

International Civil Aviation Organization

ICAO

WORKING PAPER (WP/20)

ICAO ASIA AND PACIFIC (APAC)
THIRTIETH MEETING OF THE METEOROLOGY
SUB-GROUP (MET SG/30)

Bangkok, Thailand, 20 - 24 July 2026

Agenda Item 8: Research, Development and Other Initiatives**HAZARDOUS WEATHER INFORMATION SERVICE (HWIS)
SOUTHERN TRIAL**

(Presented by Hong Kong, China)

SUMMARY

This paper presents the outcomes of the 2025-1 and 2026-1 Hazardous Weather Information Service (HWIS) southern trial, involving a number of Meteorological Watch Offices across the Asia-Pacific Region. Interested States and Administrations from the Asia-Pacific Region are welcome to participate in future trials.

1. INTRODUCTION

1.1 The ICAO Meteorology Panel is promoting the transition of the supply of aeronautical meteorological information to SWIM-enabled information services. The Working Group on Meteorological Requirements and Development (WG-MRAD) is developing the requirements and provisions for Hazardous Weather Information Service (HWIS) of en-route meteorological conditions based on Job Card METP.007.4. Initially, HWIS would include information on Cumulonimbus (CB) clouds, icing and turbulence, with future expansions planned to cover additional hazardous weather phenomena. HWIS will primarily focus on the nowcast timescales from T+0 to T+6 hours.

***Job Card METP.007.04** - Develop provisions for a phenomena-based, globally consistent, hazardous weather information service for select en-route meteorological conditions.*

1.2 To validate and verify the developed requirements of HWIS and to assess its operational feasibility, a trial and demonstration phase spanning from 2025 to 2030 is planned, with the set-up of an ad hoc group on HWIS trial to oversee the related activities.

1.3 China has actively participated in the ad hoc group on HWIS trial and has organised two trials in the Asia-Pacific Region in 2025 and 2026, named “2025-1” and “2026-1”. The findings have been reported back to the ad hoc group on HWIS trial and to the WG-MRAD, serving as inputs for drafting the related HWIS Standards and Recommended Practices (SARPs) for ICAO Annex 3 and PANS-MET. In each trial, there are two sub-trials covering two geographically distinct areas within the Region. The northern sub-trial was led by the Aviation Meteorological Center (AMC) of the Air Traffic Management Bureau (ATMB) under the Civil Aviation Administration of China (CAAC). The southern sub-trial, covering the South China Sea, was led by Hong Kong Observatory (HKO). The products from both sub-trials are integrated during the final stage.

1.4 This paper shares the outcomes of the 2025-1 and 2026-1 HWIS southern trials, led by HKO, and invites interested States and Administrations from the Asia-Pacific to participate in future trials.

2. DISCUSSION

2025-1 HWIS southern trial over the South China Sea

2.1 The southern sub-trial over the South China Sea was organized and hosted by HKO on 24 September 2025 for a past case on CB cloud forecast. The participants included forecasters from China (Sanya FIR), Hong Kong China (Hong Kong FIR), Singapore (Singapore FIR), Thailand (Bangkok FIR) and Vietnam (Hanoi and Ho Chi Minh FIR).

2.2 The planning of the southern sub-trial started in July 2025. Pre-trial briefings and trial platform training sessions were conducted in August 2025, and the trial execution and debriefing sessions were held in September 2025. The host developed a trial platform to facilitate the trial execution, which provided comprehensive meteorological data visualisation and collaboration capabilities. Participants were invited to submit their automatic nowcast data products for CB clouds to aid the formulation of HWIS product.

2.3 The trial followed an operational timeline. Forecasters worked on a common platform to produce and visualise their contributions on HWIS products. Nowcasting products from some of the participants were collected (in a common data format) and imported onto the trial platform for display. Forecasters could choose how they make the contributions, either based on the available sources of meteorological data, or manually draw the hazard weather polygons. Forecasts of three timesteps (issued at 03, 06 and 09Z) were formulated and integrated for forecast hours of T+1 to T+6 (viz. 04-09Z, 07-12Z, 10-18Z respectively). A feedback survey was filled out by the participants, with some issues identified (e.g. harmonization of information across FIRs, sovereignty issue when multiple information is available, internet connection). The timeliness and workflow of HWIS production was also tested.

2.4 Seven recommendations on sovereignty, harmonization guidelines and methodology, update frequency, knowledge sharing and effectiveness of a dedicated platform was concluded and submitted to WG-MRAD for consideration.

2026-1 HWIS southern trial over the South China Sea

2.5 Following the successful implementation of the 2025-1 HWIS trial, and to conduct further trial on the various aspects of the latest HWIS requirements, a HWIS trial (named “2026-1 HWIS Trial”) was conducted in 2026. The southern sub-trial over the South China Sea was organized and hosted by HKO during March to April 2026 on two past cases on CB analysis and forecast and one past case on icing forecast. The participants are similar to the 2025-1 HWIS southern trial, with the addition of forecasters from China (Guangzhou FIR).

2.6 The planning of the southern sub-trial started in February 2026. Pre-trial briefing, technical specifications meeting and online contributing session were conducted in 5, 12 and 23 March 2026 respectively. All the data contributions (CB analysis, CB forecast and icing forecast) submitted by the participants were collected by end of March 2026 following the latest requirement of HWIS. The analysis and review meeting was conducted on 14 April 2026. To support manual contribution of HWIS products by some of the contributors, the host has enhanced the trial platform to facilitate their contribution, which provided comprehensive meteorological data visualisation.

2.7 The trial tested two different harmonisation methodologies and the algorithms are evaluated via the trial platform during the analysis and review meeting. Participants' feedback and observations were received and discussed.

2.8 Six recommendations on local/regional input, different HWIS format requirements, forecast intervals, analysis timescales, harmonization methodology and effectiveness of a dedicated platform was formulated and submitted to WG-MRAD for consideration.

Conclusion and Recommendation

2.9 The Hazardous Weather Information Service (HWIS) represents a new global initiative for the provision of en-route hazardous weather information. To ensure the successful implementation of this global service, it is essential that HWIS aligns with regional measures managed by the Planning and Implementation Regional Groups (PIRGs). This convergence ensures that global decision-making is informed by regional operational realities to enhance service functionality and operational effectiveness. Consequently, the meeting is invited to encourage interested States/Administrations to engage with the relevant trial leads to take part in future HWIS trials within the Region.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) encourage interested States/Administrations to participate and contribute in future HWIS trials.
