International Civil Aviation Organization

INFORMATION PAPER (IP/09)

Asia and Pacific (APAC)
Fourteenth Meeting of the Meteorological Requirements Working Group (MET/R WG/14)

Bangkok, Thailand 28 April – 2 May 2025

Agenda Item 4: SIGMET Coordination

DEVELOPMENT OF CB NOWCAST

(Presented by Japan)

SUMMARY

This paper presents Cumulonimbus (CB) Nowcasts as a new en-route weather information being developed by the Japan Meteorological Agency (JMA).

1. INTRODUCTION

1.1 The Japan Meteorological Agency (JMA) has provided Himawari-8/9 derived Convective Cloud Information (CCI) since July 2015 for aviation safety and effective air traffic control. The Information contains rapidly developing cumulus areas (RDCA), cumulonimbus areas (CBA), and dense anvil cirrus areas (mid-/low-cloud unknown areas, or MLUA). CCI for the Japan area is available on the JMA public website (in Japanese). The note from JMA Meteorological Satellite Center, the *Convective Cloud Information derived from Himawari-8 data*, provides technical details.

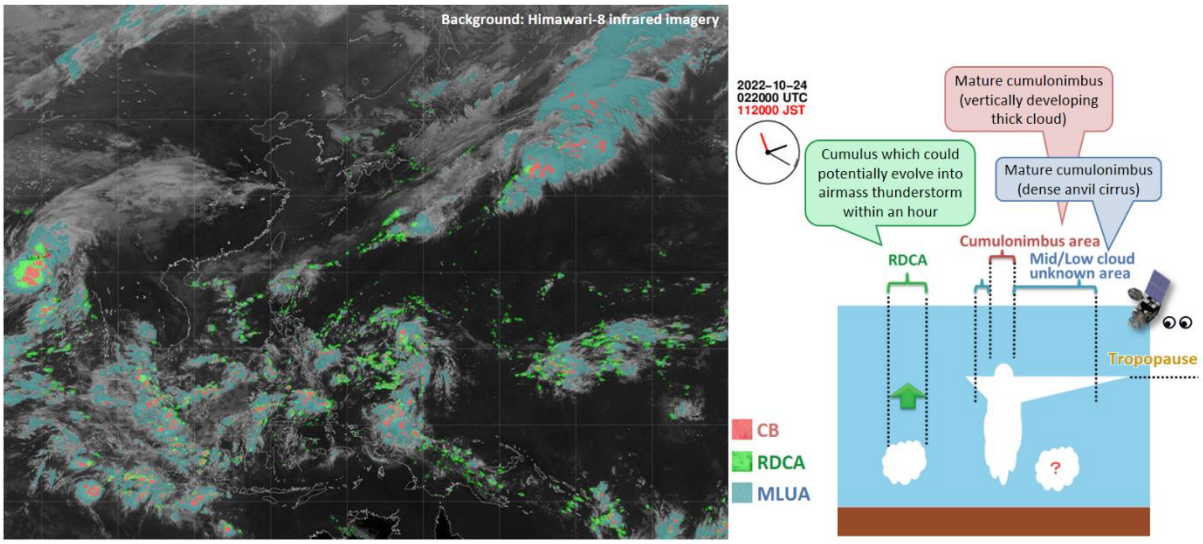

Fig. 1 Convective Cloud Information (CCI)

1.2 The Rapidly Developing Cumulus Area (RDCA) determination program is undergoing localization via bilateral cooperation with the Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG), and via collaboration under the ESCAP/WMO Typhoon Committee Project. The collaboration is performed in partnership with the Malaysian Meteorological Department (METMalaysia), the Meteorological Service Singapore (MSS), the Thai Meteorological Department (TMD) and the Vietnam Meteorological and Hydrological Administration (VNMHA).

1.3 Meanwhile, there has been a requirement to provide short-term CB forecasts in addition to RDCA as it does not show when it will be matured. The CB Nowcast has been developed to answer such request. As reported in MET SG/27 – IP/05, the information has been available on JMA SIGMET coordination platform (as of June 2023).

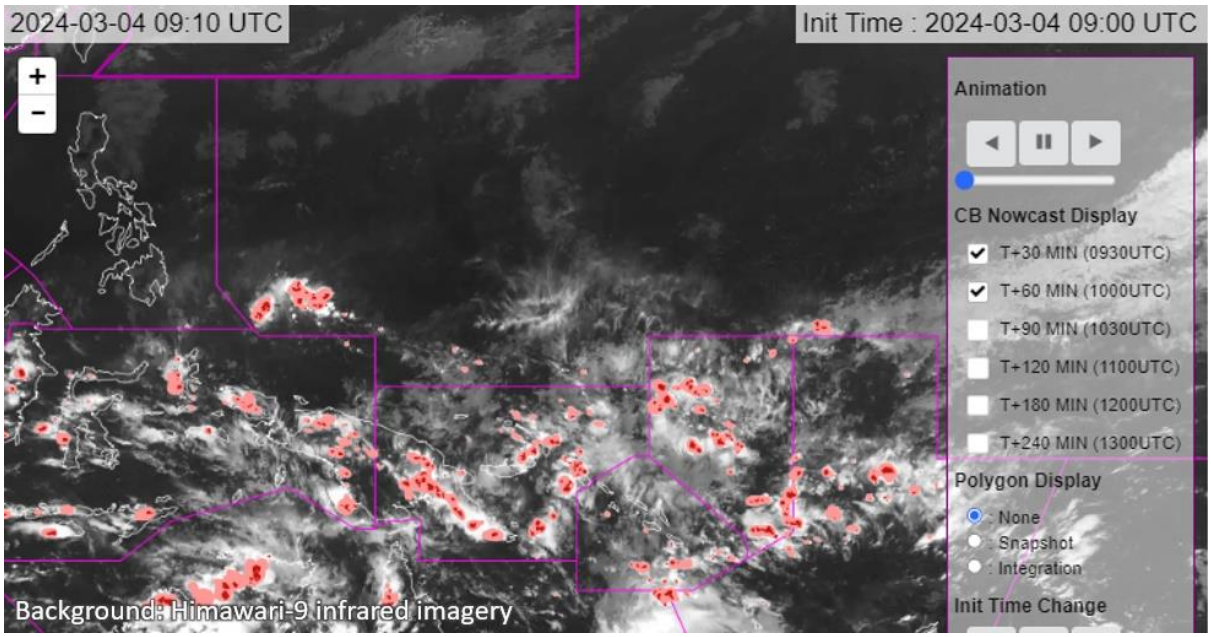

Fig. 2 CB Nowcast on the SIGMET coordination platform
Red and pink: actual CB areas derived from current Himawari-9 imagery at 9:10 UTC, and CB forecast areas for 9:30 and 10:00 UTC, respectively.

2. DISCUSSION

CB Nowcast Technical Specifications

2.1 Details

Coverage:	Asia/Western Pacific
Update frequency:	10 min.
Horizontal resolution:	0.04°
Vertical resolution:	FL010 (for cloud tops)
Temporal resolution:	10 min. (up to T + 4 h)

2.2 Before moving into the operational phase, JMA is currently scrutinizing optimal specifications in relation to the relevant informational platform/format, latency (including details of visualization and delivery), user requirements, and other factors.

CB Nowcast Potential

2.3 The provisional Nowcasts introduced in June 2023 indicate the movement, expanse and development of CB clouds to facilitate decisions on SIGMET production and coordination.

2.4 The fully automated and frequently updated CB information is intended to greatly clarify en-route weather conditions and be particularly useful with integration into the ATM system. For example, Nowcasts may be provided as SWIM information and processed along with digitized data on flights, airspace, aerodromes and meteorological factors for ongoing computation of optimal flight paths during all phases of the flights.

2.5 JMA keeps cooperating with the Japan Civil Aviation Bureau (JCAB), airlines on Japan-related routes, neighboring meteorological service providers and other relevant parties for safe, efficient and sustainable flight operations.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper.

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