



ICAO

*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 3: Planning and implementation of meteorological services**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, the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA), the Vietnam Air Traffic Management Corporation (VATM) and the Japan Meteorological Agency (JMA) launched a demonstration project on Collaborative SIGMET Issuance (CSI) in 2015. The Department of Meteorology and Hydrology of Lao PDR (LDMH), the 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 were provided by JMA as a part of the project, which led to the improvement 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 the transition of the project into operational coordination.

1.3 Acknowledging the maturity of SIGMET coordination procedures, JMA's supporting tools and information and requests from aviation users who evaluated the project, the members decided to transfer the project into the operational phase with documented scheme of cooperation from 9th April

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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 and using common tools and supporting information.

2. DISCUSSION

2.1 The CSI Workshop was held via on-line from 18 to 19 January 2021. During the workshop, CSI Session with CSI members was held on 18 and 19 January and was attended by experts from the JMA, LDMH, MDMH, PAGASA, TMD, VATM and MMD. Mr. Peter Dunda, Regional Officer Aeronautical Meteorology and Environment, ICAO APAC Office, also participated. In addition to the participants of the CSI Session, experts from the Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG), the Meteorological Services Singapore (MSS) and the Australian Bureau of Meteorology (BoM) joined the Joint Session on the afternoon of 19 January via on-line.

The CSI Session

2.2 JMA, as the coordinator of the CSI Scheme, confirmed the issues discussed in the previous CSI Workshop (December 2019) and subsequent activities. The participants reviewed outcomes such as introducing logbook and the action of MET/R WG/9 encouraging each State to share special air-reports to the relevant MWOs.

2.3 The participants discussed on a plausible and logical way, which is consistent with ICAO requirements, to transfer the responsibility of WC SIGMET issuance smoothly and agreed with the WC SIGMET Handover procedure as attached to this paper (Appendix). The procedure contains the following points;

- SIGMET messages concerning tropical cyclones (TCs) should be based on advisory information provided by TCACs designated by regional air navigation agreement.
- MWOs involved in WC SIGMET handovers should liaise via the chat system of the web platform and ensure mutual understanding for continuous WC SIGMET issuance at FIR boundaries.
- MWO responsibility for WC SIGMET issuance in relation to TCs depends on which FIR the TC center is observed in.
- When a TC center leaves an FIR, the MWO, which is responsible for the FIR should cancel the WC SIGMET for TCs after the MWO confirms that neighboring MWO issues a related WC SIGMET.
- MWOs can issue WC SIGMET in advance with lead times based on six-hour forecasts of the TC center in the FIR.

Some participants mentioned that it would be useful for WC SIGMET handover if TCACs issued TCAs more frequently, for example three-hourly.

2.4 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 Dispatcher, small difference of SIGMETs issued between two or more adjacent FIRs is significant in the flight plan preparation.
- For Pilot, 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 degree, 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).

Since this result is based on the answers from only one airline, the participants agreed to conduct further survey and continue the discussion.

2.5 The participants reconfirmed the importance of the SIGMET coordination with Cambodia since Phnom Penh FIR is surrounded by the FIRs of the CSI members. The participants agreed that relevant MWOs continue to prepare the SIGMET coordination trial between the CSI members and Cambodia.

The Joint Session

2.6 Regarding three SIGMET coordination trials agreed during the Joint Session of the previous CSI Workshop held in December 2019, it is reported that the operational SIGMET coordination between TMD and MMD has been conducted smoothly and PAGASA and Honolulu Weather Forecast Office, National Weather Service (NWS HFO) have coordinated their SIGMETs smoothly in the trial phase, so that they agreed to move to the operational level of SIGMET coordination from 1 February 2021. JMA also confirmed the status of a trial SIGMET coordination between BMKG and BoM using JMA web tool. 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.

2.7 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. These trials were planned to start from 15 February using JMA web tool.

3. SUMMARY

3.1 Since the beginning of the scheme, the CSI has shared its experience and outcomes and contributed to enhancement of SIGMET coordination in the APAC Region, such as 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. CSI will continue to contribute to the future discussion among the

MET/S WG and its ad-hoc group regarding SIGMET coordination for further expansion of the activity in the region.

4. ACTION BY THE MEETING

4.1 Note the information contained in this paper.

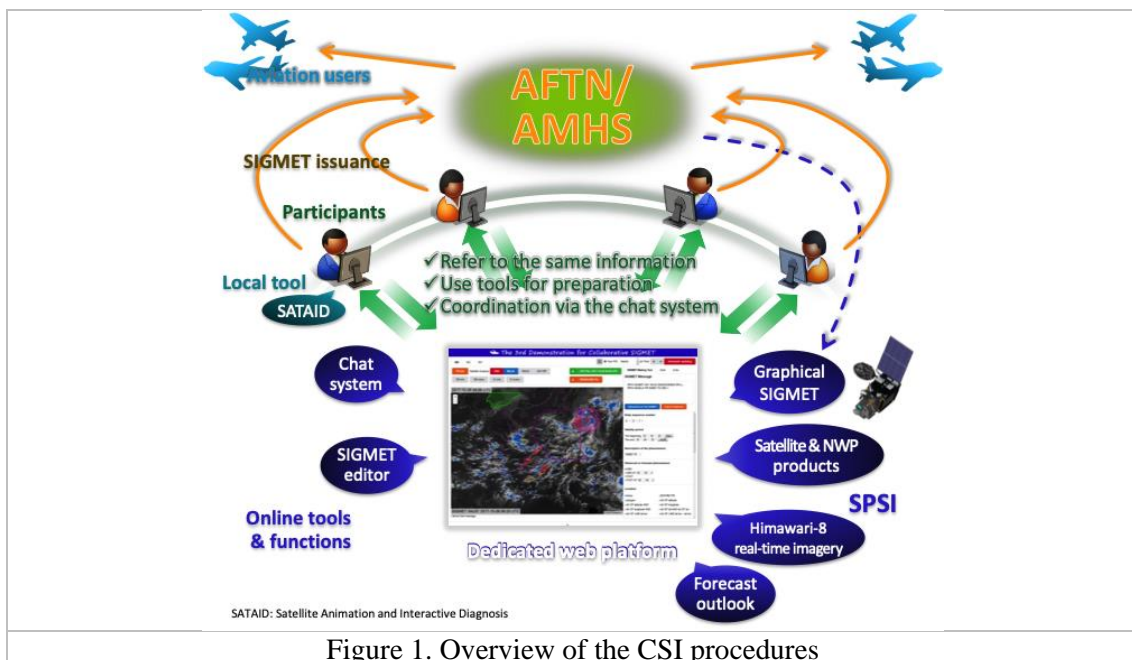


Figure 1. Overview of the CSI procedures

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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.

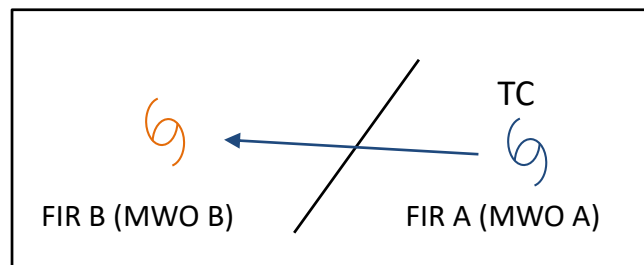


Figure 1. TC moving from FIR A to FIR B

- 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.