International Civil Aviation Organization

INFORMATION PAPER

Eleventh Meeting of the Meteorological Services Working Group (MET/S WG/11

Web-conference, 24 to 26 March 2021

Agenda Item 6: Guidance and education related to the provision of meteorological services

VAAC WELLINGTON MANAGEMENT REPORT

(Presented by New Zealand)

SUMMARY

This paper presents an International Airways Volcano Watch (IAVW) focussed management report describing activities for the Volcanic Ash Advisory Centre (VAAC) Wellington, covering the period 1 July 2020 to 31 January 2021.

1. INTRODUCTION

1.1 Volcanic Ash Advisory Centre (VAAC) Wellington, operated by the Meteorological Service of New Zealand Limited (MetService) covers the region southward from the Equator and from E160 to W140, except for the Melbourne and Brisbane FIRs, and southward from S10 and from W140 to W90.

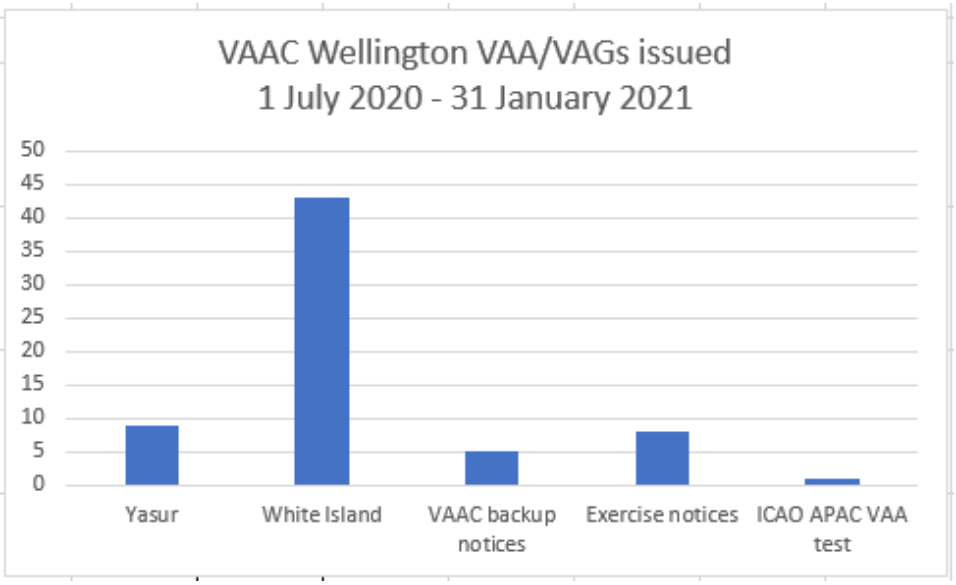
1.2 This paper presents a summary of key operational items within VAAC Wellington's area of responsibility between 1 July 2020 and 31 January 2021. Further information can be requested of the VAAC separately.

2. DISCUSSION

2.1 VAAC Wellington has between 30 and 35 VAAC competent staff available, of which 15 meteorologists cover a 24/7 shift cycle rotation working within the Aviation forecasting team. VAAC duties form part of aviation forecasting. The team is split between 2 offices, one in Wellington and the other in Auckland. This allows around 20 competent meteorologists operating outside the VAAC, being available to cover VAAC duties should an event warrant the need.

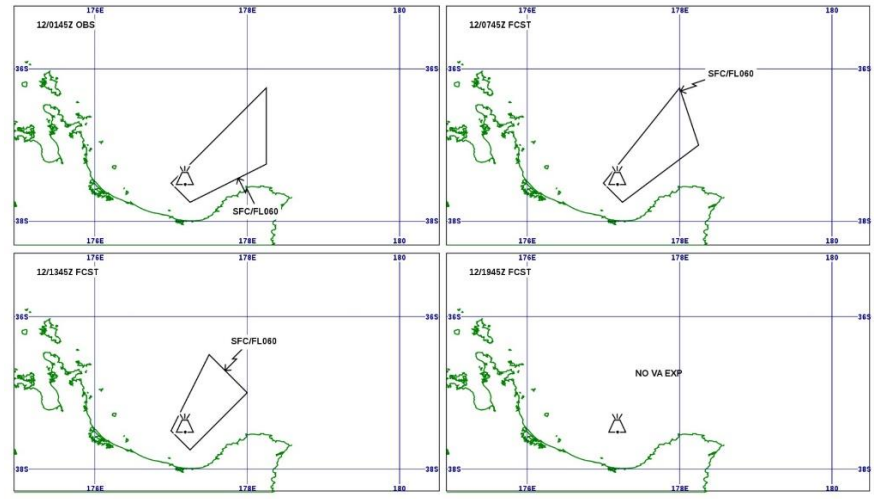
2.2 A total of 58 Volcanic Ash Advisories (VAA) and accompanying Volcanic Ash Graphics (VAG) were issued for the Wellington area over the period of this report.

Volcano	Date	VAAs/VAGs issued
Yasur	19-21 July	9
White Island	12-25 November	43 (covering 4 re-suspended volcanic ash events)
VAAC backup notices	3 November, 15 December, 18 and 27 January.	5 Following handovers to and from VAAC Darwin
Exercise notices	3 July (Tofua), 3 August (Simbo and Tinakula)	8 (4 Tofua, 2 Simba and 2 Tinakula)
ICAO APAC SIGMET test	9 December	1



2.3 In November, White Island experienced a series of probable ash re-suspension events with 43 VAA and VAG forecasts issued across the 2-week period. On 12 November, the VAAC had presence of ash confirmed via a pilot report, which gave the forecaster more certainty on the ash presence in the plume visible on satellite imagery. The VAAC worked closely with GNS Science, who look after the SVO duties for the volcano, which included feedback from them to the VAAC following gas measurement flights. This gave the VAAC the much-needed confidence and certainty with respect to the presence or absence of volcanic ash.

2.4 Below is the VAG and 0030UTC satellite imagery for White Island on 12 November. The red circle in the satellite image illustrates the location of the visible plume.



2.5 VAAC Wellington updated internal testing procedures which allows the forecaster to simulate different scenarios that may eventuate. Given the various intricacies between ICAO and NZ specific requirements, this allows the VAAC team to practice the workflow required for VAA, VAG, VA SIGMET and NOTAM depending on the type and location of the eruption. All testing takes place within the test system, removing the risk of any information being sent into the live production feeds. This new testing process follows a number of instances where VAAC forecasters inadvertently issued test VAAs into the live production feeds, which is how the older testing process operated. In future, the VAAC will make use of the "TEST" option, allowed as part of Annex 3 requirements, to still ensure that VAA and VAG products will send to live feeds when required.

2.6 COVID-19 impacted the Auckland part of the VAAC team in August, with the region changing alert levels and the government requesting non-essential workers to stay home. The VAAC is deemed essential and could operate from our Auckland office, under strict hygiene and distancing requirements.

2.7 VOLCEX 20/02 took place on 17 July 2020 in the Pacific region. The exercise included VAACs Wellington, Darwin and Washington and several other aviation users and providers across the region. The event involved a simulation of a Mt Tofua eruption in Tonga and tested various responses from users as the ash spread across FIR and VAAC boundaries. VAACs Darwin and Wellington tested

their communications via the WhatsApp platform as well as the effectiveness of their backup arrangements. VAAC Washington was involved in re-broadcasting a VAA as part of the exercise. Fiji Meteorological Service was involved in testing their meteorological watch office procedures for volcanic ash SIGMETs.

2.8 VAAC Wellington continues assisting the Tonga Meteorological Service (TMS) work towards alleviating the current ICAO MET deficiency concerning information on volcanic activity not provided regularly in Tonga (AP-MET-17).

2.9 The Wellington Volcanic Ash Advisory Centre (VAAC) completed the first round of tests during August 2020. In total 6 tests were run between the VAAC and TMS (dating back to June), simulating different scenarios that would warrant VONA issuance. Several recommendations have been identified following the tests for both organisations to work together on and update at the next MET S meeting.

2.10 VAAC Wellington supported VAAC Darwin and the Solomon Islands Meteorological Service (SIMS) in helping SIMS begin addressing long-standing ICAO deficiencies. This involved a test taking place in August, in which both VAACs provided SIMS with a VAA for the Simba and Tinakula volcanoes for them to use when issuing a VA SIGMET. Further work on this will continue into 2021, and updates provided at subsequent meetings.

2.11 November saw several re-suspension events for White Island, leading to a series of VAA/VAG forecasts being issued. Good collaboration between GNS New Zealand and MetService provided forecasters with more evidence and confidence in issuing these forecasts. One instance confirmed the presence of volcanic ash on an aircraft wing following a routine GNS observation flight about the volcano.

2.12 VAACs Wellington and Darwin continue focusing on improving collaborative efforts day to day, with both VAACs conversing almost daily via a single Microsoft Teams channel. Both VAACs have agreed that all collaborative efforts are focussed on coordination, quality, consistency, flexibility, and resilience. This will include items such as better linkage between forecasters across items such as current ash dispersion modelling capability, best approaches to routinely connect day within a duty schedule setup, and a review of both VAAC's evidence checklists in an effort to harmonise activities as far as practicable.

2.13 On 18 December, VAAC Wellington and Darwin completed their annual backup test as described in the separate paper supplied to the conjoint session of MET/IE WG19 and MET/S WG11.

2.14 VAAC Wellington, as part the ICAO Meteorology Panel Working Group Meteorological Operations Group (METP WG-MOG) work stream on the International Airline Volcano Watch (MOG-IAVW) continues collaborating on: key performance indicators to enhance consistency and accuracy of forecasts; elevation of the Volcano Observatory Notice for Aviation (VONA) status into ICAO Annex 3 (to be updated in time for the 5th ICAO Meteorology Panel Meeting – METP/5 – in June 2021); as well as progression of the Roadmap and ConOps documentation.

2.15 The ICAO Meteorology Panel Working Group Meteorological Information and Services Development Working Group (METP WG-MISD) work stream on Volcanic Ash and Sulphur Dioxide (VASD) continues working on a prototype sulphur dioxide information service for aircraft engine operating capabilities, as well as an initial operating capability (IOC) for the delivery of probabilistic quantitative volcanic ash information services. This work stream aims to provide draft provision requirements for Annex 3's Amendments 81 (2023) and 82 (2026) as well as corresponding PANS-

MET information at the METP/5 meeting. Further details on WG-MOG IAVW and WG-MISD VASD activities are available in report provided to MET-SG24 (https://www.icao.int/APAC/Meetings/Pages/2020-MET-SG24.aspx).

3. ACTION BY THE MEETING

3.1 Note the information contained in this paper.

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