



ICAO

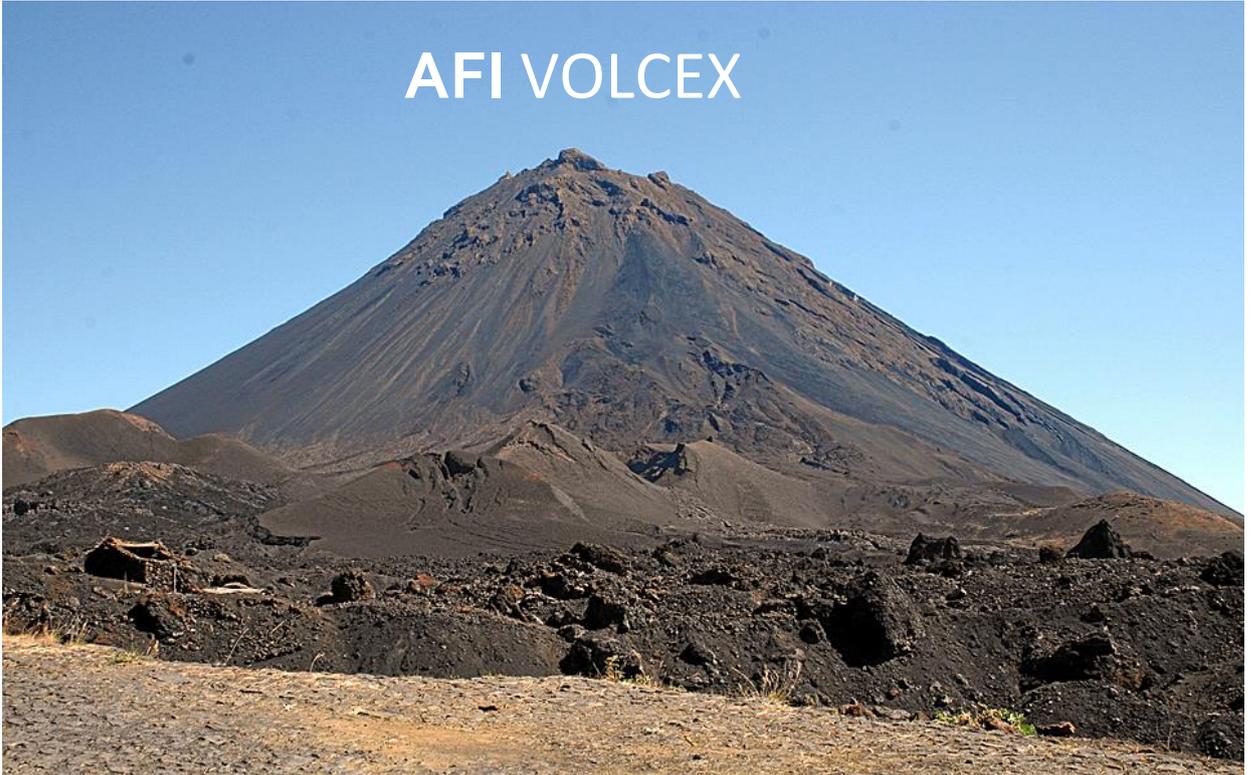
AFI VOLCANIC ASH EXERCISE

(AFI VOLCEX 21/01)

(30 November 2021)

FINAL REPORT

AFI VOLCEX



AFI VOLCANIC ASH EXERCISE 2021

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1. INTRODUCTION

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).

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.

exercise_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.

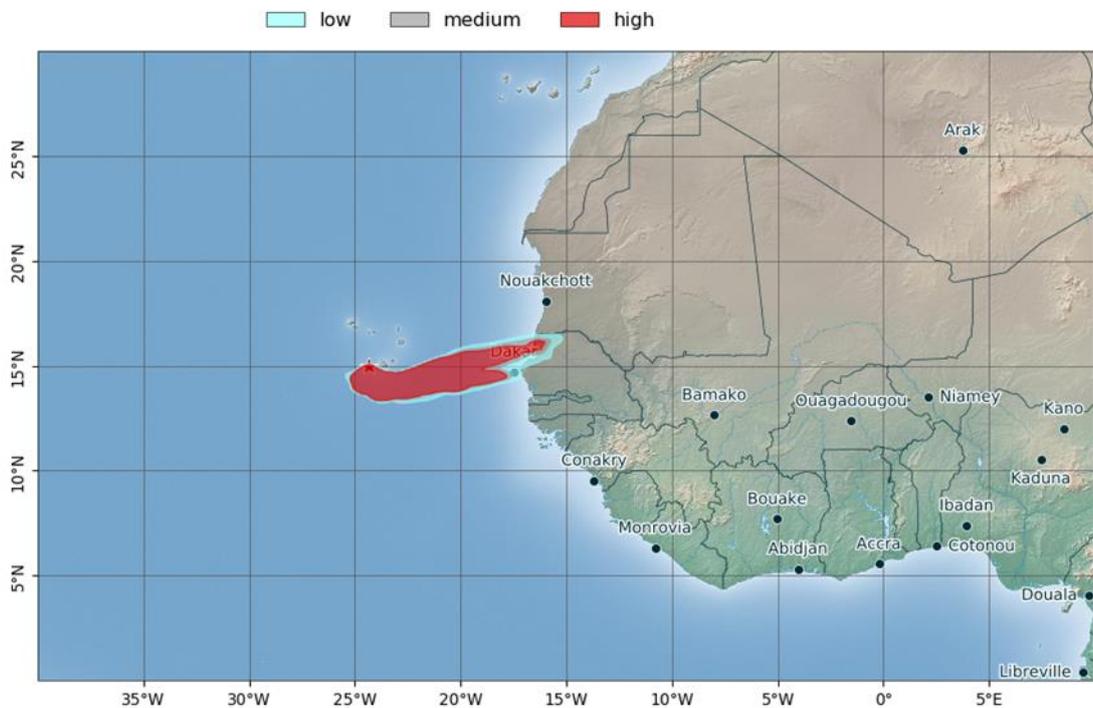


Figure 1: Depiction of the flow of the volcanic ash

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 and Figure 2 demonstrates the coordination between the entities in accordance with the AFI Volcanic Ash Plan and National Plans.

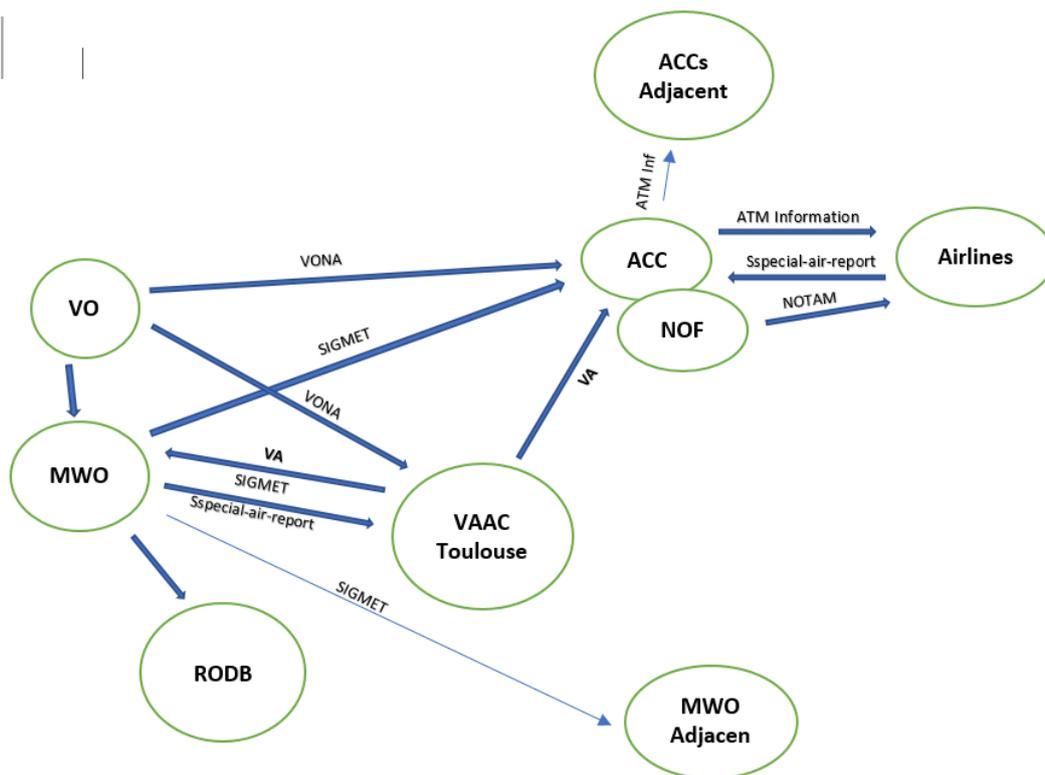


Figure 2: Coordination between the entities in accordance with the AFI Volcanic Ash Plan and National Plans.

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 is provided in Appendix B.

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.

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.

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

Exercise Preparation

Preparation for the AFI VOLCEX21/01 was initiated by the Secretariat and Cabo Verde as the Exercise Team Leader. This was in line with the scenario which had been determined in April 12, 2021. The Directive was drafted and communicated to the exercise participants through e-mail. Prior to the exercise, several web-teleconference meetings were held to prepare and communicate the initial requirements and needs of the Exercise. Various virtual meetings to review the Directive were held and attended by the Participating Agencies with the support of the ICAO ESAF and WACAF Offices.

During the online preparation meetings and through the directive, The Exercise messages templates and indicators were shared with the exercise players through the Directive. The importance of the indicators was to distinguish the exercise messages from the real operational messages.

The following webinars and meetings were conducted:

- First coordination meeting on the AFI volcanic ash exercise - **03 March 2021**
- AFI Volcanic Ash Exercise- Preparatory workshop - **06 to 08 April 2021**
- Designation of the AFI VOLCEX 21/01 Leader - **12 April 2021**
- Development of the draft VOLCEX 21/01 Directives - **03 May – 30 June 2021**
- Send the final version of the exercise directive for publication by ICAO - **October 30 (1 month before exercise)**
- Presentation of the final version of the AFI Volcanic Exercise Directive **November 22 2021**
- A NOTAM dated **23 November 2021** (one week before the exercise) was sent to exercise and webinar participants.
- Pre-Exercise Meeting **November 24 2021**

The Exercise GO/NO?? (in full) decision: It was agreed that in case of unforeseen circumstances, such as a real volcanic eruption or other significant events affecting the air transport system, the Exercise Leader may decide to either postpone the exercise to a later date or to cancel it. A decision not to proceed, i.e., to postpone or cancel the exercise, shall be communicated to all participants and observers as early as possible before the exercise is due to commence.

A new provision of the GO/NO decision was later added following inputs from the participants: *In the case of real volcanic eruption or other unforeseen circumstances that occur within the exercise period, if the exercise is considered to potentially affect the operation of air navigation system, the Exercise Leader must consult all participating agencies and postpone or abort the exercise. - (According to ICAO Doc 9766 Handbook on the IAVW, Appendix F, paragraph 2.3).*

Actions taken by participating agencies

The Volcano Observatory (VO)- (Cabo Verde VO) started the exercise by issuing a VONA at 09:35 UTC informing the participants of the eruption of Fogo Volcano with Aviation Color Code reported as red, volcanic ash cloud height 41000 FT and ash moving to East.

The VONA was disseminated through e-mail and integrated in the VAAC system. Another VONA was issued at 12:10 UTC informing that the volcanic activity had ceased, which then triggered the cessation of Exercise.

VAAC Toulouse issued the first Volcanic Ash Advisory (VAA) and V... A.... G.. (VAG) at 09:40 UTC. VAAC then the normal volcanic ash advisories were issued sequentially. Additional quantitative products (concentration charts) were provided ahead of the exercise and posted on the VAAC Toulouse Web Portal.

The last advisory was issued at 12:15 UTC in response to the VONA ceasing the exercise.

Cabo Verde Meteorological Watch Office issued 4 SIGMETs including appropriate information from the VA Advisories. A cancellation SIGMET was issued at 12:20 UTC.

Senegal Meteorological Watch Office issued 3 SIGMETs.

Cabo Verde N.... O.... F... (NOF) issued NOTAM for volcanic ash. There were 5 NOTAMs issued by Cabo Verde NOF and 2 NOTAMS issued by **Senegal NOF**.

In accordance with the AFI Volcanic Ash Contingency Plan, special air reports were disseminated to SAL and Dakar ACC and VAAC Toulouse.

There were 4 special air-reports (ARSs) simulated during the exercise.

The ARSs reported on the pilot observations which confirmed the occurrence of the ash within the advisory area as well as the absence of the ash. ARSs were transmitted by voice to the ACCs, then forwarded to MWOs from Cabo Verde and Senegal.

The exercise was a valuable opportunity to simulate the ARS transmission which could be effectively implemented in the real operational, as the simulated method has been discussed among the teleconferences.

The airlines simulated the risk assessment and flight planning were conducted in the teleconference by the exercise leader on behalf of airlines participating in the exercise.

ACCs from Sal and Dakar, as planned, coordinated with the relevant entities, and managed the airspace, informing the aircraft of the presence of volcanic ash on the different routes and altitudes.

3. LESSONS LEARNT

The exercise was extremely useful to all participating agencies. It enhanced the provision of information in the event of volcanic ash. During the exercise, there are several things that worked well and these 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

4. SUMMARY OF ISSUES /REMARKS RAISED AND PROPOSED 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

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

5. CONCLUSION

The AFI VOLCEX 21/01 was extremely useful for all participating agencies, exercise players and observers. It enhanced close coordination, rate of response and improved systems to maintain safety, regularity, and efficiency of aviation. As indicated in this Report, some significant aspects worked well, and these include use of appropriate exercise messages indicators and proper simulation of applicable procedures. In addition, there was huge enthusiasm and cooperation among participants.

The Exercise managed to achieve its main objective, which was the coordination between the different agencies and services.

In conclusion, the Exercise was also a useful way to capture what needs to be improved in the volcanic ash handling, including the need to review the messages distribution lists, special air-report transmission mechanism, further discussion on SIGMET/NOTAM procedure, as well as the importance of user-engagements.

Appendix A – Exercise players and observers

Exercise Players

Area of responsibility	Agency	Country	Unit/Division
Volcano activity alerting	INMG	Cabo Verde	Volcano Observatory
Volcanic ash advisory information	VAAC Toulouse	France	Met Services for Aviation Operations Head
SIGMET	INMG	Cabo Verde	Meteorological Watch Office
	ASECNA	Senegal	Meteorological Watch Office
NOTAM	ASA	Cabo Verde	NOF
	ASECNA	Senegal	NOF
ATM	ASA	Cabo Verde	ACC
	ASECNA	Senegal	ACC
Airlines	Air Senegal	Senegal	OPS
Regulatory	CAA	Cabo Verde	Exercise Leader

Exercise Observers

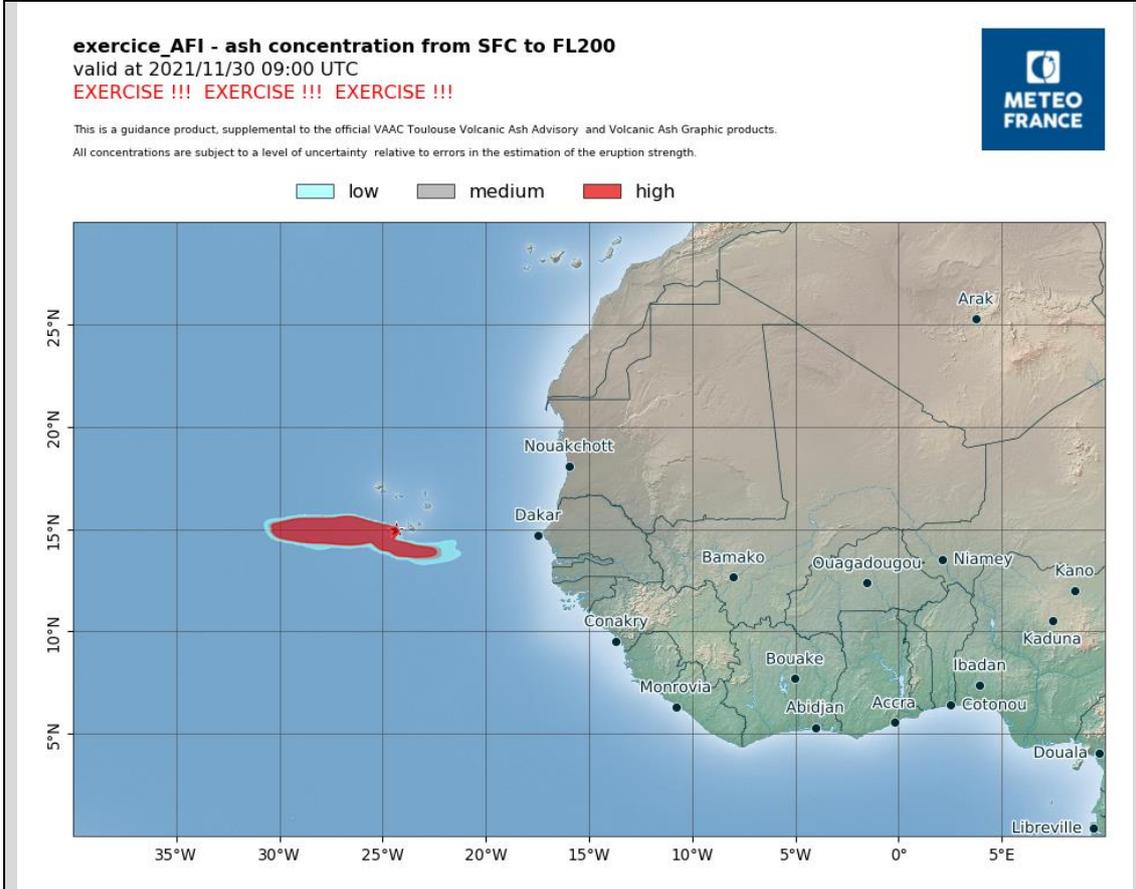
Area of responsibility	Agency	Unit/Division
International and inter-regional coordination	ICAO	ICAO WACAF Office
		ICAO ESAF Office
Airlines	IATA	Representantative
	EMIRATES	OPS
APIRG	ICAO	APIRG IIM/SG
MET Project		MET Project 2
RODB	ICAO	RODB Dakar
RODB	ICAO	RODB Pretoria
Volcanic Ash Focal Point	Kenya	Kenya Volcanic Ash Focal Point

Appendix B – Sequential actions taken by the exercise players

November 30		
Players	Event /Action	Resp.
Moderator	Opening Ceremony (CV CAA, ICAO, Exercise leader)	
Exercise leader	Exercise leader announce the commencement of the exercise START EXERCISE VOLCEX21 Activities	Exercise Leader
		
	Volcano location Lat: 14° 56' N; Long: 24° 20' W Fogo volcano eruption movie	
VO - INMG	Issue 1st VONA (initial eruption details) Phone call and e-mail to Sal ACC and Toulouse VAAC warning about eruption and giving first known data. Also available on http://vaac.meteo.fr/ – (29 NOV)	Cabo Verde

	<p style="text-align: center;">VONA</p> <p style="text-align: center;">AFI VOLCEX 21/01</p> <p>(1) VOLCANO OBSERVATORY NOTICE FOR AVIATION (VONA)</p> <p>(2) Issued: 20211129/0935Z</p> <p>(3) Volcano: VULCAO DO FOGO 384010</p> <p>(4) Current Aviation Colour Code: RED</p> <p>(5) Previous Aviation Colour Code: Green</p> <p>(6) Source: INMG – VO</p> <p>(7) Notice/Number: 2021/01</p> <p>(8) Volcano Location: N1456 W02420</p> <p>(9) Area: Cabo Verde</p> <p>(10) Summit elevation: 9281 feet (2829 m)</p> <p>(11) Volcanic Activity Summary: Eruption in progress since 0800Z</p> <p>(12) Volcanic Ash Height: 41000 feet (12.496.8m) AMSL, ground observer</p> <p>(13) Other Volcanic Cloud Information: Dark brown ash mushroom, moving toward E at 67ft not seen</p> <p>(14) Remarks:</p> <p>(15) Contacts: INMG-DSV Tel +238 2326622 Fax +232 32402 Cell +238 9925838</p> <p>(16) Next Notice: 20211129/1840 Z</p> <p>EXERCISE EXERCISE EXERCISE</p>	
VAAC Toulouse	<p>Issue 1st exercise VAA[/VAG] based on VONA Messages\VAA 1.docx and information by satellite and start running Dispersal Models – (29 NOV)</p> <p>VAA – VAAC Toulouse</p> <p>FOGO - 2021-11-29 0940 utc</p> <p>VA ADVISORY STATUS: EXER DTG: 20211130/0940Z VAAC: TOULOUSE VOLCANO: FOGO 384010 PSN: N1456 W02420 AREA: CAPE VERDE ISLANDS SUMMIT ELEV: 2829M ADVISORY NR: 2021/1 INFO SOURCE: EXERCISE AFI VOLCEX21 EXERCISE AVIATION COLOUR CODE: RED ERUPTION DETAILS: ERUPTION AT 20211129/1900Z EXERCISE AFI VOLCEX21 EXERCISE OBS VA DTG: 29/0900Z OBS VA CLD: SFC/FL410 N1700 W02300 - N1445 W01815 - N1430 W01830 - N1500 W02430 - N1700 W02300 MOV NE 67KT FL300/410 N1500 W02430 - N1515 W02245 - N1500 W01830 - N1345 W01730 - N1500 W02430 MOV E 89KT FCST VA CLD +6 HR: 29/1500Z SFC/FL410 N1345 W02445 - N1630 W02415 - N1915 W01915 - N1245 W01130 - N1045 W01130 - N1545 W02215 - N1345 W02445 FCST VA CLD +12 HR: 29/2100Z SFC/FL410 NO VA EXP FCST VA CLD +18 HR: 01/0300Z NO VA EXP RMK: EXERCISE AFI VOLCEX21 EXERCISE PLEASE DISREGARD EXERCISE EXERCISE EXERCISE NXT ADVISORY: NO LATER THAN 20211129/1200Z=</p>	France
MWO	<p>Issue 1st exercise SIGMET based on VAA for respective areas – (29 NOV)</p> <p>WVPH31 GVAC 290945 GVSC SIGMET 1 VALID 290945/291345 GVAC-</p> <p>GVSC SAL FIR VA EXER VA ERUPTION MT VULCAO DO FOGO PSN N1456 W2420 VA CLD OBS AT 0900Z WI N1455 W02421 – N1457 W02420 – N1457 W02421 – N1456 W2420 SFC/FL410 FCST AT 1000Z WI N1456 W02417 - N1502 W02338 – N1509 W02306 – N1512 W02244 – SFC</p>	Cabo Verde
NOF	<p>Issue 1st exercise NOTAM based on SIGMET – (29 NOV)</p>	Cabo Verde

	(A0078/21 NOTAMN Q) GVSC/QWWWX/IV/NBO/W/000/410/1456N02420W008 A) GVSC B) 2111290950 C) 2111300950 EST E) VA EXERCISE AFI VOLCEX 21/01. ERUPTION OF VOLCANO MT VULCAO DO FOGO ID 384010 SINCE 0800Z PSN N1456 W2420 ELEV 9281FT / 2829M VOLCANIC ASH REPORTED BY GROUND OBSERVER (HEIGHT 41000FT) MOVING EASTWARD AT 67KT. SO2 NOT SEEN EXERCISE EXERCISE EXERCISE. F) SFC G) 41000FT AMSL)	
ACC	Apply ATC measures based on SIGMET and NOTAM (Apply re-route) – (29 NOV)	Cabo Verde
AO	Report aircraft observation [volcanic ash/no volcanic ash] as special air-report by Air Senegal Airlines to Sal ACC – (29 NOV)	Airlines
ACC	Relay and record special air-report from Air Senegal Airlines to all aircrafts in the routes affects by volcanic ash cloud – (29 NOV)	Cabo Verde



VAAC Toulouse	Issue 2nd exercise VAA/VAG based on concentration Charts valid from 30/0900 to 01/0300; provides ash concentration data to Cabo Verde VO and MWO. Available on http://vaac.meteo.fr/	France
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	<p>VA ADVISORY STATUS: EXER DTG: 20211130/10100Z VAAC: TOULOUSE VOLCANO: FOGO 384010 PSN: N1456 W02420 AREA: CAPE VERDE ISLANDS SUMMIT ELEV: 2829M ADVISORY NR: 2021/2 INFO SOURCE: EXERCISE AFI VOLCEX21 EXERCISE AVIATION COLOUR CODE: RED ERUPTION DETAILS: ERUPTION AT 20211129/1900Z EXERCISE AFI VOLCEX21 EXERCISE OBS VA DTG: 1010Z OBS VA CLD: SFC/FL410 N1700 W02300 - N1445 W01815 - N1430 W01830 - N1500 W02430 - N1700 W02300 MOV NE 67KT FL300/410 N1500 W02430 - N1515 W02245 - N1500 W01830 - N1345 W01730 - N1500 W02430 MOV E 89KT FCST VA CLD +6 HR: 30/1500Z SFC/FL4100 N1345 W02445 - N1630 W02415 - N1915 W01915 - N1245 W01130 - N1045 W01130 - N1545 W02215 - N1345 W02445 FCST VA CLD +12 HR: 30/2100Z SFC/FL410 NO VA EXP FCST VA CLD +18 HR: 01/0300Z NO VA EXP RMK: EXERCISE AFI VOLCEX21 EXERCISE PLEASE DISREGARD EXERCISE EXERCISE EXERCISE NXT ADVISORY: NO LATER THAN 20211130/1200Z=</p>	
MWO	<p>Issue 2nd exercise SIGMET based on VAA/VAG Issue updated SIGMETs for respective areas</p> <p>WVPH31 GVAC 301015 GVSC SIGMET 2 VALID 301015/301415 GVAC- GVSC SAL FIR VA EXER VA ERUPTION MT VULCAO DO FOGO PSN N1456 W02420 VA CLD OBS AT 1000Z N1456 WI N1502 W02338- N1509 W02306 - N1512 W02244 SFC/FL410 FCST 1500Z WI N1515 W02216 - N1521 W02146 - N1516 W02114- N1511 W02043 - SFC/FL410</p>	Cabo Verde
NOF	<p>Issue 2nd exercise NOTAM consistence with the SIGMET</p> <p>(A0079/21 NOTAMR A0078/21 Q) GVSC/QWWWXX/IV/NBO/W/000/410/1456N02420W 250 A) GVSC B) 2111301020 C) 2112011020 EST E) VA EXERCISE AFI VOLCEX 21/01. ERUPTION OF VOLCANO MT VULCAO DO FOGO ID 384010 SINCE 211129 0800Z PSN N1456 W2420 ELEV 9281FT / 2829M VOLCANIC ASH REPORTED UP TO 250 NM (HEIGHT 41000FT) MOVING EASTWARD AT 89KT. SO2 NOT SEEN EXERCISE EXERCISE EXERCISE. F) SFC G) 41000FT AMSL)</p>	Cabo Verde
ACC	<p>Apply ATC measures based on SIGMET and NOTAM (Apply re-route)</p>	Cabo Verde
AO	<p>Report aircraft observation [volcanic ash/no volcanic ash] as special air-report by Air Senegal Airlines to Sal ACC</p>	Airlines
ACC	<p>Relay and record special air-report from Air Senegal Airlines to all aircrafts in the routes affects by volcanic ash cloud</p>	Cabo Verde

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.

low medium high



<p>VAAC Toulouse</p>	<p>Issue 3rd exercise VAA/VAG based on concentration Charts valid from 30/0900 to 01/0300; provides ash concentration data to Senegal VO and MWO. Available on http://vaac.meteo.fr/</p> <p>VAA 3- VAAC Toulouse FOGO - 2021-11-30 10:40 utc</p> <p>VA ADVISORY STATUS: EXER DTG: 20211130/10400Z VAAC: TOULOUSE VOLCANO: FOGO 384010 PSN: N1456 W02421 AREA: CAPE VERDE ISLANDS SUMMIT ELEV: 2829M ADVISORY NR: 2021/3 INFO SOURCE: EXERCISE AFI VOLCEX21 EXERCISE AVIATION COLOUR CODE: RED ERUPTION DETAILS: ERUPTION AT 20211129/1900Z EXERCISE AFI VOLCEX21 EXERCISE OBS VA DTG: 1040Z OBS VA CLD: SFC/FL410 N1700 W02300 - N1445 W01815 - N1430 W01830 - N1500 W02430 - N1700 W02300 MOV NE 20KT FL300/410 N1500 W02430 - N1515 W02245 - N1500 W01830 - N1345 W01730 - N1500 W02430 MOV E 89KT FCST VA CLD +6 HR: 30/1500Z SFC/FL410 N1345 W02445 - N1630 W02415 - N1915 W01915 - N1245 W01130 - N1045 W01130 - N1545 W02215 - N1345 W02445 FCST VA CLD +12 HR: 30/2100Z SFC/FL410 NO VA EXP FCST VA CLD +18 HR: 01/0300Z NO VA EXP RMK: EXERCISE AFI VOLCEX21 EXERCISE PLEASE DISREGARD EXERCISE EXERCISE EXERCISE NXT ADVISORY: NO LATER THAN 20211130/1200Z=</p>	<p>France</p>
<p>Leader</p>	<p>Invites Senegal to present in web conference</p>	<p>Cabo Verde</p>
<p>MWO</p>	<p>Issue 3rd exercise SIGMET based on VAA/VAG for respective areas</p>	<p>Senegal</p>

	<p>FIR OCEANIC</p> <p>WVSG31 GOOY 301050</p> <p>GOOO SIGMET 1 VALID 301050/301450 GOOY-</p> <p>GOOO DAKAR OCEANIC FIR VA EXERCISE AFI VOLCEX 21/01 VA ERUPTION MT Vulcao do FOGO PSN N1456 W02420 VA CLD OBS AT 1045Z N1515 W02216- N1520 W02131- N1517 W02049- N1512 W01956 (ponts donnés dans l'exercice : regarder ceux qui concernent OCEANIC FIR) SFC/FL410 MOV E 89KT NC FCST 1630Z VA CLD N1512 W01909- N1510 W01805- N1510 W01658- N1510 W01534 (vérifier et garder les points qui concernent la FIR) SFC/FL410 MOV E 89KT NC EXERCISE EXERCISE EXERCISE=</p>	
NOF	Issue 3 rd exercise NOTAM based on SIGMET	Senegal
ACC	Apply ATC measures based on SIGMET and NOTAM (Apply re-route)	Senegal
AO	Report aircraft observation [volcanic ash/no volcanic ash] as special air-report by Air Senegal Airlines to Dakar ACC	Airlines
ACC	Relay and record special air-report from Air Senegal Airlines to all aircrafts in the routes affects by volcanic ash cloud	Senegal
VAAC Toulouse	<p>Issue 4th exercise VAA/VAG based on concentration Charts valid from 30/1100 to 01/0500; provides ash concentration data to Cabo Verde and Senegal VO and MWO. Available on http://vaac.meteo.fr/</p> <p>VAA 4- VAAC Toulouse FOGO - 2021-11-30 11:15 utc</p> <p>VA ADVISORY STATUS: EXER DTG: 20211130/11150Z VAAC: TOULOUSE VOLCANO: FOGO 384010 PSN: N1456 W02421 AREA: CAPE VERDE ISLANDS SUMMIT ELEV: 2829M ADVISORY NR: 2021/4 INFO SOURCE: EXERCISE AFI VOLCEX21 EXERCISE AVIATION COLOUR CODE: RED ERUPTION DETAILS: ERUPTION AT 20211129/1900Z EXERCISE AFI VOLCEX21 EXERCISE OBS VA DTG: 1115Z OBS VA CLD: SFC/FL410 N1700 W02300 - N1445 W01815 - N1430 W01830 - N1500 W02430 - N1700 W02300 MOV NE 20KT FL300/410 N1500 W02430 - N1515 W02245 - N1500 W01830 - N1345 W01730 - N1500 W02430 MOV E 89KT FCST VA CLD +6 HR: 30/1500Z SFC/FL410 N1345 W02445 - N1630 W02415 - N1915 W01915 - N1245 W01130 - N1045 W01130 - N1545 W02215 - N1345 W02445 FCST VA CLD +12 HR: 30/2100Z SFC/FL410 NO VA EXP FCST VA CLD +18 HR: 01/0300Z NO VA EXP RMK: EXERCISE AFI VOLCEX21 EXERCISE PLEASE DISREGARD EXERCISE EXERCISE EXERCISE NXT ADVISORY: NO LATER THAN 20211130/1200Z=</p>	France
MWO	<p>Issue 4th exercise SIGMET based on VAA/VAG for respective areas</p> <p>WVPH31 GVAC 301120 GVSC SIGMET 4VALID 301120/301520 GVAC-</p> <p>GVSC SAL FIR VA EXER VA ERUPTION MT VULCAO DO FOGO PSN N1456 W02420 VA CLD OBS AT 1100Z WI N1515 W02216 - N1521 W02146- N1516 W02114 - N1511 W02043 SFC/FL410 FCST AT 1630Z WI N1512 W01909 - N1510 W01805 - N1510 W01658 - N1510 W01534 SFC/FL410</p>	Cabo Verde
NOF	Issue 4th exercise NOTAM consistence with the SIGMET	Cabo Verde

	<p>(A0080/21 NOTAMR A0079/21 Q) GVSC/QWWWX/IV/NBO/W/000/410/1456N02420W250 A) GVSC B) 2111301125 C) 2112011125 EST E) VA EXERCISE AFI VOLCEX 21/01. ERUPTION OF VOLCANO MT VULCAO DO FOGO ID 384010 SINCE 211129 0800Z PSN N1456 W2420 ELEV 9281FT / 2829M VOLCANIC ASH OBSERVED UP TO 250 NM (HEIGHT 41000FT) MOVING EASTWARD AT 165KT. SO2 NOT SEEN EXERCISE EXERCISE EXERCISE. F) SFC G) 41000FT AMSL)</p>	
ACC	Apply ATC measures based on SIGMET and NOTAM (Apply re-route)	Cabo Verde
AO	Report aircraft observation [volcanic ash/no volcanic ash] as special air-report by Air Senegal Airlines to Sal ACC	Airlines
ACC	Relay and record special air-report from Air Senegal Airlines to all aircrafts in the routes affects by volcanic ash cloud	Cabo Verde
MWO	<p>Issue 5th exercise SIGMET based on VAA/VAG for respective areas</p> <p>FIR TERRESTRE</p> <p>WVSG31 GOOY 301050</p> <p>GOOO SIGMET 1 VALID 301050/301450 GOOY-</p> <p>GOOO DAKAR TERRESTRE FIR VA EXERCISE AFI VOLCEX 21/01 VA ERUPTION MT Vulcao do FOGO PSN N1456 W02420 VA CLD OBS AT 1045Z N1515 W02216- N1520 W02131- N1517 W02049- N1512 W01956 (points donnés dans l'exercice : regarder ceux qui concernent TERRESTRE FIR) SFC/FL410 MOV E 89KT NC FCST 1630Z VA CLD N1512 W01909- N1510 W01805- N1510 W01658- N1510 W01534 (vérifier et garder les points qui concernent la FIR) SFC/FL410 MOV E 89KT NC EXERCISE EXERCISE EXERCISE=</p>	Senegal
NOF	Issue 5 th exercise NOTAM consistence with the SIGMET	Senegal
ACC	Apply ATC measures based on SIGMET (Apply re-route)	Senegal
AO	Report aircraft observation [volcanic ash/no volcanic and NOTAM ash] as special air-report by Air Senegal Airlines to Dakar ACC	Airlines
ACC	Relay and record special air-report from Air Senegal Airlines to all aircrafts in the routes affects by volcanic ash cloud	Senegal
VO - INMG	Cancel exercise VONA	Cabo Verde

	<p style="text-align: center;">VONA CANCEL EXERCISE</p> <p style="text-align: center;">AFI VOLCEX 21/01</p> <p>(1) VOLCANO OBSERVATORY NOTICE FOR AVIATION (VONA)</p> <p>(2) Issued: 20211130/1210Z</p> <p>(3) Volcano: Volcão do Fogo 384010</p> <p>(4) Current Aviation Colour Code: Green</p> <p>(5) Previous Aviation Colour Code: Red</p> <p>(6) Source: INMG – VO</p> <p>(7) Notice/Number: 2021/02</p> <p>(8) Volcano Location: N1456W02420</p> <p>(9) Area: Cabo Verde</p> <p>(10) Summit elevation: 9281 feet (2829 m)</p> <p>(11) Volcanic Activity Summary: ERUPTION AT 2021 29 11 /0800Z NO ASH CLOUD</p> <p>(12) Volcanic Ash Height: VA NOT IDENTIFIABLE, ground observer</p> <p>(13) Remarks: NO ASH PRODUCTION</p> <p>(15) Contacts: INMG-DSV Tel +238 2326622 Fax +232 32402 Cell +238 9925838</p> <p>EXERCISE VOLCEX TERMINATED ENDEX 1210Z</p>	
<p>VAAC Toulouse</p>	<p>Cancel exercise VAA/VAG</p> <p>VAA – VAAC Toulouse FOGO - 2021-11-30 12:15 utc</p> <p>VA ADVISORY STATUS: EXER DTG: 20211130/1215Z VAAC: TOULOUSE VOLCANO: FOGO 384010 PSN: N1456 W02421 AREA: CAPE VERDE ISLANDS SUMMIT ELEV: 2829M ADVISORY NR: 2021/3 INFO SOURCE: EXERCISE AFI VOLCEX 21/01 EXERCISE AVIATION COLOUR CODE: UNKNOWN</p> <p>ERUPTION DETAILS: AFI VOLCEX21 END OF EXERCISE OBS VA DTG: 30/1215Z OBS VA CLD: NO VA EXPECTED VA NOT IDENTIFIABLE FM SATELLITE DATA FCST VA CLD +6 HR: 30/1815Z NO VA EXP FCST VA CLD +12 HR: 01/0015Z NO VA EXP FCST VA CLD +18 HR: 01/0615Z NO VA EXP RMK: EXERCISE EXERCISE EXERCISE – END OF EXERCISE NXT ADVISORY: NO FURTHER ADVISORIES=</p>	<p>France</p>
<p>MWO</p>	<p>Cancel exercise SIGMET</p> <p>OCEANIC FIR WVSG31 GOOY 301145 GOOO SIGMET 2 VALID 301145/301450 GOOY- GOOO DAKAR OCEANIC FIR VA EXERCISE AFI VOLCEX 21/01 CNL SIGMET 1 301050/301450 EXERCISE EXERCISE EXERCISE=</p> <p>TERRESTRE FIR WVSG31 GOOY 301050 GOOO SIGMET 2 VALID 301145/301450 GOOY- GOOO DAKAR TERRESTRE FIR VA EXERCISE AFI VOLCEX 21/01 CNL SIGMET 1 301050/301450 EXERCISE EXERCISE EXERCISE=</p> <p>WVPH31 GVAC 301220 GVSC SIGMET 5VALID 301220/301235 GVAC- GVSC SAL FIR EXER CANCEL SIGMET 01 290945/301345</p>	<p>Cabo Verde</p>

NOF	<p>NOTAM Canceling Eruption Cancel exercise NOTAM</p> <p>NOTAM CANCELING ERUPTION</p> <p>(A0082/81 NOTAMC A0080/21 Q) GVSC/QWWWXX/IV/NBO/W/000/999/1456N02420W999 A) GVSC B) 2111301225 E) VA EXERCISE AFI VOLCEX 21/01. ERUPTION OF VOLCANO MT VULCAO DO FOGO ID 384010 PSN N1456 W2420 HAS CEASED AS REPORTED BY SIGMET AT 1220 UTC. VOLCANIC ASH CLOUD HAS DISSIPATED. VOLCANIC ASH CLOUD NO LONGER VISIBLE. EXERCISE EXERCISE EXERCISE F) G)</p> <p>EXERCISE VOLCEX TERMINATED. ENDEX 1225Z</p> <p>NOTAM FINISHING EXERCISE</p> <p>(A0082/21 NOTAMC A0077/21 Q) GVSC/QAFX/IV/NBO/E/000/999/1830N02845W999 A) GVSC B) 2111301230 E) VA EXERCISE AFI VOLCEX 21/01 FINISHED CANCEL EXERCISE EXERCISE EXERCISE</p>	Cabo Verde
Exercise leader	Exercise leader announce cessation of the exercise and invite Kenya to present in web conference	Cabo Verde
Exercise leader	Exercise Leader Invite South Africa to present in web conference	Cabo Verde
Exercise leader and participants	Exercise web conference to discuss the exercise	All Participants