

*International Civil Aviation Organization*



ICAO

**WORKING PAPER**

**Asia and Pacific (APAC)  
Twelfth Meeting of the Meteorological Services  
Working Group (MET/S WG/13)**

Bangkok, Thailand, 29 to 31 March 2023

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**Agenda Item 6: Guidance and education related to the provision of meteorological services**

**PROGRESS OF THE AD HOC GROUP ON SIGMET COORDINATION**

(Presented by MET/S WG ad hoc group on SIGMET Coordination)

**SUMMARY**

This paper outlines the progress to date of the ad hoc group on SIGMET Coordination under MET/S WG, including updates on the online repository of the SIGMET Coordination activities, the consolidation document of SIGMET Coordination practices in the APAC Region and on facilitating SIGMET Coordination in the Region.

**1. INTRODUCTION**

1.1 Under Amendment 79 to Annex 3, SIGMET Coordination has become a recommended practice on 5 November 2020:

*3.4.4 Recommendation --- An MWO should coordinate SIGMET with neighbouring MWO(s), especially when the en-route weather phenomenon extends or is expected to extend beyond the MWO's specified area of responsibility, in order to ensure harmonized SIGMET provision.*

1.2 In 2020, an ad hoc group on SIGMET Coordination was formed at MET/S WG/10. The group members include China, Fiji, India, Indonesia, Malaysia, Thailand, Vietnam and IFALPA. Hong Kong China, Japan and Singapore are the joint rapporteurs.

1.3 [MET/S WG/12 - WP/08](#) reported on the work of the ad hoc group on SIGMET Coordination in 2021-22. To facilitate more efficient and better coordinated SIGMET service to meet aviation users' expectations and operational requirements in the APAC Region, the group was assigned the following tasks:

- (a) update the online repository on SIGMET Coordination activities in the Region;
- (b) enrich the consolidation document of SIGMET Coordination practices with further inputs from States and update the SIGMET Coordination guidance in the Regional SIGMET Guide; and
- (c) review, organise and support surveys on user requirements of SIGMET Coordination.

1.4 This paper outlines the progress and updates on the above work since then.

2. DISCUSSION

Online repository of the SIGMET Coordination activities

2.1 An online repository of the SIGMET Coordination activities was developed for Meteorological Watch Offices (MWOs) in the Region to keep track of various SIGMET Coordination projects being undertaken in the Region (APPENDIX A). It is anticipated that this would encourage and facilitate MWOs to identify opportunities to perform SIGMET Coordination with their neighbouring MWOs, as well as to learn from the experience of other SIGMET Coordination projects. The repository is a living document to be updated with new initiatives on SIGMET Coordination on a regular basis.

2.2 Compared with the last update at MET/S WG/12, there are 20 FIRs establishing additional SIGMET Coordination. In particular, through coordination with neighbouring MWOs, some States have enhanced their capacity in SIGMET issuance to work towards removal of SIGMET-related deficiencies.

2.3 The online repository was made available on the [APAC eDocuments website](#) and accessible by States/Administrations via the [Link to online repository of SIGMET Coordination activities](#)<sup>1</sup>.

2.4 MWOs or coordinators of SIGMET Coordination projects are requested to provide updates on the SIGMET Coordination activities to the online repository by contacting the joint rapporteurs of the ad hoc group: Ms Christy Leung ([yyleung@hko.gov.hk](mailto:yyleung@hko.gov.hk)), Ms Michiko Ikeda ([michi-ikeda@met.kishou.go.jp](mailto:michi-ikeda@met.kishou.go.jp)) or Mr Goh Wee Poh ([GOH\\_Wee\\_Poh@nea.gov.sg](mailto:GOH_Wee_Poh@nea.gov.sg)).

Consolidation document of SIGMET Coordination practices

2.5 Since 2016, various SIGMET Coordination initiatives have been developed and SIGMET Coordination workshops organised in the Region. Gathering the key lessons learnt from the coordination activities, the ad hoc group drafted a consolidation document of SIGMET Coordination practices in the APAC Region at [MET/S WG/12 - WP/08](#). At MET/SG 26, States/Administrations in the Region were encouraged to provide further inputs and the following Conclusion MET SG/26/05 was adopted.

<b>Conclusion MET SG/26/05 – Encourage States to provide input on the online repository on SIGMET Coordination and the consolidation document on SIGMET Coordination Practices in the APAC region</b>	
What: That, a) States be invited to provide updates to the online repository on SIGMET Coordination and supplement its local SIGMET issuance practices to the consolidation document on SIGMET Coordination practices in the APAC region (using the contact details provided in	Expected impact: <input type="checkbox"/> Political / Global <input type="checkbox"/> Inter-regional <input type="checkbox"/> Economic

<sup>1</sup> Note that the link is updated.

<p>the documents); and                  b) The ICAO Asia/Pacific Regional Office will notify the States/Administrations of the availability and location of the above documents and invite States’ inputs to the consolidation document by issuing a State Letter.</p>	<p><input type="checkbox"/> Environmental  <input checked="" type="checkbox"/> Ops/Technical</p>
<p>Why: To enhance the SIGMET coordination in the Region by gathering lessons learnt from existing SIGMET coordination activities to facilitate more efficient and better coordinated SIGMET service to meet aviation users’ expectations and operational requirements in the Region.</p>	<p>Follow-up:  <input type="checkbox"/> Required from States</p>
<p>When: Now</p>	<p>Status: Adopted by Subgroup</p>
<p>Who: <input type="checkbox"/>Sub groups <input checked="" type="checkbox"/>APAC States <input checked="" type="checkbox"/>ICAO APAC RO <input type="checkbox"/>ICAO HQ <input type="checkbox"/>Other: ROs</p>	

2.6 Since MET SG/26, States/Administrations helped enrich the consolidation document. Compared with the last update at MET/S WG/12, six more FIRs, namely Chennai, Hanoi, Ho Chi Minh, Hong Kong, Singapore and Yangon FIRs, have supplemented their local issuance criteria for thunderstorms SIGMET, and the Bangkok FIR updated the criteria. Besides, through the experiences gained from SIGMET Coordination for various tropical cyclones that affected the northern part of South China Sea, WC SIGMET Coordination guidelines for several FIRs in the region were adopted and incorporated into the new section 2.4.1 of the consolidation document. The details of TC SIGMET handover procedure adopted by CSI project member States were also supplemented in the section 2.4.2 in addition to the consolidated practices in 2.4 in order to enrich the contents of regional practices in the document.

2.7 The revised consolidation document was attached in APPENDIX B. The consolidation document was also uploaded to OneDrive and available for access by States/Administrations via the [Link to consolidation document of SIGMET Coordination practices in the APAC Region](#).

2.8 Since SIGMET coordination being a recommended practice in ICAO Annex 3, it is proposed that the consolidation document be published on the ICAO APAC eDocuments website for States’ reference. It will be a living document and further input from State’s are encouraged to seek any appropriate input to the SIGMET Coordination guidance in the Regional SIGMET Guide. In view of the above, the meeting is recommended to formulate the following Draft Conclusion for consideration by MET SG:

**Draft Conclusion MET/S WG/13/xx: Publishing the consolidation document on SIGMET Coordination Practices in the APAC region on the ICAO APAC eDocuments website and inviting for States’ further input**

That, the MET SG approves publishing the consolidation document on SIGMET Coordination Practices in the APAC Region on the ICAO APAC Office website as a living document and States are invited to provide further input to facilitate more efficient and better coordinated SIGMET service to meet aviation users’ expectations and operational requirements in the Region.

Updates on other issues related to SIGMET Coordination

2.9 In MET/S WG/12, the participants raised their concerns that it could be challenging for MWOs involved in more than one SIGMET coordination scheme to ensure harmonised SIGMET details when the coordination was carried out via different SIGMET Coordination platforms. Some of the tool

providers in the APAC Region, namely Hong Kong Observatory and Japan Meteorological Agency, have commenced the discussion on technical feasibility to improve convenience for users when using multiple platforms. One solution could be real-time sharing of chat messages between the two platforms for coordination groups that are utilising both platforms. Individual MWOs' consent would be sought before exchanging the chat messages. Further discussion between the tool providers and platform users would be conducted to improve user experience on using the platforms.

2.10 The ad hoc group noted the suggestion of further conducting user survey on SIGMET service and SIGMET Coordination in the Region. The results of the surveys, together with the information from the consolidation document in APPENDIX B would be useful in developing more harmonised criteria for warning weather hazards across FIR boundaries to facilitate more efficient coordination. Further discussion within the ad hoc group on the content, target participants and survey questions will be required.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the updated information contained in this paper;
- b) consider the Draft Conclusion in paragraph 2.8;
- c) discuss any relevant matter as appropriate.

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MET/S WG/13  
Appendix A to WP/10

**APPENDIX A**

<b>Online repository for APAC SIGMET Coordination activities</b>				
<b>SIGMET Coordination group</b>	<b>State/Administrations involved</b>	<b>FIRs involved</b>	<b>Status</b>	<b>Relevant ICAO paper</b>
Collaborative SIGMET Issuance (CSI)	Japan	Fukuoka	Operational	<a href="#">MET/S WG/12 WP/05</a>
	Lao PDR	Vientiane		
	Myanmar	Yangon		
	Philippines	Manila		
	Thailand	Bangkok		
	Vietnam	Hanoi Ho Chi Minh		
GHKPSV SIGMET Coordination	Cambodia	Phnom Penh	Operational	<a href="#">MET/S WG/11 IP/03</a>
	China	Guangzhou		
		Kunming		
		Sanya		
	Hong Kong, China	Hong Kong		
	Vietnam	Hanoi		
Ho Chi Minh				
SSEA SIGMET Coordination	India	Chennai	Operational	<a href="#">MET/S WG/12 IP/02</a>
		Mumbai		
		Delhi		
		Kolkata		
	Indonesia	Jakarta		
	Sri Lanka	Colombo		
	Hong Kong, China	---		
	Nepal	Kathmandu	Trial	
Regional Collaboration	Philippines	Manila	Operational	<a href="#">MET SG/25 WP/14</a>
	United States	Oakland Oceanic		

MET/S WG/13  
Appendix A to WP/10

Regional Collaboration	Fiji	Nadi	Operational	<a href="#">MET SG/26 IP/06</a>
	Hong Kong, China	---		
	Solomon Islands	Honiara		
	Papua New Guinea	Port Moresby	Trial	
HMSU SIGMET Coordination	China	Sanya	Operational	<a href="#">MET SG/26 IP/06</a>
	Hong Kong, China	Hong Kong		
	Philippines	Manila		
Regional Collaboration	Malaysia	Kota Kinabalu	Operational	<a href="#">MET/S WG/12 WP/05</a>
	Philippines	Manila		
	Singapore	Singapore		
Regional Collaboration	Australia	Brisbane	Operational	<a href="#">MET SG/25 IP/06</a>
	Fiji	Nadi		
	New Zealand	Auckland Oceanic East		
		New Zealand		
Regional Collaboration	Australia	Brisbane	Trial	<a href="#">MET SG/25 IP/20</a>
		Melbourne		
	Indonesia	Jakarta		
		Ujung Pandang		
Regional Collaboration	China	Shenyang	Operational	<a href="#">DGCA 56/IP/4/16</a>
		Urumqi		
	Russia	Khabarovsk		
		Irkutsk		
Operational SIGMET Coordination (OSC)	Indonesia	Jakarta	Operational	<a href="#">MET SG/23 IP/21</a>
		Ujung Pandang		
	Malaysia	Kota Kinabalu		
		Kuala Lumpur		
Singapore	Singapore			
Regional Collaboration	Japan	Fukuoka	Trial	<a href="#">MET/S WG/8 IP/6</a>

MET/S WG/13  
Appendix A to WP/10

	United States	Oakland Oceanic		
		Anchorage Oceanic		
Regional Collaboration	Malaysia	Kuala Lumpur	Operational	<a href="#">MET/S WG/12 WP/05</a>
	Myanmar	Yangon		
Mekong SIGMET Coordination	Cambodia	Phnom Penh	Operational	<a href="#">MET/S WG/12 IP/03</a>
	Thailand	Bangkok		
	Vietnam	Ho Chi Minh		
	Hong Kong, China	---		
Regional Collaboration	Indonesia	Ujung Pandang	Trial	<a href="#">MET/S WG/12 IP/04</a>
	United States	Oakland Oceanic		
Regional Collaboration	Indonesia	Ujung Pandang	Trial	<a href="#">MET/S WG/12 IP/04</a>
	Philippines	Manila		
Regional Collaboration	China	Urumqi	Operational	
	Republic of Kazakhstan	Almaty		
Regional Collaboration	China	Shanghai	Trial	
	Republic of Korea	Incheon		
<p><b>For updates on the online repository, please contact Ms Christy Leung (yyleung@hko.gov.hk), Ms Michiko Ikeda (michi-ikeda@met.kishou.go.jp) or Mr Goh Wee Poh (GOH_Wee_Poh@nea.gov.sg).</b></p>				

\* Updates on coordination status since MET/S WG/12 held in March 2022 are highlighted in grey.

**APPENDIX B**

**Consolidation of SIGMET Coordination Practices in the APAC Region**

1. Introduction

1.1 Inconsistencies in SIGMET information across Flight Information Regions (FIRs) issued by different Meteorological Watch Offices (MWOs) will pose safety concerns and confusion to airspace users. Section 16 of Appendix L, Asia/Pacific Regional SIGMET Guide mentions that the subjectivity inherent in weather forecasting would affect harmonization of SIGMET information. One way to address this problem is by setting objective criteria for SIGMET coordination that ensures better consistency in SIGMET information.

1.2 In this document, a consolidation of the various practices developed from different SIGMET Coordination groups, results of user surveys and local practices of various MWOs in the APAC Region are provided as the current status. Please note that the SIGMET coordination procedures described in this document include some contents that have not yet been agreed within the whole Region.

2. SIGMET issuance practice

2.1 SIGMET coordination could be facilitated through better alignment in SIGMET issuance practices among the MWOs. However, issuance criteria generally vary from region to region given that each region has its own unique weather, climate characteristics and challenges. Apart from subjectivity in the assessment of the weather situation, other local considerations such as number of aircraft movements, size of the FIR, user requirements, etc. would also affect the SIGMET issuance practices.

2.2 Below is a consolidation of the various local practices for SIGMET issuance in the APAC Region. These local practices are consolidated from the Issuance criteria for thunderstorms in Appendix J, Asia/Pacific Regional SIGMET Guide, and/or supplemented by States via various SIGMET Coordination activities and workshops in the region.

<b>Phenomenon</b>	<b>Issuance criteria</b>	<b>MWOs practice</b>
<b>Bangkok FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for SIGMET issuance	60 NM x 60 NM
	Minimum gap between two SIGMET areas	60 NM
<b>Brisbane &amp; Melbourne FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for areas of high-level air traffic movements and low-level flights	3000 NM <sup>2</sup>
	Minimum dimension for areas with lower air traffic movements and generally high-level flights with airborne radar	7200 NM <sup>2</sup>
	Distance between adjacent thunderstorm cells to be applied for frequent and squall line SIGMETs	40 NM

MET/S WG/13  
Appendix B to WP/10

	Length of thunderstorms requiring the issuance of squall line SIGMET	≥ 100 NM
<b>Chennai FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for land areas	≥ 30 NM x 30 NM
	Minimum dimension for ocean areas	≥ 50 NM x 50 NM
<b>Colombo FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for land areas	≤ 30 NM x 30 NM
	Minimum dimension for ocean areas	30 NM x 30 NM
<b>Fukuoka FIR*</b>		
<b>Thunderstorms</b>	Minimum dimension for the approach control areas around congested airports	100 km x 100 km [54 NM x 54 NM]
	Minimum dimension for areas around main air routes in Japan	150 km x 150 km [81 NM x 81 NM]
	Minimum dimension for other oceanic areas	200 km x 200 km [108 NM x 108 NM]
	Length of thunderstorms requiring the issuance of squall line SIGMET	500 km (Length) x 100 km (Width) [270 NM x 54 NM]
<b>Hanoi &amp; Ho Chi Minh FIR*</b>		
<b>Thunderstorms</b>	Minimum dimension for areas within TMA of international airports or over air routes with dense flight operations	100 km x 100 km [54 NM x 54 NM]
	Minimum dimension for other areas	200 km x 200 km [108 NM x 108 NM]
	Length of thunderstorms requiring the issuance of squall line SIGMET	500 km (Length) x 100 km (Width) [270 NM x 54 NM]
<b>Hong Kong FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for SIGMET issuance	60 NM x 60 NM
	Length of thunderstorms requiring the issuance of squall line SIGMET	270 NM (Length) x 54 NM (Width)
<b>Jakarta FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for SIGMET issuance	60 NM x 60 NM
	Minimum separation between two identifiable SIGMET areas	45 NM
	Length of thunderstorms requiring the issuance of squall line SIGMET	270 NM (Length) x 55 NM (Width)
<b>Manila FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for land areas	60 NM x 60 NM
	Minimum dimension for ocean areas	120 NM x 120 NM
<b>Singapore FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for SIGMET issuance	60 NM x 60 NM
<b>Ujung Pandang FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for SIGMET issuance	60 NM x 60 NM
	Minimum separation between two identifiable SIGMET areas	45 NM
	Length of thunderstorms requiring the issuance of squall line SIGMET	270 NM (Length) x 55 NM (Width)

<b>Yangon FIR</b>		
<b>Thunderstorms</b>	Minimum dimension for SIGMET issuance	60 NM x 60 NM

\* Original sizes provided in km. Square brackets are used to provide their corresponding sizes in NM.

2.3 In the consolidation process, it is noted that user surveys were conducted to understand the user preferences on SIGMET issuance. Below is a consolidation of the user preferences on SIGMET issuance in the APAC Region:

2.3.1 Based on the user survey collected during the Hong Kong Observatory (HKO) SIGMET Coordination Workshop ([ICAO MET SG/25 – WP/15](#)) with targeted participants from pilots, air traffic controllers, operational centre personnel, the user preferences on SIGMET issuance were summarized below:

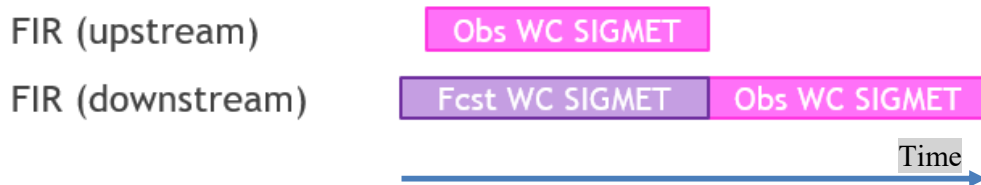
<b>Phenomenon</b>	<b>Issuance criteria</b>	<b>User preference</b>
<b>Thunderstorms</b>	Minimum dimension in Terminal area	30 NM x 30 NM
	Minimum dimension En-route	30 NM x 30 NM
	Minimum gap between two SIGMET areas	60 NM
<b>Turbulence</b>	Horizontal extent based on report	30 NM
	Vertical extent based on report	2000 FT
<b>Icing</b>	Horizontal extent based on report	60 NM
	Vertical extent based on report	4000 FT
	Minimum dimension of an icing area	60 NM x 60 NM

2.4 As a synoptic scale weather system, tropical cyclone (TC) could affect multiple FIRs in its lifespan and would warrant close coordination across multiple MWOs in the issuance of WC SIGMET. Gathering lessons learnt from SIGMET Coordination activities in the APAC Region, a consolidation on the issuance of WC SIGMET across FIR boundaries was summarized below:

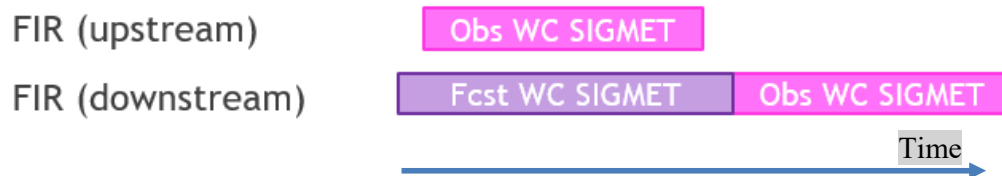
- MWO responsibility for WC SIGMET issuance depends on which FIR the TC center is observed in.
- When handling a TC leaving one's FIR, the MWO concerned is advised to seek confirmation with the neighbouring MWO that they have issued a related observed/forecast WC SIGMET before the lapse of or cancelling the original WC SIGMET. This is to avoid a null period of WC SIGMET for the TC.
- *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 alerting of the threat of TC approach and to facilitate coordination in advance, it is suggested that a forecast WC SIGMET 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 be issued for the expected intensification of the TC inside one's FIR at least 6 hours but no more than 12 hours before the TC is expected to intensify into a tropical storm.

2.4.1 In 2022, gathering experience from various TCs affecting the northern part of South China Sea, the GHKPSV SIGMET Coordination group ([MET/S WG/11 IP/03](#)) and Manila FIR adopted the following guidelines when conducting SIGMET Coordination:

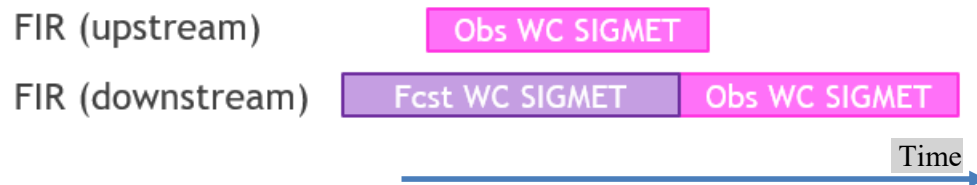
- Upon group member’s request or where situation warrants, the Project Coordinator (HKO) would initiate an ad hoc TC briefing.
- To avoid or minimise null period(s) of WC SIGMETs when a TC with intensity tropical storm or above affect the FIRs under the responsibility of MWOs in the group, cooperative effort will be made to achieve one of the following cases (SIGMETs are illustrated with rectangles marking the start and end valid times of each SIGMET):
- Case 1 (ideal case): Observed WC SIGMET from upstream FIR lapsed immediately succeeded by another Observed WC SIGMET from downstream FIR



- Case 2 (likely to be the most common scenario): Observed WC SIGMET from downstream FIR issued slightly later than the validity end time of the Observed WC SIGMET from upstream FIR with the gap covered by Forecast WC SIGMET from downstream FIR.



- Case 3: Observed WC SIGMET from downstream FIR issued slightly earlier than the validity end time of the Observed WC SIGMET from upstream FIR with a short overlap period of the two WC SIGMETs.



- If a TC with intensity tropical storm or above is expected to move from one FIR to another FIR under the responsibility of MWOs within the group, MWOs 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 between upstream and downstream MWOs.

- Downstream MWO is encouraged to issue “FORECAST” WC SIGMET 6 hours (or at least 3 hours) in advance following the coordination on the time and position of TC crossing the boundary. Downstream MWO is advised to inform upstream MWO their “FORECAST” WC SIGMET being issued via chatroom.
- Upstream MWO is encouraged to inform downstream MWO when TC leaves their FIR via the chatroom before cancelling their “OBSERVED” WC SIGMET. Downstream MWO may then issue “OBSERVED” WC SIGMET to replace their “FORECAST” WC SIGMET when the TC enters their FIR.
- Whenever there are significant changes on the assessment of the time and position of TC crossing the FIR boundary, both upstream and downstream MWOs are encouraged to provide timely updates and carry out further coordination via the chatroom.
- If there are discrepancies in the time and position of TC crossing the FIR boundary expected by upstream and downstream MWOs, both upstream and downstream MWOs may follow their own local practices in handling the WC SIGMETs while ensuring at least one “OBSERVED” or “FORECAST” WC SIGMET is valid.

2.4.2 CSI project member States are adopted following TC SIGMET handover procedure at the CSI Workshop held in January 2021, other than that mentioned in 2.4 (MET/S WG/11 IP/05):

- 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 the MWO, responsible for the FIR from which a TC is moving out (referred to here as “MWO A” and “FIR A” (see Figure 1)), ends the related WC SIGMET updating or cancel the existing WC SIGMET?; and
  - when will the adjacent MWO, responsible for the FIR into which a TC is moving in (referred to here as “MWO B” and “FIR B” (see Figure 1)), starts the issuance of the related WC SIGMET?

Both MWOs should coordinate WC SIGMET issuance scheduling as necessary.

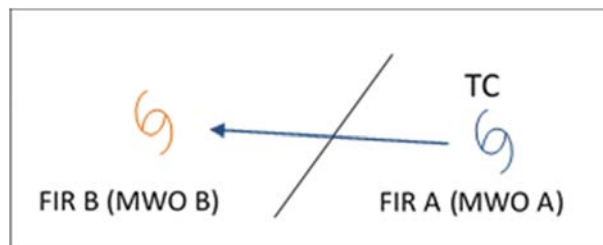


Figure 1. TC moving from FIR A to FIR B

- WC SIGMET-issuing MWO:

- MWO A should consider itself no longer responsible for the WC SIGMET issuance if the observed TC center is located outside FIR A, and should cease to update related WC SIGMETs thereafter.
- MWO B should take the responsibility for the issuance if the observed center is located within the 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 till the end of validity period of the WC SIGMET issued by MWO A or cancel the existing WC SIGMET after MWO B is confirmed to have issued a related OBS or FCST WC SIGMET and the TC center has already crossed the boundary.
- 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.

~~MWOs with other local issuance practice for WC SIGMET across FIR boundaries are welcome to supplement inputs on the above.~~

### 3. Meaning of “Consensus”

3.1 A common understanding of what constitutes consensus can help focus consultation efforts to ensure consensus can be arrived. In this regard, Section 13 of Appendix L, Asia/Pacific Regional SIGMET Guide indicates that it may be necessary to identify indicators of consensus, which should form part of the preliminary requirements as agreed by the participating MWOs. A consolidation of the maximum acceptable difference between WS SIGMETs across FIRs from various SIGMET Coordination activities and workshops were given below:

3.1.1 JMA as a CSI member State conducted a survey for airlines about the acceptable difference of SIGMETs issued by neighbouring MWOs ([MET SG/24 WP/14](#)) and proposed a draft guideline of acceptable difference as follows:

WS SIGMET – Thunderstorms	Maximum acceptable difference across FIRs
Cloud top height	≤ 5000 FT (≤ 2000 FT at cruising altitude, viz. FL300 – FL400 desirable)
Movement direction	≤ 90 degree (≤ 45 degree desirable)

3.1.2 HKO conducted a survey during the HKO SIGMET Coordination Workshop ([ICAO MET SG/25 – WP/15](#)) with targeted participants from pilots, air traffic controllers, operational centre personnel, the maximum acceptable difference between SIGMETs across FIRs were as follows:

	User preference	MWO practice
WS SIGMET – thunderstorms		

• Cloud top height	≤4000 FT	≤4000 FT
• Movement speed	≤10 KT	≤5 KT
• Movement direction	≤45 degree	≤45 degree
<b>WS SIGMET – turbulence</b>		
• Height level	≤2000 FT	Spread between 1000 – 5000 FT
<b>WS SIGMET – icing</b>		
• Height level	≤2000 FT	≤4000 FT

Note: There is greater difficulty in arriving a consensus view of the height of turbulence and icing with a more stringent criterion from user’s expectation.

3.1.3 Noting the outcome from 3.1.2, the GHKPSV SIGMET Coordination group ([MET/S WG/11 IP/03](#)) and SSEA SIGMET Coordination ([MET/S WG/11 – IP/04](#)) have adopted the following objective criteria as reference when conducting SIGMET Coordination:

<b>WS SIGMET – Thunderstorms</b>	Acceptable difference across FIRs
Cloud top height	≤4000 FT
Movement speed	≤10 KT
Movement direction	≤45 degree
<b>WS SIGMET – Turbulence</b>	
Height level	≤2000 FT
<b>WS SIGMET – Icing</b>	
Height level	≤2000 FT

#### 4. Conclusion

4.1 SIGMET Coordination projects and initiatives have enhanced technical discussions among MWOs. Related workshops and user surveys conducted have further allowed the consolidation of practices across the APAC Region. This document serves as a reference for all MWOs participating in SIGMET Coordination activities in the Region. Inputs and updates from MWOs are welcome for a more comprehensive summary of the current practices adopted by various FIRs and development of an updated guidance for enhancement of SIGMET Coordination activities in the Region.

**For updates on the consolidation document, please contact Ms Christy Leung ([yyleung@hko.gov.hk](mailto:yyleung@hko.gov.hk)), Ms Michiko Ikeda ([michi-ikeda@met.kishou.go.jp](mailto:michi-ikeda@met.kishou.go.jp)) or Mr Goh Wee Poh ([GOH\\_Wee\\_Poh@nea.gov.sg](mailto:GOH_Wee_Poh@nea.gov.sg)).**

\*Proposed changes since MET SG/26 held in August 2022 are highlighted in grey or strikethrough.