International Civil Aviation Organization

WORKING PAPER

Twenty-fifth Meeting of the Meteorology Sub-group (MET SG/25)

Online, 18 – 22 October 2021

Agenda Item 3: Planning and monitoring

RECENT PROGRESS OF INTERNATIONAL COOPERATION SCHEME ON COLLABORATIVE SIGMET ISSUANCE (CSI)

(Presented by Japan, Lao PDR, Myanmar, Philippines, Thailand and Vietnam)

SUMMARY

This paper presents progress on the international cooperation scheme of the Collaborative SIGMET Issuance (CSI) among six member States: Japan, Lao PDR, Myanmar, Philippines, Thailand and Vietnam, highlighting the outcomes of the CSI Workshop held in January 2021 via on-line to discuss further enhancement and expansion of SIGMET coordination in the region.

1. INTRODUCTION

1.1 Noting the presence of SIGMET discontinuity between FIRs and the requirements for harmonized en-route hazardous weather information, Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA), Vietnam Air Traffic Management Corporation (VATM) and Japan Meteorological Agency (JMA) launched a demonstration project on Collaborative SIGMET Issuance (CSI) in 2015. Department of Meteorology and Hydrology of Lao PDR (LDMH), Department of Meteorology and Hydrology of Myanmar (MDMH) and the Thai Meteorological Department (TMD) joined the project in 2016.

1.2 The demonstrations were carried out successfully four times from 2016 to 2018, and the project members developed SIGMET coordination procedures as well as the dedicated web platform provided by JMA. In addition, several training opportunities have been provided by JMA as a part of the project, which has strengthened of forecasters' skill in issuing SIGMET among participating MWOs. The air navigation service providers (ANSPs) and airlines that have regular operation in the target area were invited to participate in the project to conduct assessments. They appreciated the outcomes of those demonstrations in terms of improvements in the availability, quality and consistency of the SIGMETs issued during the demonstrations, and requested for transition of the project into operational coordination.

1.3 Acknowledging the maturity of SIGMET coordination procedures, JMA's supporting tools and positive evaluation from aviation users, the CSI members decided to transfer the project into the operational phase with documented scheme of cooperation since 9th April 2018. Furthermore, the Malaysian Meteorological Department (MMD) participates in CSI as an observer. Figure 1 shows the overview of the CSI procedures. It is a joint cooperation scheme among CSI members to prepare and

issue SIGMET in a collaborative manner based on jointly-developed coordination procedures, using common tools and supporting information.

1.4 Since the coordination scheme has been transferred into operational phase, CSI members have continued to review and evaluate the coordination performance and coordination procedure through monthly online meeting, then have further discussed their issues in the annual face-to-face workshop.

2. DISCUSSION

2.1 Latest CSI Workshop was held from 18 to 19 January 2021 via on-line due to the COVID-19 outbreak. The workshop had two parts: CSI Session among CSI members and MMD, and Joint Session with additional participants from the Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG), the Meteorological Services Singapore (MSS) and the Australian Bureau of Meteorology (BoM). Mr. Peter Dunda, Regional Officer Aeronautical Meteorology and Environment, ICAO APAC Office, also participated in both sessions.

2.2 In the CSI session, the participants discussed WC SIGMET Handover procedure for transferring responsibility of WC SIGMET issuance smoothly which is consistent with ICAO requirements (Appendix A). Some participants mentioned that more frequent TCAs' update would be useful for WC SIGMET handover.

2.3 Also in the CSI Session, JMA reported result of a survey from airlines on acceptable difference of SIGMETs issued by neighbor MWOs for a same phenomenon on flight route (Appendix B). Based on this result, JMA proposed a draft guideline of acceptable range of difference regarding the CB TOP height and direction of the movement. Since it had only one airline joined the survey due to Covid outbreak, the participants agreed to conduct further survey and continue the discussion.

2.4 In both of CSI session and Joint session, expansion of coordination was discussed, which includes seeking the coordination with Cambodia and report of the status of operational/trial coordination between CSI member States and relevant MWOs. One of the reported progresses was the transferring to the operational level of SIGMET coordination between PAGASA and Honolulu Weather Forecast Office, National Weather Service (NWS HFO) from 1 February 2021. After the Joint Session, BMKG and BoM discussed their trial SIGMET coordination using JMA web tool and agreed to start the trial from 10 March. The participants discussed the further expansion of the SIGMET coordination and agreed with two new trial coordination, MDMH - MMD (Kuala Lumpur MWO) and PAGASA - MMD (Kota Kinabalu MWO) – MSS, using JMA web tool. More details of the workshop are available on the MET/S WG/11 IP/05.

3. SUMMARY

3.1 The CSI has kept continuously sharing its experience and outcomes and supporting enhancement of SIGMET coordination in the APAC Region, such as contributed to the development of "Guidelines for Operational SIGMET Coordination" attached to the Regional SIGMET Guide.

3.2 Understanding the worth for sharing experience and outcomes obtained from exercise and operational multi- and bilateral SIGMET coordination, CSI members firmly believe that the outcomes such as WC SIGMET handover procedure would be helpful for further progress of the SIGMET coordination in the APAC Region. In addition, recognizing users' perspective such as acceptable range of the coordination should be also beneficial for issuing meaningful SIGMET information.

3.3 Based on these lessons learnt from CSI activities, the following measures would be effective in further expanding SIGMET coordination.

- Review the technical issues that have been identified in SIGMET coordination so far, and investigate what is appropriate to include in the regional guidance.
- Encourage States to continue to share their SIGMET coordination activities, technical challenges and their solutions.
- Investigate user requirements such as acceptable differences from 'neighbour' SIGMETs. (i.e. conduct a survey from ICAO side.)

3.4 CSI will continue to contribute to the future discussion regarding further expansion of SIGMET coordination activities in the Region.

4. ACTION BY THE MEETING

4.1 The meeting invited to;

1) note the information contained in this paper, and
2) discuss how to facilitate further enhancement of SIGMET coordination activities regarding the Section 3.3.

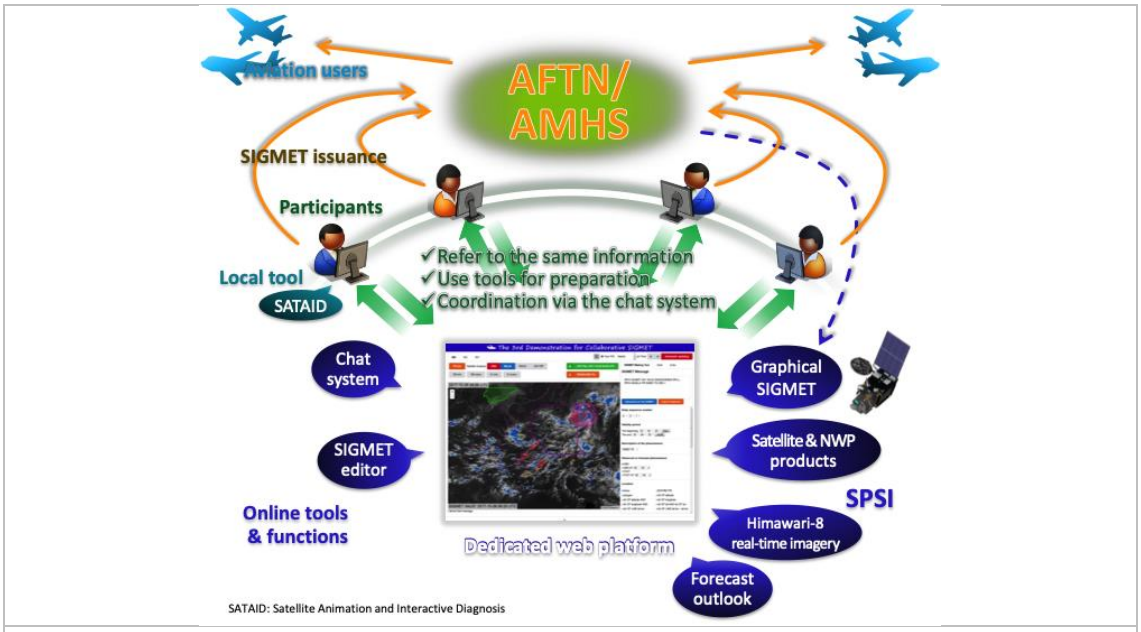

Figure 1. Overview of the CSI procedures

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Procedure of WC SIGMET Handover

As recommended in Annex 3 of the Convention on International Civil Aviation, SIGMET messages concerning tropical cyclones (TCs) should be based on advisory information provided by TCACs designated by regional air navigation agreement. However, as each MWO has its own WC SIGMET issuance procedure, related handover for TCs moving across FIR boundaries must be carefully coordinated as outlined below for clear transfer of associated responsibility.

- Chat function

  MWOs involved in WC SIGMET handovers should liaise via the chat system of the web platform and ensure mutual understanding of the following points for continuous WC SIGMET issuance at FIR boundaries:

  - when will an MWO taking responsibility for an FIR from which a TC moves (referred to here as “MWO A” and “FIR A” (see Figure 1)) end related WC SIGMET updating?; or
  - when will another MWO taking responsibility for an FIR into which a TC moves (referred to here as “MWO B” and “FIR B” (see Figure 1)) start related WC SIGMET issuance?

  Both MWOs should coordinate WC SIGMET issuance scheduling as necessary.

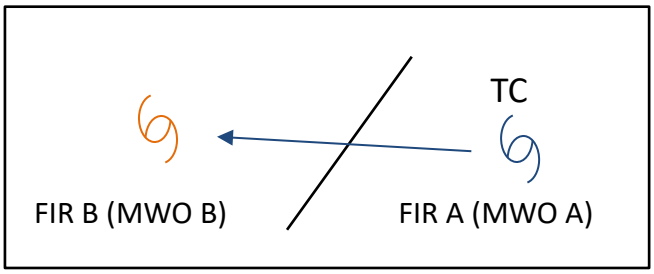

Figure 1. TC moving from FIR A to FIR B

- WC SIGMET-issuing MWO

  MWO responsibility for WC SIGMET issuance in relation to TCs depends on which FIR the TC center is observed in. MWO A should consider itself no longer responsible for issuance in relation to TCs whose observed center is located outside FIR A, and should cease to update related WC SIGMETs thereafter. MWO B should consider itself responsible for issuance if the observed center is located within FIR B, and should issue related WC SIGMETs thereafter.

- WC SIGMET handling once a TC center leaves a FIR
  MWO A should wait for MWO B to issue WC SIGMET up to the end of validity period of the WC SIGMET issued by MWO A and cancel the WC SIGMET for TCs after MWO A confirms that MWO B issues a related OBS or FCST WC SIGMET.

- Preliminary issuance of WC SIGMET based on forecasts
  MWO B can issue WC SIGMET in advance with lead times based on six-hour forecasts of the TC center in FIR B in consideration of chat messages from MWO A, as MWOs may issue FCST WC SIGMET with lead times of up to 12 hours based on Annex 3 of the Convention on International Civil Aviation.

Results of a survey about the acceptable difference of SIGMETs

JMA reported the result of a survey for airlines about the acceptable difference of SIGMETs issued by neighbor MWOs. Due to the COVID-19 outbreak, this survey has been for only one airline so far. The overview of the result is the following;

- For Flight Dispatchers, small difference in SIGMETs issued by two or more adjacent FIRs regarding a same phenomenon in the atmosphere may be significant in the flight plan preparation.
- For Pilots, the difference of cloud top heights in the SIGMETs issued over the boundary of two or more FIRs are significant for decision making if it affects the cruising altitude (FL300-FL400), otherwise, it is less remarkable.
- The viewpoint does not change significantly depending on turbulence and thunderstorm.
- For CB TOP height, a difference of 4,000 – 5,000 ft is acceptable.
- For movement, a difference of 90 degrees (or 45 degrees, if possible) is acceptable, but it is less important than the difference of CB TOP height.

Based on this result, JMA proposed a draft guideline of acceptable difference as follows:

- The difference of 5,000 ft and below at all altitude (2,000 ft and below especially at cruising altitude (FL300 – FL400), if possible) in CB TOP height.
- The difference of movement is within 90 degrees (45 degrees, if possible).