International Civil Aviation Organization

WORKING PAPER (WP/08)

ICAO Asia and Pacific (APAC)
Fourteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/14)

Bangkok, Thailand, 28 April to 2 May 2025

Agenda Item 4: SIGMET coordination

WC SIGMET ISSUANCE EXPERIENCES AND PRACTICES IN THE OCEANIC SIGMET COORDINATION GROUP AND ITS LATEST DEVELOPMENT

(Presented by Fiji, Hong Kong China, Indonesia, Papua New Guinea and Solomon Islands)

SUMMARY

This paper shares the experiences gained and the practices of WC SIGMET Coordination and the latest developments in the Oceanic SIGMET Coordination Project.

1. INTRODUCTION

1.1 The Oceanic SIGMET Coordination Project (referred to as "the Project") was launched in 2020 between Fiji and Solomon Islands under the coordination of the Hong Kong Observatory (HKO). Papua New Guinea joined subsequently as an operational member in 2023. Indonesia then joined as a trial member in 2024. Trials were conducted between Indonesian Agency for Meteorological, Climatological and Geophysics (BMKG) and Papua New Guinea National Weather Service (PNGNWS), involving two neighbouring MWOs (Ujung Pandang FIR and Port Moresby FIR). Following the successful trial, the coordination between BMKG and PNGNWS transitioned to operational status on 26 August 2024. The coordination group was introduced in MET SG/25 IP/03, MET SG/27 IP/06, and MET/R WG/13 WP/08. The Project was carried out using the HKO Regional SIGMET Coordination Platform ("the Platform"). In 2024, the Oceanic SIGMET coordination group conducted a record high of 533 SIGMET coordination cases with active participation from the group members.

1.2 This paper shares the experiences gained in WC SIGMET Coordination in the Project, along with the local WC SIGMET issuance practices collected within the Group and the latest development of the Project.

2. DISCUSSION

2.1 The South Pacific Ocean is occasionally impacted by tropical cyclones (TCs) that form within the South Pacific Convergence Zone or the Northern Australian monsoon trough. TCs would develop under warm sea surface temperature and favourable wind shear condition. The Tropical Cyclone Advisory Centres (TCACs) responsible for the region includes TCAC Darwin of the Bureau of Meteorology, Australia and TCAC Nadi of the Fiji Meteorological Service.

2.2 In October 2023, TC Lola formed within Nauru FIR and moved south into Nadi FIR. Figure 1 showed the successful coordination of thunderstorm SIGMETs associated with TC Lola between Solomon Islands and Fiji, with matching SIGMET coverage and parameters. The Platform facilitated the coordination by integrating updated TCAC assessments, the latest satellite observations, and a dedicated chatroom for communication.

2.3 During the regular review meetings of the Group, the following local WC SIGMET issuance practices were collected:

- Fiji, Indonesia, Papua New Guinea and Solomon Islands indicated that they would issue observed WC SIGMETs only when the TC centre is located within their respective FIRs. They typically do not issue forecast WC SIGMETs. If the TC centre is in a neighbouring FIR and TC-associated convection affects their FIR, a WS SIGMET would be issued to warn the associated convection.

2.4 The common practices of SIGMET coordination in the Asia/Pacific Region presented in MET/R WG/13 – WP/09 and MET SG/28 WP/12 were supplemented with the practices from the South Pacific Ocean mentioned in para. 2.3, as shown in **Appendix A**.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper;

b) review the practices in **Appendix A** and consider consolidating common practices for developing potential guidelines to supplement the Asia/Pacific SIGMET Guide; and

c) discuss any relevant matter as appropriate.

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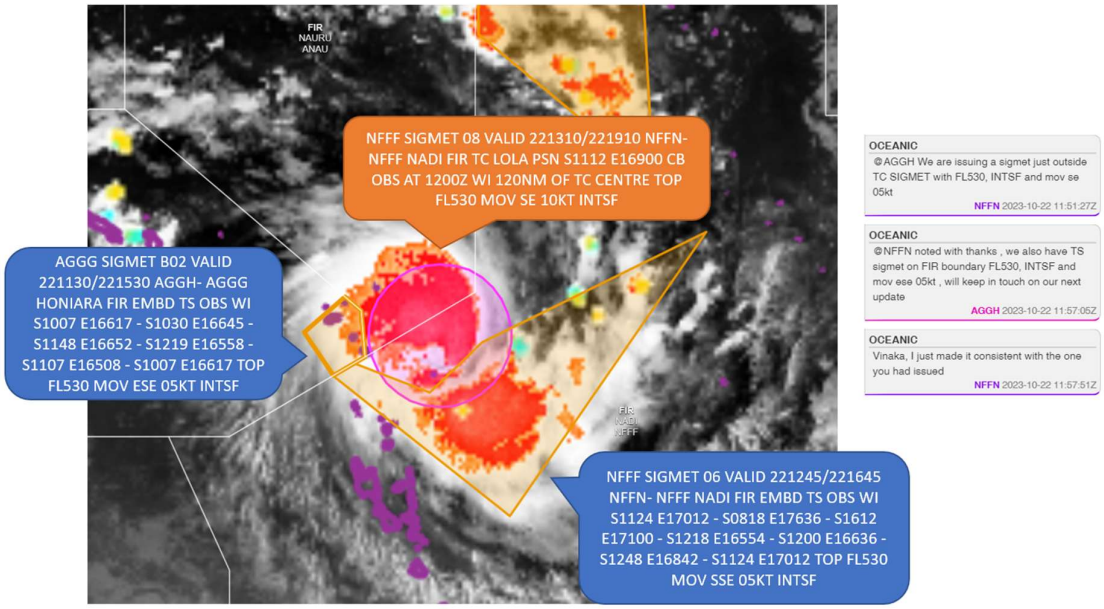

Figure 1 A SIGMET coordination case related to TC Lola on 22 October 2023. Pink and orange polygons represent the WC and WS SIGMETs respectively. The coordination dialogue for TS SIGMET coordination between Solomon Islands and Fiji is shown on the right.

APPENDIX A: collection of WC SIGMET issuance practices in the Asia/Pacific Region

The followings are the common practices in the GHKPSV SIGMET Coordination group (MET/S WG/11 IP/03) and Collaborative SIGMET Issuance project (MET/S WG/11 IP/05):

- MWO's responsibility for WC SIGMET issuance depends on the observed location of the TC centre. The MWO should cease to update the related WC SIGMET once the observed TC centre is located outside its FIR. When the TC centre is located outside its FIR, CB clouds associated with tropical cyclones are covered by WS SIGMETs for thunderstorms.
- ICAO Annex 3 7.1.6 stipulates that a WC SIGMET shall be issued as soon as possible but not more than 12 hours before the commencement of the period of validity. For early alert of the threat of an approaching TC and to facilitate coordination in advance, it is suggested that a forecast WC SIGMET to be issued at least 6 hours but no more than 12 hours before a TC of tropical storm or above intensity is expected to enter ones' FIR. Similarly, it is suggested that a forecast WC SIGMET to be issued for the expected intensification of a TC inside one's FIR at least 6 hours but no more than 12 hours before the TC intensifying into a tropical storm.
- To avoid or minimise null period(s) of WC SIGMETs when a TC with intensity tropical storm or above affecting the FIRs, considering a case when a TC moves from FIR A under MWO A (upstream MWO) to FIR B under MWO B (downstream MWO),
    - MWO A and B shall start to coordinate a few hours (e.g. about 6 hours) ahead on the estimated time and position of TC crossing the FIR boundary or the time to update/cancel/issue related WC SIGMETs.
    - As the TC centre leaves FIR A, MWO A should confirm with MWO B on the issuance by MWO B of "OBSERVED" or "FORECAST" WC SIGMET before cancelling its "OBSERVED" WC SIGMET.
    - MWO B is advised to inform MWO A their "FORECAST" WC SIGMET being issued and the time of issuing "OBSERVED" WC SIGMET to replace their "FORECAST" WC SIGMET when the TC enters FIR B.
    - The communication is suggested to be carried out via a communication platform agreed by MWO A and B to ensure mutual understanding. Whenever there are changes on the assessment of WC SIGMET issuance, both MWO A and MWO B are encouraged to provide timely updates and carry out further coordination.
    - If there are discrepancies in the WC SIGMET issuance expected by MWO A and B, both MWOs may follow their own local operational practices in handling the WC SIGMETs while ensuring at least one "OBSERVED" or "FORECAST" WC SIGMET is valid.

The followings are the practices in Australia MWOs:

- MWOs issue a TC SIGMET whenever a TC, or part thereof, is impacting its FIR of responsibility. This includes CB contained within the Tropical Cyclone Advisory. Therefore, MWOs issue a TC SIGMET regardless of whether the centre is in their FIR or within a neighbouring FIR.
- Both MWOs issue WC SIGMETs based on the information contained within the Tropical Cyclone advisory.

The followings are the common practices in the SSEA SIGMET Coordination group over the North Indian Ocean:

- MWO's responsibility for WC SIGMET issuance depends on the observed location of the TC centre. The MWO should cease to update the related WC SIGMET once the observed TC centre is located outside its FIR. When the TC centre is located outside its FIR, CB clouds associated with tropical cyclones are covered by WS SIGMETs for thunderstorms.

The followings are the common practices in the Oceanic SIGMET Coordination group over the South Pacific Ocean:

- MWO's responsibility for WC SIGMET issuance depends on the observed location of the TC centre. The MWO would issue WC SIGMET when the observed TC centre is located inside its FIR. When the TC centre is located outside its FIR but CB clouds associated with the TC are affecting its FIR, the CB clouds would be covered by WS SIGMETs for thunderstorms.