International Civil Aviation Organization

WORKING PAPER

Asia and Pacific (APAC)
Thirteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/13)

Bangkok, Thailand, 22 to 26 April 2024

Agenda Item 3: Collaboration between MET and ATM stakeholders

INDONESIA'S LOCAL PRACTICES ON VOLCANIC ASH SIGMET ISSUANCE

(Presented by Indonesia)

SUMMARY

This paper presents the distinctive practices employed by the Indonesian MWOs in issuing Volcanic Ash SIGMETs for a volcano situated in a peculiar location. It also outlines the time responses when a Volcanic Ash Advisory (VAA) has not been issued, particularly when volcanic ash is not identifiable through satellite imagery.

1. INTRODUCTION

1.1 Indonesia's unique geographical location fosters the presence of 127 active and potentially active volcanoes, positioning the country as a significant producer of Volcanic Ash SIGMETs (WV SIGMETs). Annually, Indonesia issues over 1000 WV SIGMETs on average.

1.2 The stipulation of WV SIGMET issuance has been specifically stated in the Regional SIGMET Guide. Furthermore, there were additional issuance criterias that have been proposed on MET SG/27 – WP/10 regarding Guidance on SIGMET for volcanic ash crossing FIR boundaries and Guidance on SIGMET for volcanic ash not identifiable from satellite. However, However, Indonesia employs special considerations in WV SIGMET issuance not covered in the Regional SIGMET Guide. These include issuing WV SIGMETs for a volcano (i.e., Mount Merapi) straddling the border between Jakarta and Ujung Pandang FIRs, as well as adhering to specific response times for WV SIGMET issuance in the absence of Volcanic Ash Advisories (VAAs) from Volcanic Ash Advisory Centers (VAACs).

2. DISCUSSION

WV SIGMET Issuance where volcano located at the FIR border line

2.1 Mount Merapi (07°32′29″S 110°26′46″E / 7.54139°S 110.44611°E) is volcano in Central Java that was located in boder line FIR between Jakarta and Ujung Pandang FIR. Since it is located across the FIR border line, it is often challenging to issue WV SIGMETs. The MWO forecasters often face dilemma on how to divide the SIGMET polygons for the specified area, especially for the small polygons (of volcanic ash dispersion).

Figure 1. Location of Mount Merapi

2.2 To address this challenge, Indonesia has implemented specific criteria for issuing WV SIGMETs for Mount Merapi. When an eruption occurs and volcanic ash partially enters the Jakarta FIR, the responsibility for issuing WV SIGMETs remains with Ujung Pandang MWO until the entire dispersion of volcanic ash moves into the Jakarta FIR. Once the volcanic ash has completely entered the Jakarta FIR, Jakarta MWO takes over the issuance of WV SIGMETs. However, in situations where volcanic ash crosses the FIR boundary partially (resulting in WV SIGMET issuance by Ujung Pandang MWO), Jakarta FIR retains the authority to issue forecasted WV SIGMETs based on Volcanic Ash Advisories from VAAC Darwin.

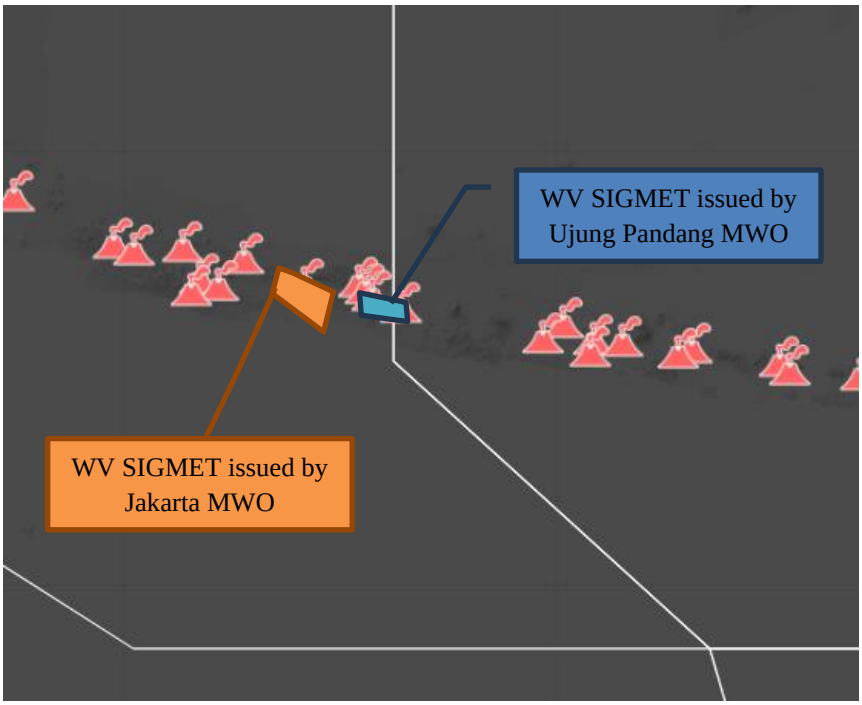

Figure 2. Special WV SIGMET issuance criteria for Mt. Merapi

Time response on WV SIGMET issuance when volcanic ash not identifiable from satellite data

2.3 According to MET SG/27 – WP/10 Appendix B, MET/S WG Ad Hoc Group proposed:

"Even in the case where a VAA states that the volcanic ash is not identifiable or not visible and an observed/forecast polygon is not included, if there is a reliable observation report or VONA issued and no information on dissipation of VA clouds, the issuance of a VA SIGMET is recommended, in consideration of the case that the eruption cannot be detected by satellite data due to a small area or covered by meteorological thick clouds". And refererring to ICAO Doc 9766 – International Airways Volcano Watch article 4.5, "*In order to ensure speedy transmission of initial information to aircraft, the first SIGMET issued may simply contain information that an ash cloud has been reported and the date/time and location. It is not necessary to await further detailed information before issuing the first SIGMET. Such information may be included in subsequent SIGMETs as it becomes available*".

2.4 On several occasions, MWO Indonesia has received VONAs/State Volcano Observatory (SVO) reports that do not warrant Volcanic Ash Advisories (VAAs). In such situations, Indonesian MWO meteorologists face a dilemma regarding how long they should wait before issuing WV SIGMETs after receiving VONA/SVO reports. Often, they receive no indication of an impending VAA following the receipt of VONA/SVO reports. Therefore, in Indonesia, a standard protocol has been established: meteorologists wait for 5 minutes after receiving VONA/SVO reports. If within this timeframe no VAA is issued, MWO Indonesia proceeds to issue WV SIGMETs based solely on the VONA/SVO reports. Subsequently, if a VAA is issued after the WV SIGMET has been issued based on the VONA/SVO reports, the initial WV SIGMET is immediately canceled.

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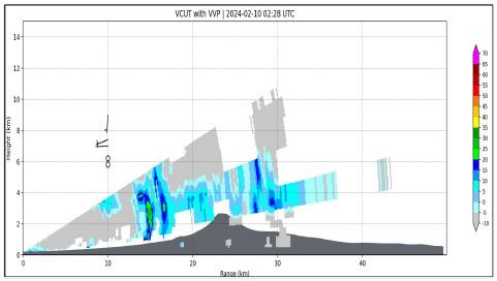
Lampiran 1. Berita/Info Guguran Awan Panas Merapi dari BPPTKG



Lampiran 2. Produk VVP Radar Cuca Yogyakarta

WVID21 WAAA 070905

WAAF SIGMET 16 VALID 070905/071430 WAAA-

WAAF UJUNG PANDANG FIR VA ERUPTION MT MERAPI PSN S0732 E11027

Figure 3. WV SIGMET issued by SVO reports

Merapi 20240124/0856Z ========== ISSUED : 20240124/0856Z VOLCANO : Merapi (263250) CURRENT COLOR CODE : ORANGE PREVIOUS COLOR CODE : orange VOLCANIC ACTIVITY SUMMARY : Eruption with volcanic ash cloud at 0856 UTC (1556 local). VOLCANIC CLOUD HEIGHT : Best estimate of ash-cloud top is around 12698 FT (3968 M) above sea level or 3200 FT (1000 M) above summit. May be higher than what can be observed clearly. Source of height data: ground observer. REMARKS :	**WVID21 WAAA 241010** **WAAF SIGMET 15 VALID 241010/241610 WAAA-** **WAAF UJUNG PANDANG FIR VA ERUPTION MT MERAPI PSN S0732 E11027 VA CLD OBS AT 0856Z SFC/FL130 MOV ESE 10KT WKN=**

Eruption recorded on seismogram with maximum amplitude 51 mm and maximum duration 168 second. Ash cloud generated by pyroclastic density current (PDC). Ash rain reported at Deles/Kemalang Klaten and Jemowo/Boyolali. Run out distance PDC 1,8 km to the south-west (Kali Bebeng). ========== Merapi 20240124/0856Z	

Figure 4. WV SIGMET issued by VONA

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) explore the inclusion of discussed local practices in the relevant guidance or document.

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