International Civil Aviation Organization

The First Meeting of the Asia/Pacific Volcanic Ash Exercises Steering Group (VOLCEX/SG/1)

Manila, Philippines, 27-29 May 2015

Agenda Item 5: Planning for Volcanic Ash Exercise in 2015

VOLCANIC ASH EXERCISE DIRECTIVE

(Presented by the Secretariat)

SUMMARY

This paper presents a draft volcanic ash exercise directive for review and adoption by the volcanic ash exercises steering group as the basis on which to plan and conduct the first APAC volcanic ash exercise in 2015.

1. INTRODUCTION

1.1 Guidance material for conducting volcanic ash exercises in ICAO regions, which was first included in 2010 in ICAO Doc 9766 – *Handbook on the International Airways Volcano Watch (IAVW), Second Edition 2004* (para. 4.11 and Appendix F refer), states that *"an exercise directive should be published prior to the exercise which clearly describes the exercise scenario, participating agencies and any special instructions"*.

1.2 This paper presents a draft volcanic ash exercise directive in the **Attachment 1** for review and adoption by the APAC volcanic ash exercises steering group as the basis on which to plan and conduct the first ICAO volcanic ash exercise in the APAC Region in 2015.

2. DISCUSSION

Volcanic Ash Exercises Operating Instructions

2.1 Prior to the establishment of the APAC volcanic ash exercises steering group, volcanic ash exercises have been conducted in the ICAO EUR and NAT Regions annually or bi-annually since 2010. To facilitate the conducting of regular volcanic ash exercises, the EUR/NAT Volcanic Ash Exercises Steering Group (EUR/NAT VOLCEX/SG) prepared the working draft of the European and North Atlantic Volcanic Ash Exercises Operating Instructions (EUR/NAT VOLCEX OPINS) in 2010, a copy of which is contained in the **Attachment 2** to this paper.

2.2 The EUR/NAT VOLCEX OPINS includes an exercise directive template (at Annex D) and supplementary instructions, which the meeting may decide to use, together with the guidance material provided in Doc 9766, as the basis for the APAC volcanic ash exercise directive in 2015.

2.3 The meeting may also wish to note that the EUR/NAT VOLCEX OPINS stipulate that, in the EUR/NAT Region, *"the Exercise Directive is to be finalized by the Exercise Leader* at least two weeks prior *to the exercise"* and, accordingly, may consider a suitable time frame for finalizing the APAC volcanic ash exercise directive.

VOLKAM15 directive

2.4 The fifth meeting of the Volcanic Ash Exercises Steering Group for the (far) eastern part of the EUR Region (EUR (EAST) VOLCEX/SG/5), which was held in Petropavlovsk-Kamchatsky, Russian Federation, from 5-7 August 2014, adopted a volcanic ash exercise directive for the VOLKAM15 exercise, which was to be conducted on 15-16 April 2015. A copy of the VOLKAM15 directive is provided in the **Attachment 3** to this paper as guidance to assist the further development of the APAC volcanic ash exercise directive.

APAC volcanic ash exercise directive

2.5 The meeting will note that the draft APAC volcanic ash exercise directive provided in the **Attachment 1** to this paper, which is based on the template in **Attachment 2** and the VOLKAM15 directive in **Attachment 3** as discussed above, requires further development as indicated in the draft itself.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) adopt the draft APAC volcanic ash exercise directive provided in the **Attachment 1** to this paper; and

c) adopt a list of actions to finalize the draft directive for the first ICAO APAC volcanic ash exercise in 2015.

…….

EXERCISE DIRECTIVE FOR EXERCISE [NAME]15/01

1. INTRODUCTION

1.1. Exercise date and time (UTC): [18 or 19 August, 0045 to 0645]

1.2. Exercise Leader: [TBD]

1.3. Debrief Meeting: [1 to 2 September 2015]

1.4. Debrief host and chairman: (Host) [ICAO Asia and Pacific Office, Bangkok, Thailand]; (Chair) Exercise Leader

2. PARTICIPATING AGENCIES

2.1. Agencies that have agreed to participate in the exercise, listed according to area of responsibility:

Area of responsibility	Agency	Unit/Division
VO	PHIVOLCS	TVO/MVO?
VAAC	JMA	VAAC Tokyo
VAAC	BoM	VAAC Darwin
MWO	JMA	MWO Tokyo (RJTD)
MWO	PAGASA	MWO Manila (RPLL)
MWO	MSS	MWO Singapore (WSSS)
MWO	HKO	MWO Hong Kong (VHHH)
ACC	JCAB	ACC Fukuoka (RJDG)
ACC	CAAP	ACC Manila (RPHI)
ACC	CAAS	ACC Singapore (WSJC)
ACC	CAD	ACC Hong Kong (VHHK)
AO	IATA	?
AO	IFALPA	?
Regulation	?	?
NOF	JCAB	?
NOF	CAAP	?
NOF	CAAS	?
NOF	CAD	?
Coordination	ICAO	Asia and Pacific Office

3. AIMS AND OBJECTIVES

3.1. [The overall objective of the exercise is to maintain enhanced safety, regularity and efficiency of aviation in the event of a volcanic eruption by demonstrating the provision and exchange of volcanic ash information in support of flexible airspace management, improved situational awareness and collaborative decision making, and dynamically-optimized flight trajectory planning.]

3.2. [In particular, the exercise aims to demonstrate the practice of applicable global and regional procedures related to volcanic activity and volcanic ash, including:

a) Distribution of alerts (e.g., VONA)
b) Distribution of AIS and MET messages (e.g., VAA/VAG, SIGMET, NOTAM, AIREP)

c) Responses by ATC, ATFM and aircraft operators (e.g., safety risk assessments, tactical re-routes)
d) Enhanced situational awareness and CDM (e.g., via a teleconference/website?)]

3.3. The exercise shall be planned and conducted to ensure that detrimental effects on the aviation system performance are avoided, but that nevertheless useful experience and information is generated.

4. EXERCISE DURATION

4.1. The exercise shall be conducted over a period of [six (6)] hours, from [0045 to 0645 UTC on 18 or 19 August] 2015.

5. EXERCISE VOLCANO

5.1. Name: [TAAL], Number: [273070], Position: [N1400 E12100], Area: [Philippines]

6. EXERCISE SCENARIO

6.1. Eruption with volcanic ash cloud at [flight level/s] moving [direction] at [speed] at [flight level/s] to impact [route/s] and [FIR/s].

6.2. [Any other significant features of the scenario]

7. EXERCISE SCHEDULE

7.1. Participating agencies have agreed to the following chronological list of the actions to be undertaken before and during the exercise:

Date/Time (UTC)	***Player/s***	***Event/Action***
[1 month prior to the exercise]	Exercise leader, ICAO Secretariat	Publish final version of exercise directive
[1 week prior to the exercise]	NOF/s [name/s]	Issue preparatory NOTAMs to inform the aviation community of the exercise
[Exercise date, 0100]	Exercise leader	Send email message to all players to announce commencement of the exercise
[Exercise date, 0100]	VO [name]	Issue 1st exercise VONA (initial eruption details)
[Exercise date, 0100+]	VAAC Tokyo	Issue 1st exercise VAA[/VAG] based on VONA
[Exercise date, 0100+]	MWO Manila	Issue 1st exercise SIGMET based on VONA
[Exercise date, 0100+]	ACC/NOF [name/s]	Issue 1st exercise NOTAM based on SIGMET
[Exercise date, 0200]	VAAC Tokyo	Issue 2nd exercise VAA/VAG based on observations/reports
[Exercise date, 0200+]	MWO Manila	Issue 2nd exercise SIGMET based on VAA/VAG
[Exercise date, 0200+]	Exercise leader	Send email message inviting [selected players] to join [teleconference/web conference] at [time]
[Exercise date, 0200+]	ACC/NOF [name/s]	Issue 2nd exercise NOTAM based on SIGMET
[Exercise date, 0200+]	ACC/ATM Centre/s [names]	Apply ATFM measures based on SIGMET
[Exercise date, 0200+]	AOs [name/s]	Take appropriate flight planning actions: e.g.

Date/Time (UTC)	*Player/s*	*Event/Action*
		reroute or cancel flights
[Exercise date, 0215]	AO [name]	Report aircraft observation [volcanic ash/no volcanic ash] as special air-report
[Exercise date, 0215+]	ATS unit/s [name/s]	Relay and record special air-report
[Exercise date, 0230]	VO [name]	Issue 2nd exercise VONA (updated eruption details)
[Exercise date, 0245]	Exercise leader, [list selected players]	Exercise [teleconference/web conference] to discuss the latest situation
[Exercise date, 0300]	VAAC Tokyo	Issue 3rd exercise VAA/VAG based on observations/reports
[Exercise date, 0300+]	MWO Manila	Issue 3rd exercise SIGMET based on VAA/VAG
[Exercise date, 0300+]	ACC/NOF [name/s]	Issue 3rd exercise NOTAM based on SIGMET
[Exercise date, 0300+]	ACC/ATM Centre/s [names]	Apply ATFM measures based on SIGMET
[Exercise date, 0300+]	AOs [name/s]	Take appropriate flight planning actions: e.g. reroute or cancel flights
[Exercise date, 0600]	VAAC Tokyo	Issue 4th exercise VAA and VAG based on observations/reports
[Exercise date, 0600+]	MWO Manila	Issue 4th exercise SIGMET based on VAA/VAG
[Exercise date, 0600+]	ACC/NOF [name/s]	Issue 4th exercise NOTAM based on SIGMET
[Exercise date, 0600+]	ACC/ATM Centre/s [names]	Apply ATFM measures based on SIGMET
[Exercise date, 0600+]	AOs [name/s]	Take appropriate flight planning actions: e.g. reroute or cancel flights
[Exercise date, 0645]	Exercise leader	Send email message to all players to announce cessation of the exercise
[Exercise date, 0645]	VO [name]	Cancel exercise VONA
[Exercise date, 0645]	VAAC Tokyo	Cancel exercise VAA/VAG
[Exercise date, 0645]	MWO Manila	Cancel exercise SIGMET
[Exercise date, 0645]	ACC/NOF [name/s]	Cancel exercise NOTAM

8. EXERCISE SCENARIO MESSAGES

8.1. Example VONA message/s related the exercise:

1st exercise VONA

EXERCISE EXERCISE EXERCISE		
(1)	VOLCANO OBSERVATORY NOTICE FOR AVIATION — VONA	
(2)	Issued:	Universal (Z) date and time (YYYYMMDD/HHMMZ)
(3)	Volcano:	Name and number (per Smithsonian database at http://www.volcano.si.edu/)
(4)	Current aviation colour code:	GREEN, YELLOW, ORANGE OR RED in upper-case bold font

(5)	Previous aviation colour code:	Lower-case font, not bold
(6)	Source:	Name of volcano observatory (volcanological agency)
(7)	Notice number:	Create unique number for each VONA that includes year
(8)	Volcano location:	Latitude, longitude in NOTAM format (N or S deg min W or E deg min)
(9)	Area:	Regional descriptor
(10)	Summit elevation:	nnnnn FT (nnnn M)
(11)	Volcanic activity summary:	Concise statement that describes activity at the volcano. If known, specify time of onset and duration (local and UTC) of eruptive activity. If the eruption is ongoing at the time of VONA release, indicate “eruption and ash emission is continuing”
(12)	Volcanic cloud height:	Best estimate of ash-cloud top in nnnnn FT (nnnn M) above summit or AMSL (specify which). Give source of height data (ground observer, pilot report, radar, etc.). “UNKNOWN” if no data available or “NO ASH CLOUD PRODUCED” if applicable.
(13)	Other volcanic cloud information:	Brief summary of relevant cloud characteristics (colour of cloud, shape of cloud, direction of movement, etc.) Specify if cloud height is obscured or suspected to be higher than what can be observed clearly. “UNKNOWN” if no data available or “NO ASH CLOUD PRODUCED” if applicable.
(14)	Remarks:	Optional. Brief comments on related topics (monitoring data, observatory actions, volcano’s previous activity, etc.)
(15)	Contacts:	Names, telephone and fax numbers, e-mail addresses.
(16)	Next notice:	“A new VONA will be issued if conditions change significantly or the colour code is changed.” Include URL of website where latest volcanic information is posted.

EXERCISE EXERCISE EXERCISE

8.2. Example VAA message/s related the exercise:

1st exercise VAA

FVFE01 RJTD [ddhhmm]
VA ADVISORY
DTG: 2015[MMDD/hhmm]Z
VAAC: TOKYO
VOLCANO: [TAAL 273070]
PSN: [N1400 E12100]
AREA: PHILIPPINES
SUMMIT ELEV: [311M]
ADVISORY NR: 9999/1
INFO SOURCE: [EXERCISE MTSAT-2 PHIVOLCS]
AVIATION COLOUR CODE: [NIL]
ERUPTION DETAILS: [EXERCISE ERUPTION AT 20151001/0045Z OVER FL370 EXTD N]
OBS VA DTG: [DD/hhmm]Z
OBS VA CLD: [VA NOT IDENTIFIABLE FM SATELLITE DATA WIND FL370 170/45KT]
FCST VA CLD +6 HR: [NO VA EXP]
FCST VA CLD +12 HR: [NO VA EXP]

FCST VA CLD +18 HR: [NO VA EXP]
RMK: EXERCISE
[WE WILL ISSUE FURTHER ADVISORY IF VA IS DETECTED IN SATELLITE IMAGERY]
EXERCISE EXERCISE EXERCISE
NXT ADVISORY: [NO FURTHER ADVISORIES]=

8.3. Example VAG message/s related the exercise:

[to be provided]

8.4. Example SIGMET message/s related the exercise:

[to be provided]

8.5. Example NOTAM message/s related the exercise:

[to be provided]

8.6. Example AIREP message/s related the exercise:

[to be provided]

9. COMMUNICATIONS

9.1. The free text of all exercise messages starts and ends with:

EXERCISE EXERCISE EXERCISE

9.2. Exercise [teleconferences/webconferences] start with:

"EXERCISE [name]"

10. DIRECTING STAFF

Organization	***State***	***Contact name***	***Contact position***	***Primary telephone number***	***Secondary telephone number***	***Fax number***	***Email address***
...	...	...	...	...	...	...	...

11. SPECIAL INSTRUCTIONS

11.1. Exercise [teleconference/webconference] instructions:

A. Lead: The lead of teleconference calls should be the main ATM centre [name] of the State where the volcano is erupting (e.g. a volcano eruption in the Philippines – [name] Manila)

B. Expected participants and general information expected from each:
VO – brief update on eruption status, latest height information, source of height information; duration of event, expected activity

VAAC – brief update on VAA/VAG (are observations such as aircraft reports being used to update products)
MWO – brief update on SIGMET (if different from VAA/VAG, briefly explain why)
NOF – brief update on NOTAM and published reroutes
ACC – brief update on reroutes and coordination with ACCs and ATMCs
ATMC – brief update on overall strategy (coordination with other ATMCs and ACCs)
Airlines – brief update on tactical reroutes, flight plan changes and satisfaction with reroutes
ATMC – response, if necessary, to airlines
ACC – response, if necessary, to ATMCs and airlines

C. Information sharing: The following web portal is available to obtain volcanic ash related products and information: [to be provided].

D. Language: Each State should arrange to have participants speak in English during the teleconferences.

E. Microphones: Each Participant should mute microphones to reduce back ground noise. The Leader of the teleconference will instruct the participant when to speak.

12. LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviation or acronym	***Decode***
ACC	Area Control Centre
AIM	ATFCM Information Message
ANM	ATFCM Notification Message
AIS	Aeronautical Information Service
AO	Aircraft Operator
AOC	Airline Operations Centre
ANSP	Air Navigation Service provider
ATFCM	Air Traffic Flow and Capacity Management
ASHTAM	Special series NOTAM notifying, by means of a specific format, change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations
ATM	Air Traffic Management
ATS	Air Traffic Services
CFMU	Central Flow Management Unit
CTR	Control zone
FMP	Flow Management Position
IFPS	Integrated Initial Flight Plan Processing System
IFPZ	IFPS Zone
MWO	Meteorological Watch Office
NOF	International NOTAM Office
NOTAM	A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations
SIGMET	Information concerning en-route weather phenomena which may affect the safety of aircraft operations
VA	Volcanic Ash

VAA	Volcanic Ash Advisory
VAAC	Volcanic Ash Advisory Centre (**/L** = London, **/T** = Toulouse)
VAG	Volcanic Ash Graphic
VONA	Volcano Observatory Notice for Aviation

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Working draft of the

EUROPEAN AND NORTH ATLANTIC VOLCANIC ASH EXERCISES OPERATING INSTRUCTIONS (EUR/NAT VOLCEX OPINS)

January 2011

PREPARED BY THE EUROPEAN AND NORTH ATLANTIC OFFICE OF ICAO

RECORD OF AMENDMENTS AND CORRIGENDA

Amendments			
No.	Date of issue	Date entered	Entered by

Corrigenda			
No.	Date of issue	Date entered	Entered by

TABLE OF CONTENTS

PART I

1. Overview

The w*orking draft* of the European and North Atlantic Volcanic Ash Exercises Operating Instructions (EUR/NAT VOLCEX OPINS) contained herein have been prepared by the European and North Atlantic Volcanic Ash Exercises Steering Group (EUR/NAT VOLCEX/SG) of the EANPG COG and NAT IMG, to facilitate the conducting of regular volcanic ash exercises in the EUR and NAT Regions of ICAO. The first working draft version of the EUR/NAT VOLCEX OPINS was supported by EANPG COG/48 (6 to 8 October 2010) and NAT IMG/37 (2 to 5 November 2010).

Participating agencies are responsible for providing air traffic services, aeronautical information service, meteorological and geological data as well as volcanic ash dispersion forecasts and aircraft operation.

2. Exercises

Volcanic ash exercises are held annually or bi-annually in the EUR and NAT Regions, and exercise volcanic activity alerting, AIS and MET message routing, volcanic ash dispersion forecasts, air traffic control, air traffic flow and capacity management, and aircraft operator response.

The exercises adhere to the following naming convention: “Exercise VOLCEX{YY}/{NN}”, where {YY} relates to the year of the exercise and {NN} relates the sequence number of the exercise. For example, Exercise VOLCEX10/01 is the first exercise of 2010, whilst Exercise VOLCEX10/02 is the second exercise of 2010.

3. Aims

The aim of volcanic ash exercises in the EUR and NAT Regions are to practice and develop inter-agency response to volcanic activity, in order to maintain regularity, efficiency and aviation safety in the event of a volcanic eruption.

4. Objectives

The exercises are designed to:

a) Practice the conduct of volcanic activity response in accordance with the reference documents;

b) Verify existing information, AIS and MET message routing on AFTN addresses, relevant e-mail addresses, telephone and fax numbers;
c) Maintain appropriate information and message routing between all involved agencies and organizations;
d) Provide volcanic activity response training for key personnel involved;
e) Verify and develop existing procedures; 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.

5. Concepts

The annual or bi-annual exercises cater for participation from different geographic areas of the EUR and NAT Regions.

Each exercise involves a simulated eruption of a volcano in the EUR or NAT Regions – specifically, those volcanoes in Iceland, Portugal (the Azores) and Italy. Simulated ash cloud or clouds from an assigned volcano will cross national and international boundaries, depending on the objectives of the exercise.

Each exercise may have different objectives, which the scenario will be designed to emphasize. For example:

a) AFTN, e-mail addresses, message routing and voice communications;
b) Alerting and volcanic ash dispersion forecasts and advice;
c) ATS response;
d) ATC and aircraft operator response;
e) ATM response;
f) AIS response; and/or
g) MET response.

6. Expectations

All participating agencies in the exercises are expected to adhere to the OPINS contained herein.

7. Language

The exercises, and any associated meetings and documentation, are conducted entirely in the English language.

8. Reference material

- ICAO Annex 3 – *Meteorological Service for International Air Navigation*
- ICAO Annex 11 – *Air Traffic Services*
- ICAO Annex 15 – *Aeronautical Information Services*

- ICAO Doc 4444-ATM/501 – *Procedures for Air Navigation Services*
- ICAO Doc 9691-AN/954 – *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds*
- ICAO Doc 9766-AN/968 – *Handbook on the International Airways Volcano Watch*

- ICAO EUR Doc 019 / ICAO NAT Doc 006 Part II – *Volcanic Ash Contingency Plan – EUR and NAT Regions*

- EUROCONTROL ATFCM Handbook for AIM and ANM messages

PART II

1. Introduction

Exercise VOLCEX are exercise projects supported by air traffic control centres, meteorological watch offices, AIS NOTAM Offices, volcanic ash advisory centres, aircraft operators, etc, in the European (EUR) and North Atlantic (NAT) Regions of ICAO.

Participating agencies are expected to adhere to the OPINS contained herein. All costs of travel, meetings, communications and exercise conduct are carried by each individual party.

2. Volcanic Ash Exercises Steering Group

The European and North Atlantic Volcanic Ash Exercises Steering Group (EUR/NAT VOLCEX/SG) was established by the EANPG COG and NAT SPG of ICAO in 2008 with the objective of improving the response to volcanic eruptions and volcanic ash clouds by the relevant service providers and airspace users in the EUR and NAT Regions through organizing regular volcanic ash exercises, in order to validate and continually improve the regional volcanic ash contingency plans and procedures.

The EUR/NAT VOLCEX/SG meets annually, coordinating with all participants a two-year schedule of volcanic ash exercises and their scenarios; continuous review of regional volcanic ash contingency plans and procedures, proposing improvements based on the lessons learned; and organizing volcanic ash awareness events concerning the hazardous effects of volcanic ash on aviation and the established contingency measures.

An example of the annual volcanic ash exercise activity schedule in the EUR and NAT Regions is presented at **Annex A.**

Regular updates on the activities of the EUR/NAT VOLCEX/SG are provided to the EANPG COG and NAT IMG, amongst others, by the Secretary of the EUR/NAT VOLCEX/SG.

The EUR/NAT VOLCEX/SG determines the appropriate Exercise Leader for each exercise based on the expected volcanic ash scenario. The Exercise Leader is typically a member of the EUR/NAT VOLCEX/SG.

3. Exercise Leader

Having been determined by the EUR/NAT VOLCEX/SG, the Exercise Leader takes care of administrative matters relating to the Exercise VOLCEX, in coordination with the Secretary of

the EUR/NAT VOLCEX/SG, such as the production of the Exercise Directive and Final Exercise Report.

The Exercise Leader is also the supervisor of the Directing Staff.

4. Directing Staff

A group of experts representing each of the specialist areas of the exercises, such as meteorological watch offices, volcanic ash advisory centres, NOTAM offices, etc. The Directing Staff negotiate and design an exercise scenario, supervise the conduct of the exercise, debrief the exercise and write the Initial Exercise Report.

Guideline Directing Staff Instructions are presented at **Annex B**.

5. Exercise planning

A Planning Meeting is held *at least 3 months prior to* an exercise, allowing participating agencies to negotiate the exercise objectives, determine the impact area, and, if necessary, design the volcanic and meteorological activity messages to serve the objectives.

Guideline principles concerning the Planning Meetings are presented at **Annex C**.

6. Exercise directive

Immediately following the Planning Meeting, the Exercise Leader will start to prepare an Exercise Directive, with input from Directing Staff as appropriate.

The Exercise Directive will clearly state the exercise scenario, date(s) and time(s), participating agencies and Exercise Leader, aims and objectives, communications, Directing Staff, and any special instructions.

The Exercise Directive is to be finalized by the Exercise Leader *at least two weeks prior to* the exercise. The Exercise Leader, in coordination with the Secretary of the EUR/NAT VOLCEX/SG, is to ensure that the Exercise Directive is circulated to all Directive Staff and posted on the ICAO EUR/NAT website.

The Exercise Directive template is presented at **Annex D.**

7. Exercise conduct

The exercise is conducted in accordance with the Exercise Directive. Participants (or "players") are expected to issue exercise scenario messages such as volcanic ash advisories, SIGMET and NOTAM or ASHTAM in accordance with the examples provided in the Exercise Directive. Eurocontrol CFMU also will issue AIM to provide information on the regulated airspace within the IFPS Zone (IFPZ).

There must be *no operational impact* since the exercises are simulations.

All communications pertaining to the exercise (text based, graphics based and/or voice communication) must adopt the guidelines presented in **Annex E**.

8. Initial exercise report

Based on experience during the exercise, participating agencies (principally Directing Staff) are expected to complete an Initial Exercise Report.

The Initial Exercise Report focuses attention on the major lessons learnt, recommendations and conclusions. It may be necessary for the participating agencies to conduct immediate internal (local or national) debriefings in order to compile the Initial Exercise Report.

Suggested reporting requirements are presented at **Annex F.**

Based on local debriefing, the Initial Exercise Report is to be submitted to the Exercise Leader *within two weeks of the end* of the exercise.

The Initial Exercise Report template is presented at **Annex G.**

9. Exercise debrief

A Debrief Meeting is held *within 3 months (ideally 1 month) after* the exercise has been conducted, often conjoined with the Planning Meeting of the next exercise.

The Debrief Meeting allows the participant agencies (Directing Staff) to present their experience of the exercise, identifying common themes, lessons learned and recommendations, in order for the Exercise Leader to prepare a Final Exercise Report.

Guideline principles concerning the Debrief Meetings are presented at **Annex H**.

10.Final exercise report

The Exercise Leader is to consolidate the Initial Exercise Reports from the Directing Staff, as well as Debrief Meeting presentations and discussions, in order to prepare a Final Exercise Report.

The Final Exercise Report is to available *no later than one month after* the Debrief Meeting. The Final Exercise Report is to be circulated to all exercise participants (Directing Staff), and posted on the ICAO EUR/NAT website in coordination with the Secretary of the EUR/NAT VOLCEX/SG.

The Final Exercise Report template is presented at **Annex I.**

11.Follow up of lessons learnt, recommendations and conclusions

Each participant agency is expected to undertake the necessary follow-up of internal issues to arise from the exercise. The Secretary of the EUR/NAT VOLCEX/SG, with input from the EUR/NAT VOLCEX/SG members, is expected to address those issues arising of regional or international significance that may warrant the attention of the EANPG COG or NAT IMG in the first instance.

ANNEX A

ANNUAL VOLCANIC ASH EXERCISE ACTIVITY SCHEDULE

Month	***Activity***	***Action by***
January	• Finalizing and publication of Final Exercise Report (VOLCEX{YY-1}/02)	• Exercise Leader in coordination with Secretary of the VOLCEX/SG •
February		
March	• Finalizing and publication of Exercise Directive (VOLCEX{YY}/01)	• Exercise Leader in coordination with Secretary of the VOLCEX/SG
April	• **Exercise VOLCEX{YY}/01**	• **Exercise Leader, Directing Staff and Key Players**
May	• Submission of Initial Exercise Reports (VOLCEX{YY}/01)	• Directing Staff to Exercise Leader
June	• Debrief Meeting (VOLCEX{YY}/01) and Planning Meeting (VOLCEX{YY}/02) • Preparation of Exercise Directive (VOLCEX{YY}/02)\ • VOLCEX/SG annual meeting	• Exercise Leader and Directing Staff • Exercise Leader • VOLCEX/SG members
July	• Finalizing and publication of Final Exercise Report (VOLCEX{YY}/01)	• Exercise Leader in coordination with Secretary of the VOLCEX/SG
August		
September	• Finalizing and publication of Exercise Directive (VOLCEX{YY}/02)	• Exercise Leader in coordination with Secretary of the VOLCEX/SG
October	• **Exercise VOLCEX{YY}/02**	• **Exercise Leader, Directing Staff and Key Players**
November	• Submission of Initial Exercise Reports (VOLCEX{YY}/02)	• Directing Staff to Exercise Leader (last exercise)
December	• Debrief Meeting (VOLCEX{YY}/02) and Planning Meeting (VOLCEX{YY+1}/01) • Preparation of Exercise Directive (VOLCEX{YY+1}/01)	• Exercise Leader and Directing Staff • Exercise Leader

Note 1: All entries are indicative and subject to change.

Note 2: {YY} is the year of the exercise and {NN} is the sequence number of the exercise. For example, "EXERCISE VOLCEX10/01" is the first exercise of 2010, whilst Exercise VOLCEX10/02 is the second exercise of 2010.

ANNEX B

DIRECTING STAFF INSTRUCTIONS

1. The Directing Staff is the controlling work group for Exercise VOLCEX and carries out the following functions:

    a. Represent the organizations of the exercise which collaborate in conducting a certain exercise (e.g. VAAC, MET, ATM, AIS, AO, etc);
    b. Negotiate the specific objectives of each exercise (during Planning Meeting);
    c. Assists in the design of the exercise scenario which serves the objectives;
    d. Prepares the content of messages which are the result of the exercise scenario;
    e. Provides input to the Exercise Directive;
    f. Initiates and oversees the exercise operation;
    g. Submits Initial Exercise Report to Exercise Leader; and
    h. Provides input during the Debrief Meeting.

2. The Directing Staff have the following post exercise duties:

    a. Present the exercise lessons learnt and follow-up recommendations within their own particular specialist area; and
    b. Advises and instructs exercise participants (players) and new Directing Staff members, and facilitates appropriate renewal of Directing Staff.

ANNEX C

EXERCISE PLANNING MEETING

1. Planning Meetings are held at least 3 months prior to a planned exercise in the EUR or NAT Regions, and are chaired by the Exercise Leader (as determined by the EUR/NAT VOLCEX/SG)

2. The main aims are to:

   a. Determine the specific date(s) and time(s) of the exercise;
   b. Negotiate the aims and objectives of the exercise;
   c. Design a scenario to meet the objectives of the exercise;
   d. Identify agencies and personnel with Directing Staff responsibility; and
   e. Exchange information of interest for the exercise community.

3. The Planning Meeting should normally be hosted by one of the participating agencies. Delegates should include key personnel able to make decisions on behalf of their own organization or specialist area.

4. As chair, the Exercise Leader, in co-ordination with the host agency, should prepare the Planning Meeting agenda, and provide necessary travel/accommodation and meeting facilities information. Any delegate may suggest an agenda item, which should be forwarded to the Exercise Leader at least four weeks prior to the Planning Meeting.

5. The delegates attending the Planning Meeting shall be prepared to:

   a. Present ideas for new exercise and develop a complete scenario for the exercise;
   b. Decide date for the next exercise;
   c. Identify Directing Staff.

6. The Exercise Leader may elect to prepare minutes which are to be circulated to the appropriate organizations not more than four weeks after the Planning Meeting.

ANNEX D

EXERCISE DIRECTIVE TEMPLATE

Title: EXERCISE DIRECTIVE FOR EXERCISE VOLCEX{YY}/{NN}

1. INTRODUCTION

Exercise date and time (UTC):
Exercise Leader:
Debrief Meeting:
Debrief host and chairman:

2. PARTICIPATING AGENCIES
A list of the agencies that have agreed to participate in the exercise, listed according to area of responsibility (i.e. VAAC, MET Watch Office, ACC, AO, etc).

3. AIMS AND OBJECTIVES
The negotiated objectives of the exercise.

4. EXERCISE DURATION
The period which the exercise will be conducted.

5. EXERCISE VOLCANO
Name, number and position of the exercise volcano.

6. EXERCISE SCENARIO
A short description of the events of volcanic and meteorological activity.

7. EXERCISE SCHEDULE
A chronological list of the actions to be undertaken before and during the exercise by participating agencies.

Date/Time (UTC)	***Player***	***Event/Action***
…	…	…

8. EXERCISE SCENARIO MESSAGES
Scenario messages related the exercise, including at least one example for each of the following: VONA, AIM, VAA, VAG, SIGMET ASHTAM or VA NOTAM.

9. COMMUNICATIONS
Instructions regarding message handling and other communications.

//continued

EXERCISE DIRECTIVE TEMPLATE (continued)

10. DIRECTING STAFF

Contact list of persons responsible for the preparation and conduct of the exercise and who have the duty be available at exercise workstation(s) during the exercise.

Organization	***State***	***Contact name***	***Contact position***	***Primary telephone number***	***Secondary telephone number***	***Fax number***	***Email address***
...	...	...	...	...	...	...	...

11. SPECIAL INSTRUCTIONS

Any other special instructions of relevance to the conducting of the exercise.

12. LIST OF ABBREVIATIONS

A list of abbreviations used in the Exercise Directive, including but not limited to, the following:

Abbreviation	***Decode***
ACC	Area Control Centre
AIM	ATFCM Information Message
ANM	ATFCM Notification Message
AIS	Aeronautical Information Service
AO	Aircraft Operator
AOC	Airline Operations Centre
ANSP	Air Navigation Service provider
ATFCM	Air Traffic Flow and Capacity Management
ASHTAM	Special series NOTAM notifying, by means of a specific format, change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations
ATM	Air Traffic Management
ATS	Air Traffic Services
CFMU	Central Flow Management Unit
CTR	Control zone
FMP	Flow Management Position
IFPS	Integrated Initial Flight Plan Processing System
IFPZ	IFPS Zone
MWO	Meteorological Watch Office
NOF	International NOTAM Office
NOTAM	A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations
SIGMET	Information concerning en-route weather phenomena which may affect

Abbreviation	***Decode***
	the safety of aircraft operations
VA	Volcanic Ash
VAA	Volcanic Ash Advisory
VAAC	Volcanic Ash Advisory Centre (/**L** = London, /**T** = Toulouse)
VAG	Volcanic Ash Graphic
VONA	Volcano Observatory Notice for Aviation

ANNEX E

COMMUNICATIONS INSTRUCTIONS

MESSAGE TRAFFIC

Exercise messages such as VONA, VAA, VAG, SIGMET, NOTAM and AIM are to be distributed to normal subscribers.

The free-text part of *all messages* shall commence with or include clear reference to "EXERCISE VOLCEX{YY}/{NN}".

The free-text part of *all messages* shall terminate with the suffix "EXERCISE EXERCISE EXERCISE".

Example SIGMET and NOTAM:

```
WVUK02 EGRR 131200
EGGX SIGMET 2 VALID 131200/131800 EGRR-
EGGX SHANWICK OCEANIC FIR EXERCISE VOLCEX11/01 [...]
EXERCISE EXERCISE EXERCISE=

(A0778/10 NOTAMR A0777/10
Q) BIRD/QWWXX/IV/NBO/W/000/999/6337N01901WXXX
A) BIRD
B) 1104130900 C) 1104131200
E) EXERCISE VOLCEX11/01 [...] EXERCISE EXERCISE EXERCISE
F) GND G) UNL)
```

Any voice communications via telephone or radio shall commence with the prefix "EXERCISE VOLCEX{YY}/{NN}".

Note: Where {YY} is the year of the exercise and {NN} is the sequence number of the exercise. For example, "EXERCISE VOLCEX11/01" is the first exercise of 2011.

ANNEX F

REPORTING REQUIREMENTS

1. Immediate local Debriefing.

   Directing Staff members should give an initial debriefing, within their organization, immediately after the termination of the exercise. The Initial Debrief should be short and enable the players to:
   - *Obtain an immediate assessment of their performance.*
   - *Profit from their strength and weaknesses revealed by the exercise.*

2. National Debrief.

   If considered appropriate, an inter-agency debrief meeting is recommended on a national level prior to the Debrief Meeting.

3. Debrief Meeting.

   The Exercise Debrief should be attended by all agencies participating in the exercise and should be detailed to enable players as well as Directive Staff members to:
   - *Discuss the lessons learned;*
   - *Identify strength and weaknesses of the operation;*
   - *Contribute to the Final Exercise Report;*
   - *Identify major lessons learnt; and*
   - *Identify and discuss recommendations and conclusions.*

4. Reporting.

   The aim of reporting is to focus on major lessons learnt, recommendations and conclusions of the exercise operation and to distribute those to the participating organizations and to the appropriate international organizations. The following reporting chain should be followed:

   a. *Initial Exercise Reports. An initial draft report by each participating organization should be forwarded to the Exercise Leader within one month of the end of the exercise. The Exercise Leader will collate the reports in time for the Debrief Meeting in order then prepare the Final Exercise Report.*

   b. *Final Exercise Report. The Exercise Leader should prepare the Final Exercise Report within two months of the Debrief Meeting and publish though the EUR/NAT VOLCEX/SG Secretary to all the exercise participants.*

ANNEX G

INITIAL EXERCISE REPORT TEMPLATE

Title: *INITIAL EXERCISE REPORT FOR EXERCISE VOLCEX{YY}/{NN}*

Name of reporting organization: *{Enter}*

1. Introduction

   Include date of the exercise, synopsis of how the exercise ran and notes if the exercise operation ran in some ways opposed to the way it was planned in the Exercise Directive.

2. Co-operating Organizations

   List the VAACs, Meteorological Watch Offices, ACC, FMP, aircraft operators, etc, cooperating with the reporting organization during the exercise.

3. Communications

   Assess communications operations, i.e. message handling and distribution as well as the other information exchange.

4. Log of exercise operation

   A recapitulation of the exercise operation log, as it was actually played on the exercise day.

5. Lessons learned

   List the major or most significant lessons learned during the exercise. Approximately 3 items.

6. Recommendations

   List recommendations, if appropriate, within the organization, nationally and/or internationally. Approximately 3 items.

7. Conclusions

   Provide any final concluding remarks relating to the exercise.

ANNEX H

EXERCISE DEBRIEF MEETING

1. Debrief Meetings are held within 3 months (ideally 1 month) after an exercise in the EUR or NAT Regions, and chaired by the Exercise Leader (as determined by the EUR/NAT VOLCEX/SG).

2. The main aims are to:

   a. Discuss the conduct of the exercise;
   b. Identify lessons learned and recommendations;
   c. Contribute to the Final Exercise Report; and
   d. Exchange items of interest for the exercise community.

3. The Debrief Meetings should normally be hosted by one of the participating agencies. Directing Staff members should attend the Debrief Meeting, where possible.

4. As chairman, the Exercise Leader, in co-ordination with the host agency, should prepare the Debrief Meeting agenda, and provide the necessary travel/accommodation and meeting facilities information. Any delegate may suggest an agenda item, which should be forwarded to the Exercise Leader at least four weeks prior to the Debrief Meeting.

ANNEX I

FINAL EXERCISE REPORT TEMPLATE

Title: *FINAL EXERCISE REPORT FOR EXERCISE VOLCEX{YY}/{NN}*

1. Introduction

   Include date of the exercise, the Exercise Leader and Directing Staff. Synopsis of how the exercise ran and notes if the exercise operation ran in some ways opposed to the way it was planned in the Exercise Directives.

2. Co-operating organizations.

   List all the VAACs, Meteorological Watch Offices, ACC, aircraft operators, etc, participating in the whole exercise.

3. Log of exercise operation

   A recapitulation of the exercise operation log as it was actually played on the exercise day.

4. Communications

   Assess communications operations, i.e. message handling and distribution as well as the other information exchange.

5. Lessons learned

   List major or most significant lessons learned during the exercise. Approximately 3 items.

6. Recommendations

   List recommendations if appropriate, and note specially it recommendations which apply to international practices and documents. Approximately 3 items.

7. Conclusions

   Provide any final concluding remarks relating to the exercise.

- END -

EXERCISE DIRECTIVE FOR VOLCANIC ASH EXERCISE IN KAMCHATKA IN 2015 (VOLKAM15)

1. INTRODUCTION

A simulated eruption of a volcano in Kamchatka called Ksudach will produce volcanic ash to FL510 where it will be transported by northwest wind of 90 km/hr (50 kt) in order to impact trans-east and northern Pacific (NOPAC) routes from **2200 UTC 15 April 2015** to **0400 UTC 16 April 2015**. The objectives to be tested are provided in section 3 of this report. The Exercise Leader will be Alexey Buevich of ATM Center Moscow. *There will be no operational impact in this exercise (dedicated staff is expected to be available for the test)*. The ATM volcanic ash contingency plan template (http://www.paris.icao.int/Met/Volc_Ash/east-volcexsg.htm) developed by the International Volcanic Ash Task Force (IVATF) will be the contingency plan to be tested in this exercise.

Note that if one or more particpants consider it difficult to continue this exercise due to severe events such as volcanic eruption or low pressure, they may advise the Exercise Leader to cancel the exercise. In response, the Exercise Leader will announce the cancellation where appropriate.

2. PARTICIPATING AGENCIES (update for volkam15 exercise)

Discipline	Lead on top	Name	Email
Volcano Observatory	KVERT	Olga Girina	girina@kscnet.ru
	AVO (noting AVO coordinates with KVERT)	Christina Neal	cneal@usgs.gov
VAAC	Tokyo	Yohko Igarashi	y_igarashi@met.kishou.go.jp
		Operational	vaac@eqvol2.kishou.go.jp
	Anchorage	Donald Moore	donald.moore@noaa.gov
		Operational	a-vaac@noaa.gov
	Washington	Grace Swanson	grace.swanson@noaa.gov
		Operational	w-vaac@noaa.gov
ATMC	MATMC of Russia	Alexey Buevich	alexey@matfmc.ru
	Fukuoka	Akimitsu	sakurai-a07xr@cab.mlit.go.jp

	ATMC US ATCSCC	Sakurai Joe Varrati Franklin Mcintosh	 Joseph.Varrati@faa.gov Franklin.Mcintosh@faa.gov
ACC	Anchorage ARTCC Fukuoka ATMC Oceanic Khabarovsk Magadan Oakland Center (TMO) Petropavlovsk-Kamchatsky Sapporo	Gail Ferguson Akimitsu Sakurai Seiji Fukami Roman Tkachenko Mikhail Solntsev Michael Robbins Andrey Vovk Fumio Satoh	gail.ferguson@faa.gov sakurai-a07xr@cab.mlit.go.jp fukami-s07fm@cab.mlit.go.jp trg@dv.gkovd.ru acc@sv.gkovd.ru Michael.Robbins@faa.gov avovk@kamaero.ru satoh-f05tv@cab.mlit.go.jp
Regulatory	FATA Roshydromet JCAB FAA (MET Authority)	Elena Glukhovskaya Naryshkina Yuliya Takayuki Harada Steven Albersheim	Gluhovskaya_ep@scaa.ru juliaavia@mail.ru harada-t2en@mlit.go.jp Steven.Albersheim@faa.gov
NOF	Moscow NOF serving RJJJ NOF serving (FAA U.S. NOTAM Office – USNOF) PZAN,PAZA,	Galina Kotova Yoshiyuki Mikuni Steven Hyde Ernie Bilotto	kotova@caica.ru mikuni-y2bd@cab.mlit.go.jp Steven.Hyde@faa.gov Ernie.Bilotto@faa.gov

	and KZOA		
MWO	Yelizovo Airodrome MET Center	Irina Veretennikova	arrow.ir@mail.ru
	Office of Aviation Weather Forecasting of JMA	Jun Ryuzaki Daisuke Ueno	jryuzaki@met.kishou.go.jp d_ueno@met.kishou.go.jp
	Anchorage MWO	Donald Moore	donald.moore@noaa.gov
	Anchorage Centre Weather Service Unit	Kristine Nelson	Kristine.a.nelson@noaa.gov
Airlines	IATA	Dmitry Kosolapov	kosolapovd@iata.org
	United Airlines	Gene Cameron Greg Dale Mike Stills (PoC)	gene.cameron@united.com greg.dale@united.com mike.stills@united.com
	JAL	Satoshi Shindo	satoshi.shindo@jal.com
	ANA	Keiichi Otaki Takeshi Saito Kei Sakamoto Kazuhiro Shinya	ke.otaki@ana.co.jp tak.saito@ana.co.jp kei.sakamoto@ana.co.jp k.shinya@ana.co.jp
	Cathay Pacific	Allan Tang Julian Fung	allan_tang@cathaypacific.com julian_fung@cathaypacific.com
	UPS	Ken Foster	kffoster@ups.com
	Delta	Gary Edwards	ATL019.SASINT@delta.com
	American Airlines	Ray Howland Steve Smith Brian Schultz	ray.howland@aa.com Stephen.smith@aa.com Brian.schultz@aa.com
Expert Advisor	Eurocontrol	Zarko Sivcev	Zarko.sivcev@eurocontrol.int
International and Inter-	ICAO	Christopher Keohan	ckeohan@paris.icao.int

regional coordinator			

3. AIMS AND OBJECTIVES

-demonstrate coordination procedures between all participating parties (ANSPs, ATM Centres, AIS, VO, VAACs, MWO, users)

-demonstrate tactical re-routes in both Russian Federation and Japan

-demonstrate VAAC Tokyo and VAAC Anchorage handover

-demonstrate transmission of air-reports on volcanic ash in accordance to Annex 3 (aircraft->ACC->MWO->VAAC)

-demonstrate information sharing via teleconferences and website (website to be confirmed)

Noting no operational impact expected from test (e.g. dedicated staff is expected to be available for the test)

4. EXERCISE DURATION

2200 UTC 15 Apr 2015 / 0400 UTC 16 Apr 2015

5. EXERCISE VOLCANO

Ksudach 300050 N51 48 E157 32 Russian Federation - Kamchatka

6. EXERCISE SCENARIO

Eruption withash column to FL510 moving southeast at 110km/hr (60 kt) at FL510 to impact trans-east and NOPAC routes.

22:00
VO to provide VONA indicating change in colour code
VO send VONA (indicating change in Aviation colour code and giving first known data about eruption) via email to MATMC, Petropavlovsk-Kamchatsky ACC, Yelizovo MWO, VAAC Tokyo, AVO and others, and post to KVERT web-site:
http://www.kscnet.fu/ivs/kvert/van/index.php?type=1
(*example provided in section 8*)

After this a phone call Yelizovo MWO will be made.

7. EXERCISE SCHEDULE

Time (UTC)	*Player*	*Event/Action*
15 Mar 2015	Exercise Leader (coordinating with ICAO EUR NAT VOLCEX Secretary)	Final directives to be published on the ICAO EUR/NAT office Volcanic Ash webpage (http://www.paris.icao.int/Volc_Ash/index.htm)
8 Apr 2015	MATMC (Russia)and US ATCSCC	Issue a general NOTAM via their national NOFs to inform the aviation community of the exercise
8 Apr 2015	NOFs	Issue consequential NOTAMs to inform the aviation community of the exercise
15 ***Apr 2015(UTC TIME)***	EXERCISE VOLKAM15	
22:00	MATMC + Exercise Leader	Start VOLKAM15 through an email message to all exercise players
22:00	Ksudach(Kamchatka, Russian Federation)	**EXPLOSIVE ERUPTION STARTS**
22:00	Volcano Observatory (KVERT, Institute of Volcanology & Seismology, Far East Branch, Russian Academy of Sciences)	VO send VONA (indicating change in aviation colour code and giving first known data about eruption) via email to MATMC, Petropavlovsk-Kamchatsky ACC, Yelizovo MWO, VAAC Tokyo, AVO and others, and post to KVERT web-site: http://www.kscnet.ru/ivs/kvert/van/index.php?type=1 after this a phone call Yelizovo MWO will be made.
sequentially	Yelizovo MWO	Issues first SIGMET to provide notification of an eruption to VAAC Tokyo, MATMC, PK ACC and other players concerned such as other weather providers
sequentially	VAAC Tokyo	Issues first VAA without observed/forecasted VA dispersion warning about only eruption; provides VAA to MATMC and other key players concerned.
sequentially	MATMC and PK ACC	MATMC requests Moscow NOF to issue NOTAM
sequentially	Moscow NOF	Issues NOTAM with Danger Area with 25 nm radius around the volcano
(tbd)sequentially	AVO	Conduct telephone notification to US and Canadian agencies and complete internal notification procedures. Commence ash cloud tracking and analysis as

		appropriate.
23:00	VAAC Tokyo	Issues second VAA/VAG; provides VAA/VAG to MATMC and other key players concerned.
sequentially	MWOs affected	Issue SIGMETs for respective areas
sequentially	MATMC	Issues an invitation to teleconference via email (time of teleconference at 0000) – could be web-based
sequentially	National ATM Centers and ACCs	Publish NOTAMs via NOFs
sequentially	ANSPs affected (ACCs)	Request national ATM Centers to apply ATFM measures (example on ATCSCC Advisory Database: http://www.atcscc.faa.gov/adv/advAdvisoryForm.jsp could be communicated via the web portal of ATM Centres)
sequentially	National ATM Centers	Apply ATFM measures on request of ACCs
sequentially	AO	Take appropriate flight planning actions: e.g. reroute or cancel flights(note all revised FPLs impacting Russian Federation airspace must be sent via email to MATMC and all revise FPLs impacting Fukuoka airspace must be sent via email to Fukuoka ATMC)
23:15	AO, ACC, MWO, VAAC	Aircraft report of NO ASH near volcano confirming eruption is over. Communications of special air-report = aircraft –> ACC –> MWO –> VAAC Tokyo Request report from airlines, preferably one in the vicinity of the volcano Mode of sending AIREP from pilot to ACC is from dispatch to ACC via AFTN See example on special air-report on volcanic ash
23:30	KVERT	Issues second VONA indicating aviation colour code change from red to orange – eruption ends.
00:00	All	Operational teleconference to discuss the latest situation; (details of teleconference to be provided) VOLKAM sheet with information to be discussed at teleconference may be distributed one-half hour earlier to the master email list to improve situational awareness
01:00	VAAC Tokyo and VAAC Anchorage	Demonstrate VAAC Tokyo handover to VAAC Anchorage using handover request sheet and confirmation by email Note that handover should be in accordance to the *Handbook on the International Airways Volcano Watch (IAVW)* (ICAO Doc 9766)

		VAAC Tokyo issues third VAA/VAG of this exercise notifying the necessity of refering VAAs from Anchorage VAAC (see third example of VAA)
sequentially	VAAC Anchorage	VAAC Anchorage issues fourth VAA/VAG of this exercise (first from VAAC Anchorage); provides VAA/VAG to MATMC and other key players concerned
sequentially	MWOs affected	Issue updated SIGMETs for respective areas
sequentially	National ATM Centers and ACCs	Publish advisory NOTAM via NOFs.
sequentially	ANSPs affected (ACCs)	Request national ATM Centersto apply ATFM measures
sequentially	National ATM Centers	Apply ATFM measures on request of ACCs
sequentially	AO	Take appropriate flight planning actions: e.g. reroute or cancel flights (note revised FPLs impacting Russian Federation airspace must be sent via email to MATMC and revised FPLs impacting Fukuoka airspace must be sent via email to Fukuoka ATMC)
01:30	Pilot, ACC, MWO, VAAC	(adjust time according to ash scenario) Aircraft report of volcanic ash in vicinity of route R-220 confirming ash whose height estimated by pilot is above FL350. Communication of aircraft report from aircrat – ACC – MWO – VAAC. Mode of sending AIREP from aircraft to ACC is from dispatch via AFTN
03:00	All	Operational teleconference to discuss the latest situation; (details of teleconference to be provided) VAAC Anchorage instead of VAAC Tokyo will participate in teleconference
04:00	MATMC + Exercise Leader	End VOLKAM15 announced by cancelling the initial exercise NOTAM and advisory NOTAMs, SIGMETs and VONAs + (for those messages whose end period of validity is after 0400)

8. EXERCISE SCENARIO MESSAGES

VONA

First VONA

EXERCISE EXERCISE EXERCISE

(1) **VOLCANO OBSERVATORY NOTICE FOR AVIATION (VONA)**

(2) Issued:	20150415/2200Z
(3) Volcano:	Ksudach (CAVW #300050)
(4) Current Aviation Color Code:	**RED**
(5) Previous Aviation Color Code:	green
(6) Source:	KVERT
(7) Notice Number:	2015-0000
(8) Volcano Location:	N 51 deg 48 min E 157 deg 32 min
(9) Area:	Kamchatka, Russia
(10) Summit Elevation:	3539 ft (1079 m)
(11) Volcanic Activity Summary:	Very strong explosive eruption of Ksudach volcano began at 21:45 UTC on April 15, 2015. According to satellite data, ash is reaching 51,000 ft (15.5 km) a.s.l. and is drifting south-east of the volcano at this time. Ash emission is continuing.
(12) Volcanic cloud height:	51,000 ft (15.5 km) a.s.l.
(13) Other volcanic cloud information:	Dense ash plume extends south-east of the volcano
(14) Remarks:	This strong explosive eruption is extremely hazardous for aircraft downwind. There was one known catastrophic eruption of Ksudach volcano which occurred on 28-29 March 1907. Ksudach volcano is not monitored with a seismic station. KVERT only uses satellite data to monitor Ksudach volcano.
(15) Contacts:	Dr. Olga A. Girina, Head of KVERT, IVS FEB RAS; girina@kscnet.ru +74152302549 Duty scientist: +79622825253
(16) Next Notice:	A new VONA will be issued if conditions change

significantly or the Aviation Color Code changes. VONAs are posted at http://www.kscnet.ru/ivs/kvert/index_eng.php

In Russia, KVERT, on behalf of the Institute of Volcanology and Seismology (IVS) FED RAS, is responsible for providing information on volcanic activity to international air navigation services for the airspace users.

EXERCISE EXERCISE EXERCISE

Second VONA

EXERCISE EXERCISE EXERCISE

(1) **VOLCANO OBSERVATORY NOTICE FOR AVIATION (VONA)**

(2) Issued:	20150415/2330Z
(3) Volcano:	Ksudach (CAVW #300050)
(4) Current Aviation Color Code:	**ORANGE**
(5) Previous Aviation Color Code:	red
(6) Source:	KVERT
(7) Notice Number:	2015-0001
(8) Volcano Location:	N 51 deg 48 min E 157 deg 32 min
(9) Area:	Kamchatka, Russia
(10) Summit Elevation:	3539 ft (1079 m)
(11) Volcanic Activity Summary:	The strong explosive eruption of Ksudach volcano has finished. According to satellite data, a thermal anomaly is observed over the volcano but no ash is erupting from the volcano at this time.
(12) Volcanic cloud height:	No additional ash clouds are being generated at the volcano. Ash couds from earlier activity persist downwind.
(13) Other volcanic cloud information:	According to VAAC Tokyo forecast, at 1615 UTC on April 16, ash cloud would be located about 0-1000 mi (0-1600 km) to the southeast of the volcano. See the VAAC Tokyo VAA/VAG and SIGMETs for current ash cloud information.

(14) Remarks:	Strong and moderate fumarole activity of the volcano continues. Ongoing activity could affect low-flying aircraft.
(15) Contacts:	Dr. Olga A. Girina, Head of KVERT, IVS FEB RAS; girina@kscnet.ru +74152302549 Duty scientist: +79622825253
(16) Next Notice:	A new VONA will be issued if conditions change significantly or the Aviation Color Code changes. VONAs are posted at http://www.kscnet.ru/ivs/kvert/index_eng.php

In Russia, KVERT, on behalf of the Institute of Volcanology and Seismology (IVS) FED RAS, is responsible for providing information on volcanic activity to international air navigation services for the airspace users.

EXERCISE EXERCISE EXERCISE

VAA

(**First VAA**)

FVFE01 RJTD 152210

VA ADVISORY

DTG: 20150415/2210Z

VAAC: TOKYO

VOLCANO: KSUDACH 300050

PSN: N5148E15732

AREA: RUSSIA

SUMMIT ELEV: 1079M

ADVISORY NR: 9999/1

INFO SOURCE: EXERCISE VOLKAM15 MTSAT-2 KVERT

AVIATION COLOUR CODE: NIL

ERUPTION DETAILS: EXERCISE ERUPTION AT 20150415/2200Z FL510 EXTD SE REPORTED

OBS VA DTG: 15/2115Z

OBS VA CLD: VA NOT IDENTIFIABLE FM SATELLITE DATA WIND FL510 280/37KT

FCST VA CLD +6 HR: NO VA EXP

FCST VA CLD +12 HR: NO VA EXP

FCST VA CLD +18 HR: NO VA EXP

RMK: EXERCISE VOLKAM15

WE WILL ISSUE FURTHER ADVISORY IF VA IS DETECTED IN SATELLITE IMAGERY.

EXERCISE EXERCISE EXERCISE

NXT ADVISORY: NO FURTHER ADVISORIES=

(**Second VAA**)

FVFE01 RJTD 152300

VA ADVISORY

DTG: 20150415/2300Z

VAAC: TOKYO

VOLCANO: KSUDACH 300050

PSN: N5148E15732

AREA: RUSSIA

SUMMIT ELEV: 1079M

ADVISORY NR: 9999/2

INFO SOURCE: EXERCISE VOLKAM15 MTSAT-2 KVERT

AVIATION COLOUR CODE: NIL

ERUPTION DETAILS: EXERCISE ERUPTION AT 20150415/2200Z FL510 EXTD SE

REPORTED

OBS VA DTG: 15/2215Z

OBS VA CLD: SFC/FL510 N5150 E15740 - N5140 E15750 – N5125 E15745 – N5135 E15735 MOV SE 60KT

FCST VA CLD +6 HR: 16/0415Z SFC/FL510 N5330 E15800 – N4940 E16705 - N

4715 E16510 – N4705 E15955 – N5140 E15725

FCST VA CLD +12 HR: 16/1015Z SFC/FL490 N5400 E15900 – N4745 E17150 -

N4440 E16815 - N4410 E16005 – N5200 E15655

FCST VA CLD +18 HR: 16/1615Z SFC/FL500 N5455 E15905 – N4615 E17700 -

N4240 E17220 - N4450 W16015 – N5250 E15630

RMK: EXERCISE VOLKAM15 NIL EXERCISE EXERCISE EXERCISE

NXT ADVISORY: 20150416/0300Z=

(**Third VAA**)

FVFE01 RJTD 160100

VA ADVISORY

DTG: 20150416/0100Z

VAAC: TOKYO

VOLCANO: KSUDACH 300050

PSN: N5148E15732

AREA: RUSSIA

SUMMIT ELEV: 1079M

ADVISORY NR: 9999/3

INFO SOURCE: EXERCISE VOLKAM15 MTSAT-2

AVIATION COLOUR CODE: NIL

ERUPTION DETAILS: EXERCISEVA CONTINUOUSLY OBS ON SATELLITE-IMAGERY.

OBS VA DTG: 16/0015Z

OBS VA CLD: NO VA EXP

FCST VA CLD +6 HR: NO VA EXP

FCST VA CLD +12 HR: NO VA EXP

FCST VA CLD +18 HR: NO VA EXP

RMK: EXERCISE VOLKAM15

THE RESPONSIBILITY FOR THIS ASH EVENT IS BEING TRANSFERRED TO ANCHORAGE. THE NEXT ADVISORY WILL BE ISSUED BY ANCHORAGE UNDER HEADER FVAK21 PAWU.

EXERCISE EXERCISE EXERCISE

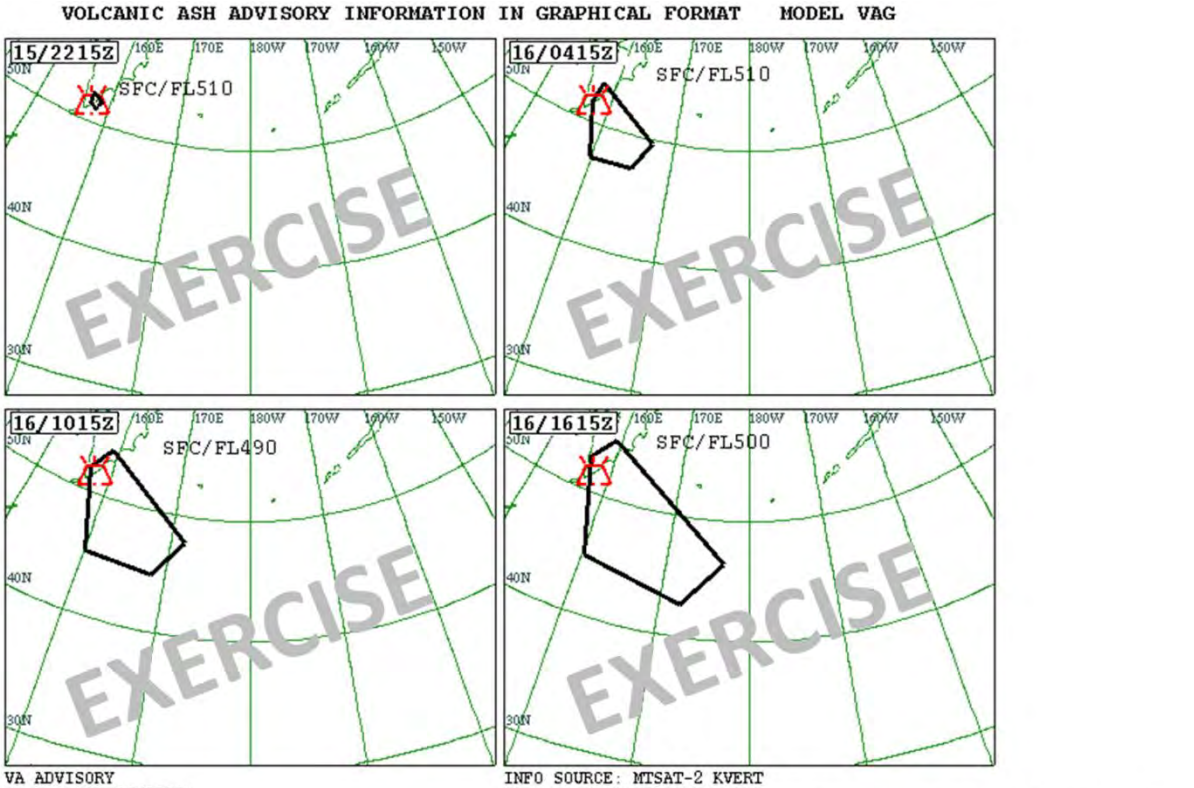
NXT ADVISORY: NO FURTHER ADVISORIES=

(**Fourth VAA**)(update to be provided by VAAC Anchorage)

FVFE01 RJTD 0502mm
VA ADVISORY
DTG: 20140305/02mmZ
VAAC: TOKYO
VOLCANO: BEZYMIANNY 300250
PSN: N5559E16035
AREA: RUSSIA
SUMMIT ELEV: 9453FT 2882M
ADVISORY NR: 9999/4
INFO SOURCE: EXERCISE VOLKAM15 MTSAT-2
AVIATION COLOUR CODE: NIL
ERUPTION DETAILS: EXERCISE VA CONTINUOUSLY OBS ON SATELLITE IMAGERY.
OBS VA DTG: 05/0115Z
OBS VA CLD: NO VA EXP
FCST VA CLD +6 HR: NO VA EXP
FCST VA CLD +12 HR: NO VA EXP
FCST VA CLD +18 HR: NO VA EXP
RMK: EXERCISE VOLKAM15 VA MOVED OUT OF OUR AREA OF RESPONSIBILITY.
PLEASE SEE VAA FROM ANCHORAGE VAAC FROM NOW ON.
EXERCISE EXERCISEEXERCISE
NXT ADVISORY: NO FURTHER ADVISORIES=

Note: This kind of VAA is issued to advise that VAAC Tokyo has handed over the responsibility for a volcanic ash event to an adjacent VAAC.

VAG (VAAC Tokyo)



VAG (VAAC Anchorage – to be provided)

(update to be provided by Yelizovo MWO when VAA/VAG scenario becomes available)
Template for **SIGMET** messages in exercise (these are examples, the speed for example may be different)

WVRA31 RUPK **042100**
UHPP SIGMET **Z91** VALID 042100/042215 UHPP-
UHPP PETROPAVLOVSK-KAMCHATSKY FIR **EXERCISE VOLKAM15**
VA ERUPTION MT BEZYMIANNY PSN N5559 E16035 VA CLD OBS AT 2100Z SFC/FL510 MOV SE 70KMH **EXERCISE EXERCISE EXERCISE**=

WVRA31 RUPK **042215**
UHPP SIGMET **Z92**VALID 042215/050315 UHPP-
UHPP PETROPAVLOVSK-KAMCHATSKY FIR **EXERCISE VOLKAM15**
VA ERUPTION MT BEZYMIANNY PSN N5559 E16035 VA CLD OBS AT 2115Z WI N5545 E16045-N5455 E16100-N5525 E16135 – N5545 E16045SFC/FL510 MOV SE 70KMH FCST 0315Z VA CLD APRX N5315 E16450 –N5258 E16557 - N5212 E16354 - N5230 E16240 – N5315 E16450**EXERCISE EXERCISE EXERCISE**=

WVRA31 RUPK **050115**
UHPP SIGMET **Z91** VALID 050115/050315 UHPP-
UHPP PETROPAVLOVSK-KAMCHATSKY FIR **EXERCISE VOLKAM15**CNL SIGMET Z92 042215/050315**EXERCISE EXERCISEEXERCISE**=

WVRA31 RUPK **050115**
UHPP SIGMET **Z92** VALID050115/050600 UHPP-
UHPP PETROPAVLOVSK-KAMCHATSKY FIR **EXERCISE VOLKAM15**
VA ERUPTION MT BEZYMIANNY PSN N5559 E16035 VA CLD OBS AT 0000Z WI N5410 E16100 – N5500 E16130 – N5320 E16540 – N5242 E16513 – N5211 E16350N - N5410 E16100 SFC/FL510 MOV SE 70KMH FCST 0600Z VA CLD APRX N5255 E16435 – N5227 E16431 – N5243 E16516 – N5255 E16435**EXERCISE EXERCISEEXERCISE**=

WVRA31 RUPK **050230**
UHPP SIGMET **Z93** VALID 050230/050600 UHPP-
UHPP PETROPAVLOVSK-KAMCHATSKY FIR **EXERCISE VOLKAM15**CNL SIGMET Z92 050115/050600 VA MOV TO PAZA PAZN KZOA FIR**EXERCISE EXERCISEEXERCISE**=

(update to be provided by NOF) **NOTAM** to be promulgatedseven days prior to the exercise by Russian Federationand United States:

(Pxxxx/14 NOTAMN
Q) UHPP/QWWXX/IV/NBO/W/000/999/5559N16035E999
A) UHPP B) 1403042100 C) 1403050400
D)
E) EXERCISE VOLKAM15
VOLCANIC ASH EXERCISE TAKES PLACE 04 MARCH FROM 21:00 TO 05 MARCH APPROX. 04:00UTC.
EXERCISE NAME: VOLKAM15EXERCISE VOLCANO: BEZYMIANNY 300250 N55 59 E160 35 RUSSIAN FEDERATION-KAMCHATKA
FREE TEXT OF PROMULGATED EXERCISE MESSAGES STARTS WITH:
EXERCISE VOLKAM15. FREE TEXT OF EXERCISE MESSAGES ENDS WITH:
EXERCISE EXERCISEEXERCISE
F) SFC
G) UNL

(Axxxx/14 NOTAMN
Q) PAZA/QWWXX/IV/NBO/W /000/999/5559N16035E999
A) PAZA PAZN B) 1403042100 C) 1403050400
D) E)
EXERCISE VOLKAM15 VOLCANIC ASH EXERCISE TAKES PLACE 04 MARCH FROM 21:00 TO 05 MARCH APPROX. 04:00UTC.
EXERCISE NAME: VOLKAM15
EXERCISE VOLCANO: BEZYMIANNY300250N55 59 E160 35 RUSSIAN FEDERATION-KAMCHATKA
FREE TEXT OF PROMULGATED EXERCISE MESSAGES STARTS WITH:
EXERCISE VOLKAM15.
FREE TEXT OF EXERCISE MESSAGES ENDS WITH:
EXERCISE EXERCISEEXERCISE
F) SFC
G) UNL

(could also include template for NOTAM in English to be used by Moscow NOF)

(provide other examples of NOTAM – with VA points and/or NOTAM pointing to SIGMET)

Example for **Special air-report on volcanic ash** in exercise (reference Table A4-1 of Appendix 4 to ICAO Annex 3)***(downlink)***

Annex 3, Appendix 4, 1.3 Special air-reports by voice communications
When voice communications are used, the elements contained in special air-reports shall be:
Message type designator
Section 1 (Position information)
Aircraft identification
Position or latitude and longitude
Time
Level or range of levels
Section 3 (Meteorological information)
Condition prompting the issuance of a special air-report, to be selected from the list presented in Table A4-1.

(pilot to ACC)

ARS UA322 N5503 E17020 FL300 to 510 OBS AT 0105Z VA CLDFL300/FL510 EXERCISE VOLKAM15 EXERCISE EXERCISE EXERCISE=

Routing

- Pilot of (update) UA322 communicates by voice special air-report on volcanic ash to Petropavlovsk-Kamchatsky ACC
- PKK ACC then sends special air-report to Yelizovo MWO
- Yelizovo MWO then sends special air-report to VAAC Tokyo (fax: +81 (3) 3212 6446; email vaac@eqvol2.kishou.go.jp; AFTN: RJTDYMYX)
- Yelizovo MWO should also route the special air-report using the World Meteorological Organization Abbreviated Header Line (WMO AHL) of **UARA71 RUPK** to
    - SADIS (AFTN: EGZZWPXX)
    - WIFS (AFTN: KWBCYMYX)
    - ROC Vienna (AFTN: LOZZMMID)

In accordance to Table A6-1 of Annex 3, the Special Air-Report format for ***uplink*** is as follows (applicable format for dissemination from Yelizovo MWO):

ARS UA322 VA CLD FL300/510 OBS AT 0105Z N5503 E17020 EXERCISE VOLKAM15 EXERCISE EXERCISE EXERCISE=

Re-route procedures

Example provided by American Airlines with input by United Airlines and Delta Airlines

AAL procedures used to route around areas of known, or forecast, volcanic ash are similar to those used for any other type of weather (i.e. turbulence, thunderstorms, etc.). Avoidance during pre-flight planning is straightforward since well established procedures are in place with both the aircraft operators and air traffic service providers for filing, cancelling and re-filing flight plans prior to departure. The operators also have much more flexibility at this stage since the fuel load can still be adjusted.

Once a flight has departed, options become much more limited, and coordination between the dispatcher, flight crew and air traffic control become much more complicated and time consuming. What is outlined below is what we do at AAL. However, the procedures at other operators should be similar.

Once the notification of an eruption is received by the Dispatcher (usually via the first volcanic ash advisory), its potential impact is immediately evaluated with respect to flights that are already en-route. Impacted flights are provided with all pertinent information. ACARS is the primary means of relaying this information; however SATCOM voice is also available. HF phone patch and relay through ATC are used as a last resort. Flights whose routes will be impacted in the near term (usually within a couple of hours), are dealt with first. If, based on the initial information, the eruption looks to be major (ash extending into the upper atmosphere, or affecting a destination) we will consult with our meteorologists to further evaluate the impact.

Our procedures indicate that we must avoid known, or forecast, areas of visible and discernable volcanic ash. Our weather services provider (WSI) provides custom SIGMET products for these areas, which are controlling for our operation. All other available information (government issued SIGMETs, VAAs, VAGs, etc.) is evaluated, but is considered advisory for our operation. Visible and discernable volcanic ash areas must be avoided by at least 60nm laterally (WSI SIGMETS include the 60nm buffer). We also have procedures that allow us to overfly these areas in some situations. There are very specific conditions that must be met. These overflight procedures essentially treat the ash area as mountainous terrain for engine failure and depressurization situations.

Once it is determined which, if any, flights are impacted, they are worked starting with those closest to the eruption. Possible reroutes are evaluated by the Dispatcher that would allow flights to avoid the impacted areas. Fuel is the prime consideration. If it is determined that the impacted area cannot be avoided, and still arrive at the scheduled destination with the required fuel reserves, an enroute landing (or return to the point of origin) is planned. The Dispatcher will then coordinate the diversion with the flight crew.

If a possible alternate route is an option with the fuel remaining, the Dispatcher will contact the flight for concurrence and coordination. Once the Dispatcher and Captain agree on a course of action, the Dispatcher will create the new flight plan and provide the details to the crew (usually via ACARS). At this point coordination with ATC will begin.

Providing the new/requested flight plan information to Air Traffic Control once a flight has departed, can be the most difficult, confusing and time consuming step in the process. Anything that can be done

to streamline the process will be of immense help to the operators. Dispatchers are often dealing with several impacted flights simultaneously in these types of situations. Most of the time, this coordination involves the crew reading the entire new route to the controller working them at the time. (Consider use of SATCOM voice between the flight and Anchorage center, if not in VHF coverage) This both ties up the frequency in use, and distracts the flight crew and controller from their primary duties which has an impact on flight safety. A better solution may be for Air Traffic to be able to accept a revised FPL after departure. The revised FPL could include some type of remark in Field 18 like 'INFLIGHT REROUTE REQUEST DUE VOLCANIC ASH'. A procedure like this could also be used in the case of other types of contingencies.

Once the affected flights have been handled for the near term, the situation is continuously monitored for changes. If needed, plans are re-evaluated and the process above repeats itself until the situation improves.

Note from UAL:

Part of the complexity with a Russian re-route is that Moscow wants to review the re-route prior to the FIRs accepting it rather than the FIRs just accepting a new FPL and coordinating the transfer of control from Anchorage or the JCAB (eastbound). You may want to point this out in your procedures.

Other NOTES

Note that confidence in PACOTS and west bound tracks decreases considerably after 18 hours due to the absence of volcanic ash products beyond 18 hours (VAA/VAG only valid to 18 hours in accordance to Annex 3).

Note that VAAC Tokyo uses the maximum height of volcanic ash reported if differences in volcanic ash height are reported from various sources (satellite, aircraft report, VAA).

Useful websites:

VAAC Tokyo http://ds.data.jma.go.jp/svd/vaac/VOLKAM15/index.html

VAAC Anchorage http://vaac.arh.noaa.gov/

VAAC Washington http://www.ssd.noaa.gov/VAAC/washington.html

KVERT http://www.kscnet.ru/ivs/kvert/index_eng.php

Alaska Volcano Observatory (AVO) https://www.avo.alaska.edu/

9. COMMUNICATIONS

The free text of all exercise messages starts with:EXERCISE VOLKAM15and ends with: EXERCISE EXERCISE EXERCISE

Telcons start with:
EXERCISE VOLKAM15

10. DIRECTING STAFF (update)

Role	Name	Agency	Email
Exercise Leader & ATMC leader	Alexey Buevich	State ATM Corporation of Russia	alexey@matfmc.ru
National Supervisory Authorities	Elena Glukhovskaya	FATA	Gluhovskaya_ep@scaa.ru
	Natsuki IBE	JCAB	Ibe-n24hy@mlit.go.jp
	Gail Ferguson	FAA	Gail.ferguson@faa.gov
Lead VAAC	Yohko Igarashi	JMA, VAAC Tokyo	y_igarashi@met.kishou.go.jp
Lead VO	Olga Girina	KVERT, IVS FEB RAS	girina@kscnet.ru
Lead ACC	Mikhail Solntsev	Magadan ACC	acc@sv.gkovd.ru
Lead ACC	Vladimir Fedulov	Petropavlovsk Kamchatsky ACC	VAF@kam.gkovd.ru
Lead ACC	Roman Tkachenko	Khabarovsk ACC	trg@dv.gkovd.ru
Lead NOF	Galena Kotova	NOF Moscow	kotova@caica.ru
Lead Roshydromet	Yuliya Naryshkina	Roshydromet	juliaavia@mail.ru
Lead MWO	Irina Veretennikova	Yelizovo MWO	arrow.ir@mail.ru
Airlines	Dmitry Kosolapov	IATA – Russian Feder	kosolapoval@iata.org

11. VOLCANIC ASH TELECONFERENCE INSTRUCTIONS (update with web-based instructions when obtained)

Lead: The lead of teleconference calls should be the ATMC of the State where the volcano is erupting (e.g. a volcano eruption in Kamchatka – MATMC Moscow; volcano eruption in Japan – Fukuoka ATMC; volcano eruption in Alaska – US ATCSCC)

Expected Participants and general **information expected** from each:
VO – brief update on eruption status, latest height information, source of height information; duration of event, expected activity
VAAC – brief update on VAA/VAG (are observations such as aircraft reports being used to update products)
MWO – brief update on SIGMET (if different from VAA/VAG, briefly explain why)
NOF – brief update on NOTAM and published reroutes
ACC – brief update on reroutes and coordination with ACCs and ATMCs
ATMC – brief update on overall strategy (coordination with other ATMCs and ACCs)
Airlines – brief update on tactical reroutes, flight plan changes and satisfaction with reroutes
ATMC – response, if necessary, to airlines
ACC – response, if necessary, to ATMCs and airlines

Information sharing:
The following web portal is available to obtain volcanic ash related products and information: State ATM Operational website (to obtain). Options include (1) using tools to increase situational awareness and (2) one same picture is shared by all.

Proposed VOLKAM Sheet will be emailed to the appropriate participants for shared awareness.

Language:
Each State should arrange to have participants speak in English during the teleconferences.

Microphones:
Each Participant should mute microphones to reduce back ground noise. The Leader of the teleconference will instruct the participant when to speak. When other features are available, leader would mute and controls when participants speak (e.g. dial 01 if you wish to speak).
