

International Civil Aviation Organization



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Agenda Item 6: Research, development, and other initiatives

TARANAKI MOUNGA EXERCISE OUTCOMES

(Presented by New Zealand)

SUMMARY

This paper presents outcomes of significance from the August 2023 volcanic ash exercise featuring the simulated eruption of New Zealand volcano Mount Taranaki.

1. INTRODUCTION

1.1 Taranaki Mounga is the local name of the active volcano Mount Taranaki, located on the west coast of the North Island of New Zealand. Mount Taranaki lies beneath the flight path of both domestic and international air traffic. The volcano has been periodically erupting for around 130,000 years, with large eruptions typically every 150 years, and smaller eruptions typically every 90 years. The last large eruption was in 1655, with the smaller eruptions in the 1800s.

1.2 The Civil Aviation Authority of New Zealand (CAA NZ) organised and conducted the Taranaki Mounga exercise on 10 August 2023 as a virtual exercise, with domestic and international participants and observers joining from their own locations.

1.3 The Taranaki Mounga exercise also included participation by maritime representatives, due to the potential for volcanic ashfall to damage ship engines and onboard systems, as well as posing a health risk to crew and passengers. Unlike the ICAO International Airways Volcano Watch (IAVW) system, there is no coordinated international system in place to inform mariners of volcanic hazards.

2. DISCUSSION

Exercise Overview

2.1 The exercise began with information on the volcano's elevated unrest level being shared by the State volcano observatory GNS Science. The exercise then moved into simulating the volcano erupting with a forecast wind shift meaning the nearby New Plymouth Airport would experience ashfall within a few hours.

2.2 The scenario for the exercise was designed to exercise how forecast and observed volcanic ashfall might be communicated across the aviation system, in coordination with the communication of ashfall through the New Zealand civil defence and emergency management system.

2.3 Exercise participants discussed the best way for aviation users to access information on ashfall at an aerodrome, noting that the GNS Science information in the civil defence focused ‘volcanic activity bulletin’ (VAB) may not be immediately available to all aviation users. It was agreed that information being shared via NOTAM would be of use to a wider range of users, due to alternative mechanisms such as the VAB or the ICAO Annex 3 aerodrome warnings not being disseminated to international operators.

2.4 Further, it was agreed that the provision of forecast information on expected ashfall at an aerodrome (ie due to a forecast wind change), would be of use for planning and preparation for operational staff located at airports (for example, covering equipment) and also potential relocation of aircraft if time allowed. This resulted in the following exercise recommendation being formed:

Recommendation 8: MetService, GNS Science, CAA work together to determine how ashfall information can be optimised to inform inclusion of ash presence and ashfall at an aerodrome, via TAF and NOTAM.

2.5 As an aside to the specific exercise material, both VAAC Wellington and GNS Science respectively provided ash dispersion and ashfall imagery to exercise participants, showing what an eruption on the day of the exercise could lead to (as opposed to the simulated eruption). The strong westerly flow being experienced across New Zealand on the exercise day would have resulted in a volcanic ash plume extending across the North Island. The impact of such an ash plume would mean any north-south air traffic needing to traverse the central North Island would have to fly west of Mount Taranaki and over the Tasman Sea. For some domestic operators this would have added additional stress, due to not being equipped with over-water systems required by New Zealand Civil Aviation Rule Part 121.363.

2.6 The full report of the Taranaki Mounga exercise is available at the Civil Aviation Authority of New Zealand website:

<https://www.aviation.govt.nz/assets/licensing-and-certification/meteorology/Taranaki-Mounga-Exercise-Report.pdf>

3. ACTION BY THE MEETING

3.1 Note the information contained in this paper.
