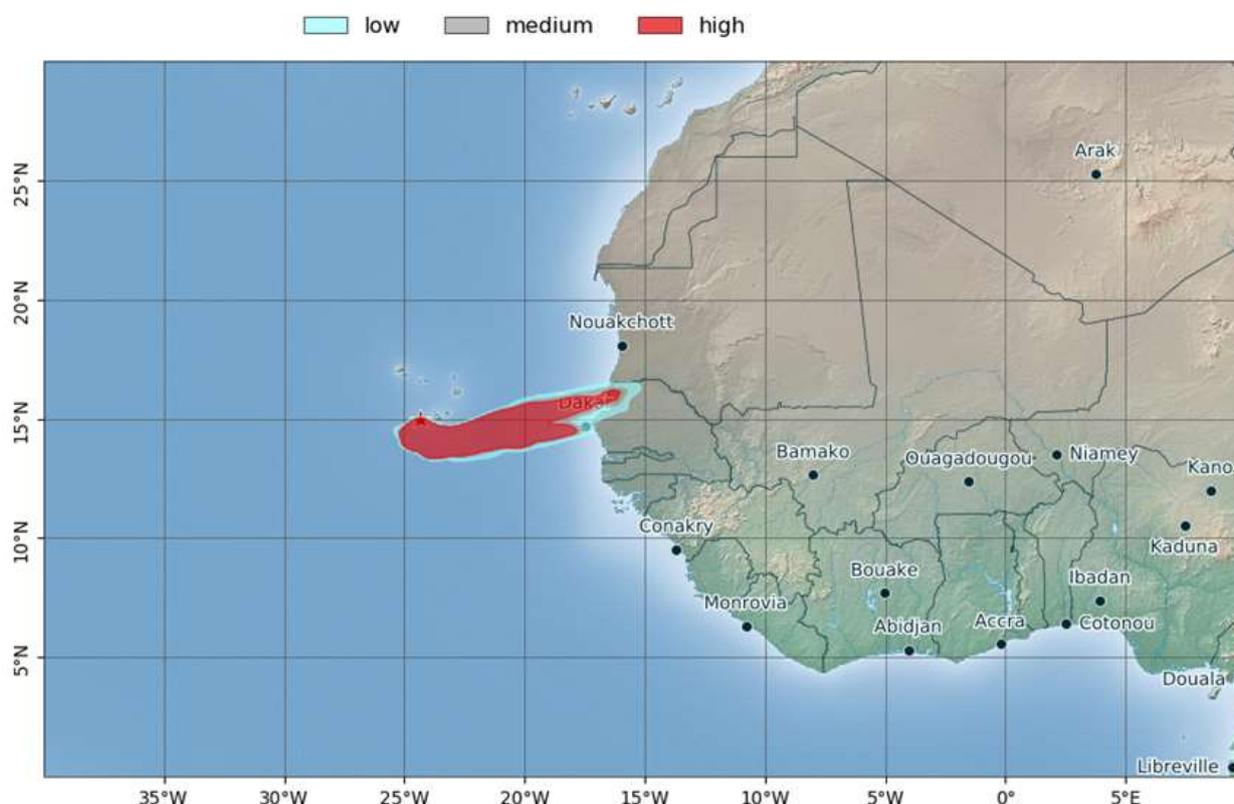


Figure 1: Depiction of the flow of the volcanic ash

- 1.3. AFI VOLCEX 21/01 demonstrated the flow of volcanic ash information in accordance with the ICAO Doc 9766 – Handbook on the International Airways Volcano Watch (IAVW). Figure 1 depicts the flow of the volcanic ash.
- 1.4. The simulated high level volcanic ash cloud contaminated two FIRs (SAL and Dakar); affecting major air traffic routes in SAL and Dakar FIRs. The list of sequential actions taken by the Exercise Team was detailed in the exercise schedule.
- 1.5. The exercise was led by the Cabo Verde Climatology and Geophysics Service Provider, Aeronautical Information Service Provider and Air Traffic Service Provider and the Cabo Verde CAA. Mr. Alberto Silva was the Exercise Leader. The exercise involved participants from some agencies in Senegal, The Bulletin Compiling Centre (Kenya) and the Pretoria Regional OPMET Data Bank (RODB Pretoria) participated in the exercise.
- 1.6. Volcanic ash information was disseminated through e-mails (e.g., VONA, Ground Observation reports, SIGMET, NOTAM, VAA/VAG, METAR/SPECI, special air-report), the AFTN/AMHS network, website (e.g., VAA/VAG) and direct links/phone/voice.
- 1.7. This first exercise of volcanic ash in the AFI Region was based on the simulation of message exchanges and coordination between the entities involved in the exercise.

2. DISCUSSIONS

- 2.1. The first exercise of the volcanic ash conducted in November 2021 aimed to demonstrate the capability of the involved stakeholders to coordinate and timely provide the volcanic ash information to the end users. was extremely useful to all participating agencies. During the exercise, several things that worked well but some areas need to be improved.
- 2.2. The lessons learnt from the first edition of the volcanic ash exercise include the following:
- a) coordination with AIS service to issue the NOTAM messages.
 - b) Preparation and dissemination of VONA messages by the VO
 - c) Preparation and dissemination of SIGMET and NOTAM information
 - d) No confusion or complaints from participants in the teleconference observing the simulated messages.
 - e) There was no action that violates the regulation. All actions were conducted in accordance with Handbook on the IAVW and Nationals Contingency Plans.
 - f) SIGMET coordination for volcanic ash, conducted in this exercise for the first time, was successful.
 - g) Information was also simulated by ACCs and Air Operators, such as risk assessment.
 - h) Support and enthusiasm from the participants are very valuable. All process in the exercise starting from the preparation was very smooth due to the good cooperation and coordination among the participants.
 - i) Communication between participants
 - j) Evaluation of the reactivity of the actors and the speed of execution
- 2.3. The APIRG/25 meeting through Decision 25/32 relating to the Consideration of lessons learned from the Regional, called for the Lead State of the next volcanic ash exercise consider and address the issues raised in the report of the first Regional VOLCEX 21/01, and report on the implementation to the next meeting of the VOLCEX/SG. The issues and proposed remedial actions are summarized as follows.

Table 1 Issues and proposed improvement actions

Issues / Remarks	Remedial action reference	Action text	Responsibility	Deadline
COM links /Networks are not tested	Volcex 01-A1	Include in the next edition of the exercise (AFI VOLCEX 21/02), the check of the COM links/Networks	Exercise Leader	When scheduling the next Exercise
Insufficient preparation of some participants	Volcex 01-A2	Involve all stakeholders at the preparation of the event	Exercise Leader	From the beginning to the end of the Exercise
local Contingency Committee not activated	Volcex 01-A3	Activate Local Contingency Committee during the Exercise	Participating States (under the coordination of the Exercise Leader	During the Exercise

Issues / Remarks	Remedial action reference	Action text	Responsibility	Deadline
Preparedness issues experienced at the beginning of the exercise regarding the handling of SIGMETs and NOTAM information	Volcex 01-A4	Ensure the preparedness /readiness of the participating experts for timely preparing and issuing SIGMETs and NOTAM information	Exercise Leader	Early enough before the day of the exercise
Insufficient involvement at the high level	Volcex 01-A5	Ensure that the participation of the stakeholders to the exercise is requested and decided at the high level of the States	Secretariat	By the next edition of the AFI VOLCEX
Lack of agreements between stakeholders	Volcex 01-A6	Neighboring States that may face issues related to volcanic ash should establish agreements when relevant regarding the provision of information on the volcanic ashes	FIC of Dakar and the FIC of Cape Verde Other concerned States	By next edition of the AFI VOLCEX
Contact details of some Volcano Observatory States still missing	Volcex 01-A7	Request Volcano Observatory States that have not yet provided/updated the Contact details of their Focal Points to do so	Secretariat	By 31 March 2022

3. ACTIONS BY THE MEETING

3.1 The meeting is invited to:

- a) Note the information contained in this working paper;
- b) Encourage the Democratic Republic of Congo, in their capacity of the 2023 Exercise Leader to consider the improved actions provided in this working paper to develop the 2023 VOLCEX schedule.

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