

International Civil Aviation Organization

ICAO

WORKING PAPER**ICAO Asia and Pacific (APAC)**Twenty-Seventh Meeting of the Meteorology Sub-Group
(MET SG/27)

Bangkok, Thailand, 04 to 08 September 2023

Agenda Item 7: Future work program**FUTURE OF VOLCEX SG**

(Presented by Chair MET/S WG)

SUMMARY

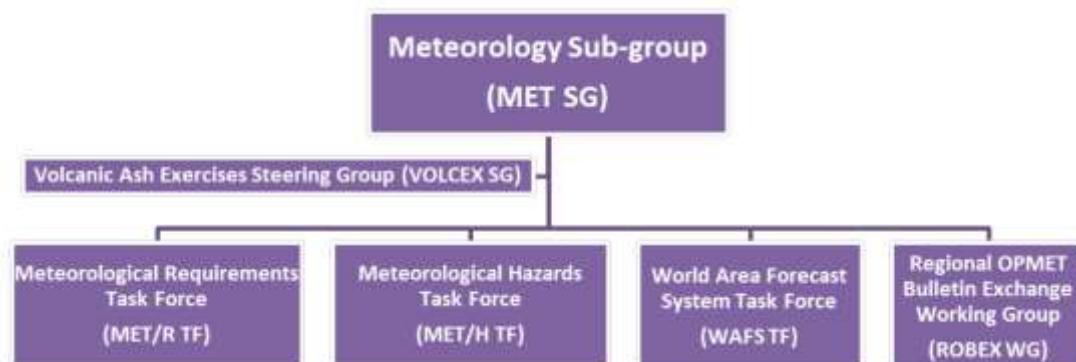
This paper discusses options for encouraging the organisation of – and sharing outcomes of – exercises simulating high impact, low probability events in the aeronautical meteorology field, including the role of VOLCEX Steering Group.

1. INTRODUCTION

1.1 High impact, low probability events such as volcanic eruptions and space weather events are understood to pose a risk to aviation, and it is well recognised that conducting exercises simulating such events allows better coordination and preparation for when they eventually occur in real-life.

1.2 The Volcanic Ash Exercises (VOLCEX) Steering Group (SG) was set up for this purpose in 2014, following a decision at the 25th Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/25).

1.3 Upon establishment, the VOLCEX SG reported to the MET SG, alongside the existing Meteorological Requirements Task Force (MET/R TF), the Meteorological Hazards Task Force (MET/H TF), the World Area Forecast System Task Force (WAFS TF) and the Regional OPMET Bulletin Exchange Working Group (ROBEX WG).

**Figure. MET SG Structure in 2014**

1.4 The following year, the 19th Meeting of the MET SG (report [here](#)) agreed a new sub-structure to better align with the new Meteorology Panel working group structure (which was agreed a few months earlier). The proposal (contained in [WP/02](#)) recommended the new Meteorological Services Working Group (MET/S WG) took on the existing activities of the MET/H TF, the task of improving the quality of meteorological advisories and warnings, and the implementation of the International Airways Volcano Watch (IAVW) and International Tropical Cyclone Watch (ITCW) within the APAC region. In addition, this group would focus on improved compliance of SARPs for observations and forecasts (including WAFS activities from the WAFS TF).

1.5 The MET SG noted that within this sub-structure the VOLCEX SG would retain its cross-disciplinary nature (i.e., relevant to both MET SG and ATM SG¹) but would report to the MET/S WG as the primary point for coordination – however no specific rationale for this change in reporting was provided.

1.6 In 2019, the ICAO space weather (SWX) advisory system went live, providing information on space weather impacts on aviation including the specific impacts on HF communications, GNSS navigation and communication, and the impacts on aviation of SWX radiation events.

1.7 The Thirteenth Meeting of the MET/S WG (MET/S WG/13) discussed the outcomes of the HF communications impact SWX exercise organised by Australia and New Zealand in October 2022 and discussed methods for further promoting the value of conducting aviation focused SWX exercises.

2. DISCUSSION

2.1 At the MET/S WG/13 meeting, it was noted that the VOLCEX SG had been instrumental for increasing knowledge and improving procedures associated with volcanic ash events. It was recommended that a similar capability be created for space weather - either as a separate dedicated steering group, or a modification of the name and terms of reference of VOLCEX SG to include space weather.

2.2 Noting the difficulty in confirming a new Chair for the VOLCEX SG and its lack of recent activity, the meeting then considered an alternative arrangement whereby ad hoc groups under the MET SG could instead organise and report on space weather or volcanic ash exercises and formulated the following draft conclusion:

Draft Conclusion MET SG 27/xx – DISESTABLISHMENT OF THE VOLCEX SG AND PROPOSED MET EXERCISE PLANNING	
What: That, the MET SG approves the disestablishment of the VOLCEX Steering Group and instead includes in its work plan the establishment of ad hoc groups to undertake specific exercises on either volcanic ash or space weather scenarios, reporting back under a new MET SG agenda item for MET exercises. Further, States are encouraged to report under this agenda item on activities within their own countries on aviation focused MET exercises.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: There is a need for the conducting of space weather exercises, however given that the VOLCEX Steering Group has been unable to find a new chair to continue leading the work of the group and so it is not considered appropriate to expand the remit of the VOLCEX SG. Instead, it would be more valuable to create ad hoc groups to plan specific exercises focused on both volcanic ash and space	Follow-up: <input type="checkbox"/> Required from States

¹ Air Traffic Management Sub-Group (ATM SG) of APANPIRG.

weather scenarios and to report back to the MET SG (and any other interested APANPIRG WG) on their results. Further, by creating an agenda item on MET exercises, States can share any lessons learnt from exercises conducted within their own countries.	
When: September 2023	Status: Adopted by Sub group
Who: <input type="checkbox"/> Sub groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

2.3 Subsequent discussions on this topic post-meeting have noted the genesis of the VOLCEX SG was via decision at [APANPIRG/25](#):

Volcanic Ash Exercises

3.5.16 APANPIRG/25 noted that MET SG/18 supported a proposal by Japan to conduct volcanic ash exercises in the APAC Region, which the Second Meeting of the Air Traffic Management Sub-Group (ATM/SG/2) had also recognised as an important initiative to help minimise the adverse effect on ATM of any volcanic activity. Furthermore, APANPIRG/25 noted that guidance was available in ICAO Doc 9766 – *Handbook on the International Airways Volcano Watch*, Appendix F – *Guidance for conducting volcanic ash exercises in ICAO Regions*.

3.5.17 In view of the discussion above, and recognizing that in accordance with Doc 9766, Appendix F an appropriate group of stakeholders could be tasked to organize and conduct volcanic ash exercises, APANPIRG/25 adopted the following Decision:

Decision APANPIRG 25/47 – Establishment of a Volcanic Ash Exercises Steering Group in the APAC Region

That, an APAC volcanic ash exercises steering group be established under the MET Sub-Group and in coordination with the ATM Sub-Group with the preliminary terms of reference and composition provided in the revised Attachment C to WP/10 to organize and conduct volcanic ash exercises in the APAC Region.

2.4 The APANPIRG/25 decision noted that the VOLCEX SG should be established under the MET Sub-Group *in coordination* with the ATM Sub-Group and so it may not be a simple process for the MET Sub-Group disestablish the VOLCEX SG.

2.5 In view of the post-meeting discussion of MET/S WG and noting the need of conducting space weather exercises, it may also be possible, if a suitable Chair for VOLCEX SG can be identified, to instead modified the name and terms of reference of VOLCEX SG to include space weather exercise organisation in its work plan.

2.6 Noting that the original APANPIRG decision included coordination with the ATM Sub-Group, this paper recommends ensuring that outcomes of exercises conducted under the VOLCEX SG (or its replacement) are also reported to the ATM Sub-group (in addition to the MET Sub-Group) for their awareness.

2.7 As such, the following alternative of the proposed Draft Conclusion was formulated following the post meeting discussions of MET/S WG for consideration by the MET SG and APANPIRG as necessary:

Draft Conclusion MET SG 27/xx – MODIFICATION OF THE VOLCEX SG	
What: That, the name of VOLCEX Steering Group be modified to Meteorology Exercise (METEX) Steering Group and its terms of reference be modified to cover not only exercises relevant to volcanic ash, but also space weather exercises, and exercises for other high impact, low probability meteorological phenomena, as appropriate. Further the terms of reference should ensure outcomes are reported to both the MET and ATM Sub-Groups.	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Ops/Technical
Why: There is a need for the conducting of space weather exercises and given that the VOLCEX Steering Group has experience in both conducting and promoting such activities, it would be sensible to leverage the experience within this group plan specific exercises focused on both volcanic ash and space weather scenarios, plus other meteorological scenarios as deemed appropriate. The outcomes of these exercises would be reported back to the MET SG (and any other interested APANPIRG WG). Further, States can share any lessons learnt from exercises conducted within their own countries outside of the METEX SG exercise schedule.	Follow-up: <input type="checkbox"/> Required from States
When: September 2023	Status: Adopted by Sub-group
Who: <input type="checkbox"/> Sub-groups <input checked="" type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: ROs	

2.8 The [APANPIRG Procedural Handbook](#) informs that “*APANPIRG established the MET SG to assist in its planning and implementation work, charging MET SG with preparatory work on specifically defined problems in the field of aeronautical meteorology requiring expert advice for their resolution. APANPIRG also appointed MET SG as the ‘parent’ group for other contributory bodies working in the field of aeronautical meteorology for APANPIRG.*”

2.9 The guidance in [ICAO Doc 9766 Handbook on the International Airways Volcano Watch](#), Appendix F, states that “*The steering group should have representatives from, as a minimum, the volcanic ash advisory centres (VAACs) concerned, air navigation service providers (ANSPs), airspace users and regulators*”.

2.10 If the outcomes of exercises are reported to the MET SG, as the designated parent group for other MET contributory bodies, it may result in a wider awareness of exercise outcomes and future plans by the target groups as indicated in paragraph 2.9, when the activities of the MET Sub-Group are presented to APANPIRG each year.

2.11 The MET/S WG recommends the MET Sub-Group consider agreeing to the draft conclusion in paragraph 2.7, and if so, the meeting is requested to consider whether it would be more appropriate for the new METEX SG to report directly to the MET Sub-group (potentially with a “dotted line” to the ATM SG), and not via the MET/S WG, in line with the original reporting structure of the VOLCEX SG, and to improve the awareness of the activities of the exercise group.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- i. Note the information in this paper;
- ii. Discuss the draft conclusion options for the future of VOLCEX SG, as provided in paragraphs 2.2 and 2.7;
- iii. Consider the most appropriate reporting line for VOLCEX SG *or* METEX SG; and

- iv. If agreeing the draft conclusion in 2.7, as recommended by the MET/S WG, identify suitable Chair for METEX SG or; if approving the draft conclusion in 2.2, identify initial members of an ad hoc group for conducting exercises.
