

**58th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

*Dhaka, Bangladesh
15 to 19 October 2023*

AGENDA ITEM 4: AIR NAVIGATION

**IMPLEMENTATION OF VOLCANO OBSERVATORY NOTICE FOR
AVIATION (VONA) STANDARDS IN THE PACIFIC**

Presented by New Zealand

SUMMARY

New Zealand has previously presented on the lessons learned during simulated volcanic Ash contingency exercises and the real-life example of the eruptive period of the Hunga Tonga-Hunga Ha'apai. The key takeaway that these events highlighted was the importance of being able to disseminate information to Aviation quickly and efficiently.

Amendment 81 to Annex 3 introduces a Recommended Practice to issue a Volcanic Observatory Notice (VONA) for Aviation. However, developing States in the APAC region are significantly constrained in their ability to implement this practice. Support is needed to establish effective systems and ensure effective cost-recovery mechanisms.

The ability to implement the new Standard is further hindered by the fact that, despite a large concentration of active and potentially active volcanoes in the region, the current APAC Air Navigation Plan Vol I has only designated one State Volcano Observatory (SVO) in the Pacific.

IMPLEMENTATION OF VOLCANO OBSERVATORY NOTICE FOR AVIATION (VONA) STANDARDS IN THE PACIFIC

1. INTRODUCTION

1.1 New Zealand has previously highlighted the value of volcanic ash contingency exercises and how they can be used to improve real-world system readiness for volcanic ash events.

1.2 The eruptive period of Hunga Tonga-Hunga Ha’apai in January 2022 highlighted the importance of carrying out simulated events to improve readiness and the importance of implementing the recommendations from these exercises in a timely manner.

1.3 One of the key lessons identified during the January 2022 eruptive period was that the communication of critical information through the aviation system *following* the eruption was good. However, there was insufficient awareness *prior* to the eruption of the risk that Hunga Tonga-Hunga Ha’apai continued to pose after the initial smaller eruptions in the month prior. The elevated volcanic activity information was provided by Tongan scientific agencies to the required aviation agencies, but the information was not shared further into the wider aviation system.

1.4 Significant pre-eruptive volcanic activity should be alerted to aviation users through NOTAM, but issues in coordinating between the Tonga and New Zealand NOTAM offices meant that there was no NOTAM in place when the first major eruption occurred on 14 January. While the need for improvement in this area was noted from an earlier exercise held in 2020, the necessary changes had yet to be implemented.

1.5 This event highlighted the importance of being able to communicate effectively during a volcanic eruption, but also the need for clear, timely and consistent volcanic activity information to be shared widely throughout the aviation system to ensure well-informed safety risk management processes can be carried out by the aviation users.

1.6 In addition, the recent 8th WMO International Workshop on Volcanic Ash highlighted that national civil aviation authorities play an important role in fostering engagements and building partnerships across the volcanological and meteorological communities and the aviation industry. There are indications that there is a lack of understanding by many observatories of the ICAO requirements and that the coordination between observatories and NAAs could be improved.

2. DISCUSSION

2.1 While the provision of volcanic activity information is a Standard within the current Annex 3 amendment, there is no required format or delivery mechanism. Proposed Amendment 81 to Annex 3 would introduce a new Recommended Practice to issue this information as a Volcano Observatory Notice for Aviation (VONA). Implementing this SARP will help to ensure that volcanic activity information is disseminated to *all* aviation users in a globally consistent format.

2.2 However, developing States in the APAC region face significant barriers with implementing this practice, as it is reliant on having the appropriate infrastructure. Importantly, it requires a relationship with the relevant National Aviation Authority (NAA) to successfully disseminate the VONA.

2.3 Successful implementation is reliant on State Volcano Observatories (SVOs) being sufficiently resourced to provide the information to the appropriate organisations, which requires support from NAAs. Whilst some States in the APAC region are in a good position to achieve this, with effective systems in place, most Pacific Small Island Developing States are not.

2.4 New Zealand has reported at previous conferences that Pacific Small Island Developing States within the APAC region are often significantly constrained on their ability to implement SARPs.

Given the importance of volcanic hazard information for air transport in the region, there is significant value in strongly supporting the effective implementation of VONA standards in these States.

2.5 Unless a volcano observatory agency is co-located with an aviation meteorological service provider, it is unlikely to be able to access a connection to the Aeronautical Fixed Services (AFS) for dissemination of the VONA. At a more fundamental level, there is often limited (or no) awareness of the existence of the ICAO Annex 3 SARPs relevant to their work.

2.6 Support needs to be directed towards the Pacific Small Island Developing States with active or potentially active volcanoes in developing an effective relationship between NAAs and national volcano observatory agencies. Furthermore, these States need support to establish effective cost-recovery mechanisms to ensure long-term stability, effectiveness, and resilient systems.

2.7 The current Amendment 80 to Annex 3 defines a State volcano observatory (referred to in this Paper as SVO) as “A volcano observatory, designated by regional air navigation agreement, to monitor active or potentially active volcanoes within a State and to provide information on volcanic activity [...]”.

2.8 The APAC Air Navigation Plan Vol I provides the current list of designated SVOs. However, despite having a large concentration of active and potentially active volcanoes in the region, as of June 2023, Papua New Guinea is the only Pacific Small Island Developing State with a designated SVO. An action for amending this list was first defined in 2020 at the combined¹ MET/IE WG/18 and MET/S WG/10. Since then, this planned amendment still reported as ‘in progress,’ and a significant number of volcano observatory agencies remain undesignated. Not only is this a safety issue for aircraft operating within the region, but it is also a hindrance for States to achieve compliance with Annex 3.

2.9 The Sixth Meeting of the Pacific Meteorological Council (PMC) was held on 14-16 August 2023, and it also considered the proposed elevation of the VONA to a recommended practice. The PMC recognised the importance of effective coordination of national volcano observatory agencies with their NAAs and agreed to the following request to development partners:

- Request assistance for Pacific Small Island Developing States with active or potentially active volcanoes through their National Hydrometeorological Services (NMHSs) to reach out and coordinate with national Civil Aviation Authorities and national volcano observatory agencies to discuss the existing and proposed requirements for SVOs, including ensuring appropriate SVO designation in the regional air navigation plan.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) Support all APAC region developing States with the implementation of the new VONA requirement, including setting up effective cost recovery mechanisms.
- b) Progress the designation of SVOs in the APAC region and update this in the APAC Air Navigation Plan.
- c) Encourage NAAs of States with active or potentially active volcanoes to coordinate with their national volcano observatory agencies in meeting both existing and proposed Annex 3 SARPs for volcanic activity information provision.

— END —

¹ Eighteenth Meeting of the Meteorological Information Exchange Working Group (MET/IE WG/18) and Tenth Meeting of the Meteorological Services Working Group (MET/S WG/10); report to the Meteorology Sub-Group (MET SG) of the Asia and Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG)