

International Civil Aviation Organization

ICAO

WORKING PAPER (WP/08)

ICAO Asia and Pacific (APAC)

Twenty-Eighth Meeting of the Meteorology Sub-Group
(MET SG/28)

Bangkok, Thailand, 8 to 12 July 2024

Agenda Item 4: Regional guidance material**UPDATES TO APAC ROBEX HANDBOOK FOR VONA EXCHANGE**

(Presented by Australia, Japan, New Zealand)

SUMMARY

This paper proposes updates to the Asia Pacific ROBEX Handbook to facilitate the dissemination of the volcano observatory notice to aviation via aeronautical fixed services.

1. INTRODUCTION

1.1 The provision of information on volcanic activity for active – or potentially active – volcanoes by designated State volcano observatories (SVOs) is a Standard in Annex 3 *Meteorological Services for International Air Navigation*. There is no consistent format recommended or required for how that information is provided, but the use of volcano observatory notice to aviation (VONA) is suggested, with the template provided in the *Handbook on the International Airways Volcano Watch* (Doc 9766). Amendment 82 to Annex 3 is expected to elevate the use of the VONA for sharing volcanic activity information to be a Recommended Practice.

1.2 The 22nd Meeting of the Meteorology Information Exchange Working Group (MET/IE WG/22) noted that the proposed Amendment 82 to Annex 3 would require dissemination of the VONA via aeronautical fixed services (AFS). Therefore, the meeting requested an ad hoc group (Australia, Japan, New Zealand) to develop proposed updates to the Asia Pacific ROBEX Handbook (hereafter ‘the Handbook’) to facilitate the dissemination of VONA. The following action was agreed, with the work to be complete for consideration by MET SG/28:

Action MET/IE WG/22-10: ROBEX Handbook updates – VONA dissemination

Develop proposed updates to the ROBEX Handbook to facilitate the dissemination of VONA via the AFS, as required by the proposed amendment to Annex 3.

1.3 The ad hoc group has developed proposed updates to the Handbook, presented in **Attachment A** to this paper.

2. DISCUSSION

2.1 To make VONA available to users for planning and operation of flights, there is a need to exchange them in a similar manner to SIGMET – especially when there is an escalating level of volcanic unrest. The VONA may be the first piece of information alerting users to an explosive eruption, available before VAA, SIGMET or NOTAM.

2.2 After taking into consideration views of respective teams in ICAO and WMO, the World Meteorological Organization (WMO) Task Team on Aviation Data (TT-AvData) will seek WMO's formal approval to the use of WM and LM for the abbreviated heading data designators T₁T₂ for the traditional alphanumeric code (TAC) and ICAO Meteorological Exchange (IWXXM) forms respectively in 2025. The geographic designators A₁A₂ used will be the country or territory designators, as included in WMO No. 386 *Manual on the Global Telecommunication System*.

2.3 There are currently 1290 volcanoes listed in the Smithsonian Global Volcanism Program (GVP) Holocene volcano list. The State with the largest number of volcanoes in the GVP list is the United States of America, with 165, while Indonesia has 116 and Japan has 105. For the abbreviated message heading, ii = 01-99, however it is anticipated only a few volcanoes will be active at any one time. There will need to be consideration of how to issue the first 99 VONA for these States, while ensuring unique headers are used.

2.4 It is anticipated that most SVOs will not have access to the AFS and so will work with their associated meteorological or air navigation service providers to disseminate the VONA. Therefore, it is expected that the organisation distributing the data into the ROBEX scheme will use its own ICAO location indicator.

2.5 To provide an example, a VONA issued for a New Zealand volcano might use the headers WMNZ01 NZKL (TAC) and LMNZ01 NZKL (IWXXM), where the location indicator is for MetService New Zealand (NZKL), who would be distributing the VONA on behalf of the New Zealand SVO.

2.6 To allow VONA to be included in the OPMET monitoring activities, it is proposed that SVOs should issue test VONA as part of the Annual SIGMET Test and that the MET SG should consider an action to incorporate the issuance of test VONA into the Annual SIGMET Test procedures.

2.7 Given the above proposals, a draft update to the Handbook is provided for consideration by the MET SG in **Attachment A** and the meeting is invited to adopt the following decision.

Decision MET SG/28-xx: Update to Asia Pacific ROBEX Handbook:	
<p>What: The Meteorology Sub-group approves the updates to the <i>Asia Pacific ROBEX Handbook</i>, as provided in Appendix X to this report and requests the Secretariat to publish the updated Handbook on the ICAO APAC website.</p>	<p>Expected impact:</p> <p><input type="checkbox"/> Political / Global</p> <p><input type="checkbox"/> Inter-regional</p> <p><input type="checkbox"/> Economic</p> <p><input type="checkbox"/> Environmental</p> <p><input checked="" type="checkbox"/> Ops/Technical</p>
<p>Why: Sharing volcanic activity information by designated State volcano observatories is a standard practice in Annex 3, with the use of the VONA format a suggested format. The use of the VONA for sharing volcanic activity information is expected to be a recommended practice in Amendment 82 to Annex 3 <i>Meteorological Services for International Air Navigation</i> with anticipated applicability in November 2025. By including information on the exchange of VONA in the ROBEX Handbook now, States will have</p>	<p>Follow-up:</p> <p><input checked="" type="checkbox"/> Secretariat</p>

sufficient time to prepare for dissemination of VONA before Amd 82 applicability.	
When: 12-Jul-24	Status: Draft to be adopted by Subgroup
Who: <input type="checkbox"/> Subgroups <input type="checkbox"/> APAC States <input checked="" type="checkbox"/> ICAO APAC RO <input type="checkbox"/> ICAO HQ <input type="checkbox"/> Other: TEXT	

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) Note the information contained in this paper;
- b) Discuss and consider improvements to the proposed updates to the *Asia Pacific ROBEX Handbook* in Attachment A;
- c) Consider how to include VONA in Annual SIGMET Test procedures; and
- d) Agree to the Decision proposed in paragraph 2.7.

ATTACHMENT A – Proposed updates to ROBEX update

Acronyms and Abbreviations

...	...
SUG	SADIS User Guide
SVO	State volcano observatory
...	...
VAAC	Volcanic Ash Advisory Centre
VONA	Volcano observatory notice to aviation
...	...

....

2.4.2 ICAO Annex 3 Amendment 82 is expected to introduce the recommended practice of using the volcano observatory notice to aviation (VONA) for sharing volcanic information, in both TAC and IWXXM form.

[Editorial note – renumber subsequent paragraphs.]

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3.1. OPMET data types

3.1.1 The following OPMET data types should be handled by the ROBEX scheme:

Data type	Abbreviated name	WMO data type designator	
		TAC	IWXXM
...
Space Weather Advisory	SWX ADVISORY	FN	LN
Volcano observatory notice to aviation	VONA	WM	LM
Administrative	METNO	NO	N/A

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4. THE COMPOSITION OF ROBEX

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4.1.1 **Originating station** – An aeronautical meteorological station, aerodrome meteorological office, forecasting office, MWO, TCAC, or a VAAC. The duties and responsibilities of these originating stations are defined by the State’s meteorological authority. An SVO is also an information originator, however it is expected that they will liaise with their associated meteorological office or air navigation service provider to disseminate VONA into the ROBEX scheme, in line with Amendment 82 to Annex 3.

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5. COMMUNICATIONS - GENERAL

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5.2.5 OPMET bulletins (TAC) transmitted via AFTN shall use the following priority indicators:

- FF – for SIGMET, AIREP SPECIAL, VAA, TCA, VONA and TAF AMD; and
- GG – for TAF, METAR and SPECI.

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8. EXCHANGE OF SIGMET, TCA, and VAA and VONA

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8.8 VONA should be prepared by designated State volcano observatories, as included in *ANP, Volume I, Table MET I-1* and in accordance with Amendment 82 to Annex 3.

8.9 VONA should be distributed to all RODBs within the Region, who should also make the VONA messages available on request. In order to facilitate that, the originating SVOs should work with associated meteorological or air navigation service providers to issue VONA.

8.10 WMO headings for VONA messages should include data designators (T₁T₂) as included in per section 3.1.1, and geographic designators (A₁A₂) used will be the country or territory designators, as included in WMO No. 386 *Manual on the Global Telecommunication System*. The location indicator should be for the organisation distributing the VONA on behalf of the SVO.

8.11 VONA messages should be distributed to other ICAO regions and made available for redistribution through SADIS and WIFS. This distribution should be carried out through the relevant IROGs.

8.12 Detailed information on the format of the VONA messages is provided in the Handbook on the International Airways Volcano Watch (Doc 9766).

13. MANAGEMENT OF OPMET EXCHANGE

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13.3.2 Monitoring of Non-Scheduled OPMET data

13.3.2.1 Monitoring of non-routine OPMET data shall include:

- a) TAC - TCA (FK), VAA (FV), VONA (WM), SWX Advisory (FN) and SIGMET (WC, WS, and WV); and

b) IWXXM – TCA (LK), VAA (LU), VONA (LM), SWX Advisory (LN) and SIGMET (LY, LS, LV).

13.3.2.2 Monitoring of VONA, SIGMET, VAA and TCA should be performed during the scheduled regional SIGMET tests in accordance with the procedures published by the APAC Office, Bangkok.

13.3.2.3 Additional monitoring of SIGMET non-routine OPMET issuance may be scheduled as necessary to monitor its the issuance of SIGMET in specific FIRs locations over specific periods when such monitoring would be useful to support the identification or rectification of deficiencies in the provision of SIGMET these services.

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APPENDIX F — OPMET Quality Control and Monitoring Procedures

1 Quality Control Procedures

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1.2 Quality Control Methods

OPMET Data	Elements Defining	Control Methods
....		
Tropical Cyclone Advisory FK
VONA	<ul style="list-style-type: none"> Type of message Issue date and time 	Software verification Manual validate Periodic Quality Control & PI Monitoring

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APPENDIX H — RODB OPMET Interrogation Procedures

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2. Reply messages

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2.4.2 When a request for SIGMET of any type (WS, WC or WV) is received, the reply should contain all valid WS, WV and WC SIGMETs that are available for the FIR concerned.

2.4.3 When a request for VONA is received, the reply should contain all VONA that are available for State concerned, issued within the time period specified.

2.5 Format of the reply message

2.5.1 The WMO abbreviated heading of a reply message will be constructed as:

TTAAii CCCC YYGGgg

where,

TT the requested message type as per section 3.1.1. of the ROBEX Handbook (e.g., SA)

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2.7 ~~OPMET Data Types~~

~~The following meteorological data types, as defined by the WMO data designator indicator, are stored and available on request from the RODBs:~~

TT	Message Type
SA	METAR
SP	SPECI
FT	12 to 30 HR TAF
WS	SIGMET
WC	Tropical Cyclone SIGMET
WV	Volcanic Ash SIGMET
FV	Volcanic Ash Advisory (VAA)
FK	Tropical Cyclone Advisory (TCA)