



International Civil Aviation Organization

**EIGHTEENTH MEETING OF THE METEOROLOGY
SUB-GROUP (MET SG/18) OF APANPIRG**

ICAO Regional Sub-Office, Beijing, China
18 – 21 August 2014

Agenda Item 7: Research, development and implementation issues in the MET field

7.4 Advisories and warnings

REGIONAL ADVISORY SYSTEM IN ASIA AND PACIFIC REGIONS

(Presented by Japan)

SUMMARY

This paper presents summary of discussion on regional hazardous weather advisory framework at the ICAO MET Divisional Meeting 2014 and discuss importance of expeditious implementation of the framework in Asia and Pacific Region, with suggesting development of transparent and fair designation procedures.

1. Introduction

1.1 ICAO MET Divisional Meeting (MET/14) was held at ICAO headquarters in Montreal, from 9 through 18 July 2014, with 311 participants from 95 States and 7 international organizations. The meeting discussed the roadmap of the establishment of regional advisory system for select en-route hazardous meteorological conditions. The Yellow Cover Reports are available at the MET/14 website (<http://www.icao.int/Meetings/METDIV14/Pages/YellowCoverReport.aspx>).

1.2 The meeting agreed that it was important to assist States with difficulties in issuing SIGMETs and also recognized that there has been a long-standing and keen requirement from users like international operators. Finally, the meeting endorsed following recommendation;

Recommendation 2/9 – Implementation of a regional advisory system for select en-route hazardous meteorological conditions

That an appropriate ICAO expert group, in close coordination with WMO, be tasked to:

- a) expeditiously develop provisions supporting the implementation of a phenomenon-based regional advisory system for select en-route hazardous meteorological conditions consistent with the evolving Global Air Navigation

Plan (Doc 9750), in considering user's long-standing requirements, especially in those States where notable SIGMET-related deficiencies persist using, as appropriate, the strategic, governance and cost-recovery assessments provided in Appendices D and E;

- b) integrate the information produced by the referred system into the future system-wide information management environment underpinning the future globally interoperable air traffic management system; and
- c) develop appropriate guidance material to support the selection criteria of regional hazardous weather advisory centres taking account of cost-effectiveness, the processes for the preparation and dissemination of the advisory information, mutual cooperation, sustainability of the existing meteorological infrastructure and use of local expertise.

Note. – Select hazardous meteorological conditions in this context includes, as a minimum, thunderstorms, icing, turbulence, and mountain waves, but excludes volcanic ash and tropical cyclones.

1.3 In accordance with above discussion at the MET/14 meeting, in the Asia and Pacific Region, it is necessary to establish such regional advisory system as quickly as possible to fulfill the users' requirement and to facilitate the improvement of this lack of important information for the safety and efficiency of aircraft operation.

2. Historical Background

2.1 In order to address the current situation in which some States cannot afford to issue appropriate SIGMET messages, the ICAO Meteorological Warnings Study Group (METWSG) initially considered the establishment of regional SIGMET advisory centres (RSACs). Although a general improvement in SIGMET issuance was reported during advisory trials conducted in the Asia and Africa regions in 2011, some meteorological watch offices were still unable to issue SIGMET messages. These results indicated the existence of other difficulties that cannot simply be resolved by providing technical assistance. Meanwhile, at the fourth METWSG meeting held in 2011, the group heard that trials had also been conducted in Europe for the issuance of SIGMET-related information on a regional basis beyond the boundaries of flight information regions (FIRs). The latter trials highlighted the importance of regional collaborative framework to provide phenomenon-based information transcending these boundaries.

2.2 In 2013, it was agreed at the fifth METWSG meeting that the group, through the ICAO Secretariat, would propose considering the implementation of regional hazardous weather advisory centres (RHWACs) for future issuance of hazardous weather information on a regional basis. The strategy for the establishment of RHWACs was proposed in WP/6|Doc. 6 of MET/14 as regional hubs issuing advisory messages for select en-route hazardous meteorological conditions including thunderstorms, icing, turbulence and mountain waves. In the schedule suggested in WP/6|Doc. 6, Appendix B, RHWAC operation will begin in Phase One (2014–2017), TCAC/VAAC operations may be integrated into those of RHWACs in Phase Two (2017–2020), and the number of RHWACs may then be reduced to leave a limited number of global centres in Phase Three (2020–2024).

2.3 In the Asia and Pacific Region, where volcanic ash, tropical cyclones, significant cumulonimbi (CBs) and other hazardous weather phenomena relatively often occur throughout the year, requirements for such regionally based weather information are quite high in relation to international airliners. Considering the recent rise in the volume of air traffic in this region, a framework for hazardous weather information issuance on a regional (non-FIR) basis needs to be established as soon as possible.

3. Discussion

3.1 In the APAC Region, there are a variety of hazardous weather conditions such as turbulence associated with the active convective phenomena around equator and in ITCZ, and icing around CBs. And also, recently number of aircraft flying in the Region is getting larger than those in Europe and the United States. Under such circumstances, it is obvious that the lack of en-route hazardous weather information must be very significant problem. Therefore it is required to provide users phenomenon-based (non-FIR based) information.

3.2 As indicated by the result of the SIGMET test, it is true that there are many States which has difficulties in issuing SIGMETs in this region. Various efforts and assistance, such as SIMGET Seminar and technical bilateral agreements, had been provided to such States, however, as discussed above, quick resolution will not be achieved from those conventional approaches.

3.3 Therefore, it will be useful to establish regional center(s) which provides hazardous weather advisory information to complement the lack of information. And also, such advisory will help those States which has capability of issuing SIGMETs improve accuracy of their SIGMETs. In this context, the same information provision framework as existing regional advisory system like VAAC and TCAC can be considered reasonable, which allows States issue their own SIGMET with referring to advisories.

3.4 On the other hand, in order to operate such a regional center, it should be very important to maintain not only technical capability but also human resources and adequate cost-recovery framework. In terms of cost-recovery, in the discussion at the MET/14, some users suggested that it will have to be carefully considered to charge them additional cost. In fact, to establish globally (or regionally) agreed cost-recovery framework can take long time. Therefore, it is suggested that it will be the most effective and efficient to utilize existing operational capability as VAACs and TCACs fully in order to expeditiously fulfill users' needs and ensure safety and efficiency of aircraft operation, instead of spending additional five or more years just to wait for the establishment of cost recovery system.

4. Conclusion

4.1 Considering discussion above, the group may consider endorsement of the following draft conclusion.

Draft Conclusion 18/x – Establishment of regional hazardous weather advisory system, including procedures for the selection of RHWACs

In order to address the lack and inconsistency of meteorological information for en-route hazardous meteorological conditions, ICAO APAC regional office, in careful consideration of long-standing requirements from users for the phenomenon-based information, is invited to:

- a) expeditiously establish regional hazardous weather advisory system with utilizing existing operational capability and resources; and
- b) develop transparent and fair procedures for the selection of regional hazardous weather advisory center(s) (RHWACs) in Asia and Pacific Region based on the Attachment 1 of this paper, considering possible inclusion to the global guidance material.

Note – all of the above actions are required to reflect the spirit of the draft recommendation 2/9 of the ICAO MET Divisional Meeting 2014.

5. Action by the Meeting

5.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) consider the adoption of the draft recommendation proposed in 4.1 of this paper.
- c) discuss any relevant matters as appropriate.

Attachment 1

Draft Procedures for Selection of Regional Hazardous Weather Advisory Centre in the Asia and Pacific Region

For the establishment of Regional Hazardous Weather Advisory Centre(s) (RHWACs) to ensure the safety and efficiency of aircraft operations in the Asia and Pacific Region, in terms of the designation of State(s) providing services of RHWAC and determination of areas of responsibility (AOR), below principles, technical requirements and conditions shall be considered.

- 1 Basic principles
 - 1.1 respect benefits to aviation users, such as airliners, as much as possible
 - 1.2 ensure maximum cost-effectiveness
 - 1.3 ensure the provision of accurate advisory information
 - 1.4 ensure sustainable operations of centre operations
 - 1.5 coordinate effectively with States in the AOR and other RHWACs
- 2 Technical requirements
 - 2.1 high accurate numerical prediction model and its operational experience
 - 2.2 precise meteorological satellite data and its operational experience
 - 2.3 accurate forecast and analysis technique for extensive area
 - 2.4 dedicated system for meteorological data acquisition and dissemination
 - 2.5 international collaboration and coordination and its experience
 - 2.6 verification techniques for en-route hazardous weather information
 - 2.7 technical support and training for States in AOR and its experience
 - 2.8 capability and resources for sustainable operations of regional centre services
- 3 When multiple candidates are existed, the number of centres and the allocation of responsibility areas shall be determined, considering below conditions.
 - 3.1 geographical distribution of international air traffic flow
 - 3.2 operational experience of regional centre services (e.g. VAAC, TCAC)
 - 3.3 precise forecast and analysis techniques for extensive area