Enhanced capabilities in Aviation Thunderstorm Nowcast System

Hong Kong, China

ICAO APAC MET/R WG/9 --- IP/04

Agenda Item 4: MET information required to support end-user system

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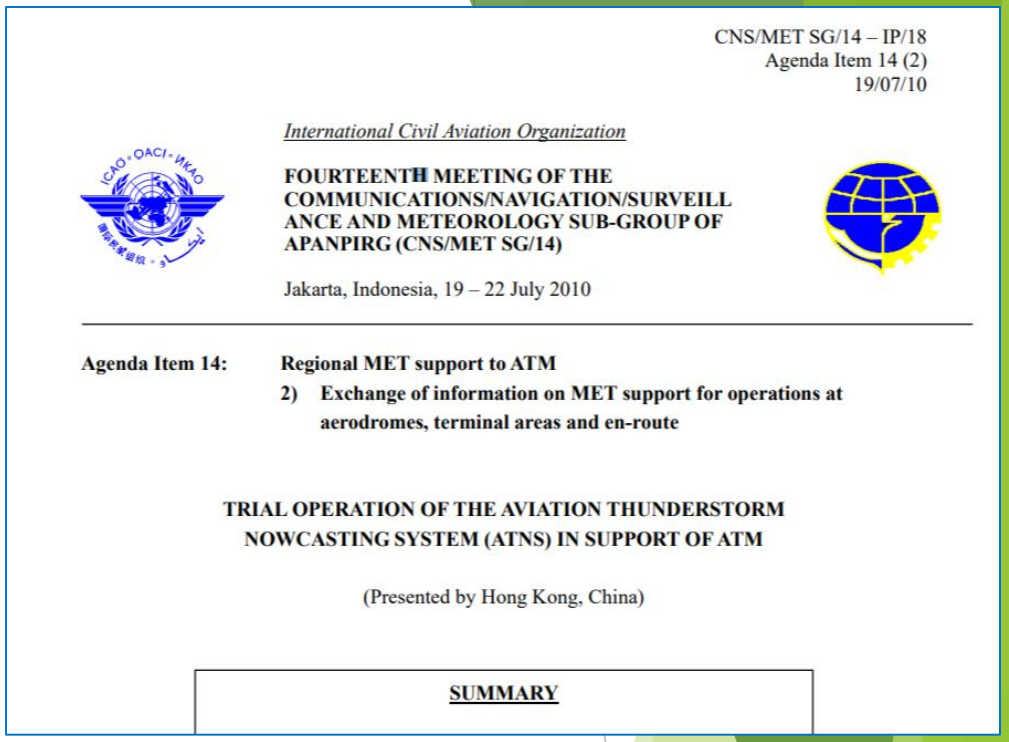
Introduction

- Aviation Thunderstorm Nowcast System (ATNS)
  - A weather radar-based nowcasting system
  - Automatic tracking of past movement of radar echoes and Semi-Lagrangian scheme
  - Updated rapidly every 6 minutes
  - Forecast echoes at 6 minute time steps
- Goal: Assist with the tactical decision making for ATC
- Enhancements were made in 2019 after consulting with the ATM users



CNS/MET SG/14 – IP/18
Agenda Item 14 (2)
19/07/10

International Civil Aviation Organization

FOURTEENTH MEETING OF THE COMMUNICATIONS/NAVIGATION/SURVEILLANCE AND METEOROLOGY SUB-GROUP OF APANPIRG (CNS/MET SG/14)

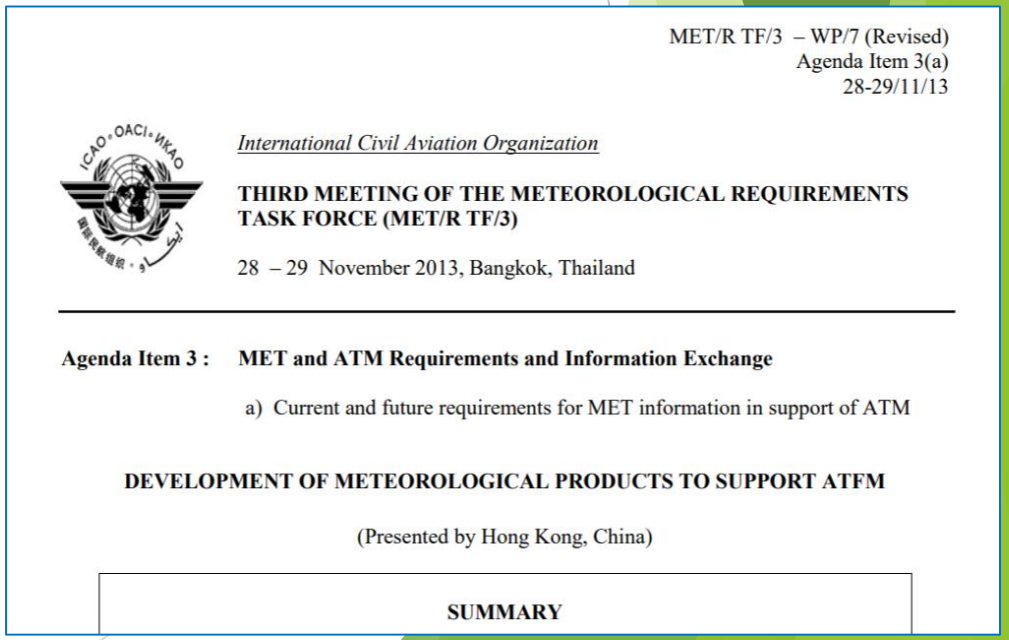
Jakarta, Indonesia, 19 – 22 July 2010

Agenda Item 14: **Regional MET support to ATM**
2) Exchange of information on MET support for operations at aerodromes, terminal areas and en-route

TRIAL OPERATION OF THE AVIATION THUNDERSTORM NOWCASTING SYSTEM (ATNS) IN SUPPORT OF ATM

(Presented by Hong Kong, China)

SUMMARY



MET/R TF/3 – WP/7 (Revised)
Agenda Item 3(a)
28-29/11/13

International Civil Aviation Organization

THIRD MEETING OF THE METEOROLOGICAL REQUIREMENTS TASK FORCE (MET/R TF/3)

28 – 29 November 2013, Bangkok, Thailand

Agenda Item 3 : **MET and ATM Requirements and Information Exchange**

a) Current and future requirements for MET information in support of ATM

DEVELOPMENT OF METEOROLOGICAL PRODUCTS TO SUPPORT ATFM

(Presented by Hong Kong, China)

SUMMARY

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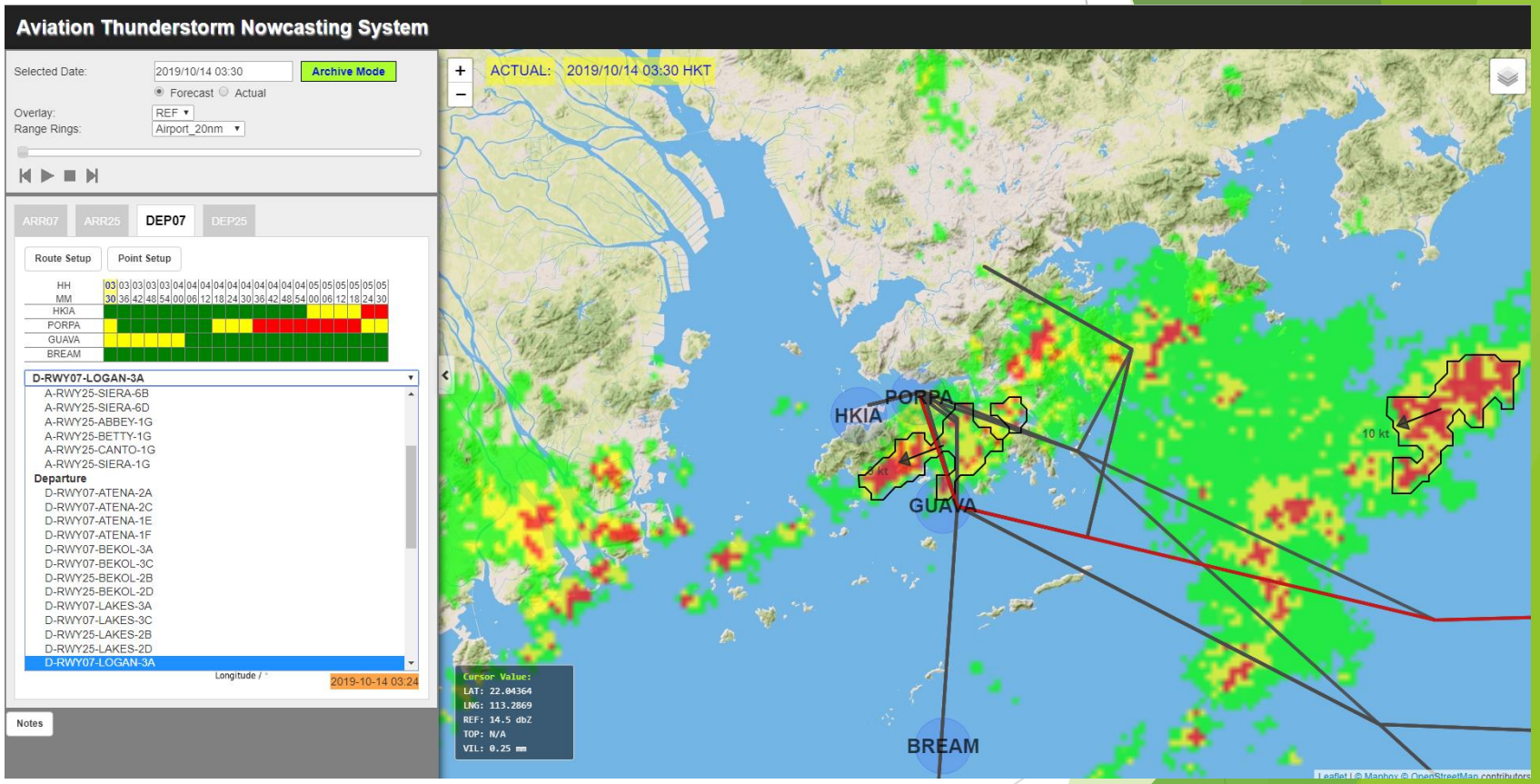
Extended forecast validity period

- Increase forecast validity period from 60 minutes to 120 minutes
- Radar reflectivity at 3km (CAPPI 3km)
- Rapid update allows ATM users to keep abreast of the latest development



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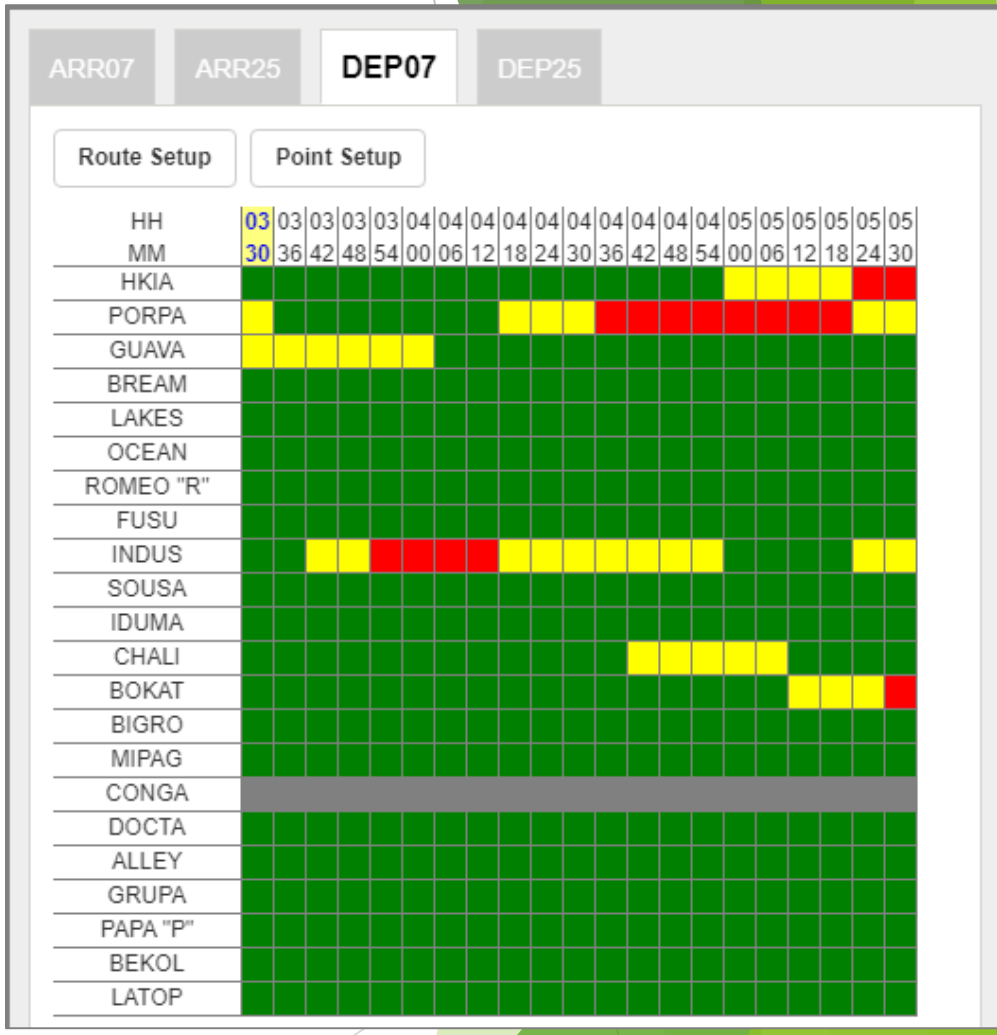
Customized display of impact at significant way-points and arrival/departure routes

- Added customization function for ATM users to configure
  - Way points
  - Holding points
  - Arrival routes (Standard Terminal Arrival, STAR)
  - Departure routes (Standard Instrument Departure, SID)
- Overlaid on actual/forecast radar imageries
- Concise graphical depiction of when and where thunderstorms would impact way-points/routes under different runway configurations
- Time series alert indicates the severity of thunderstorms and the degree of impact to air traffic using three levels of colours



Threshold chosen to align on the result of a study on aircraft weather avoidance to significant convection

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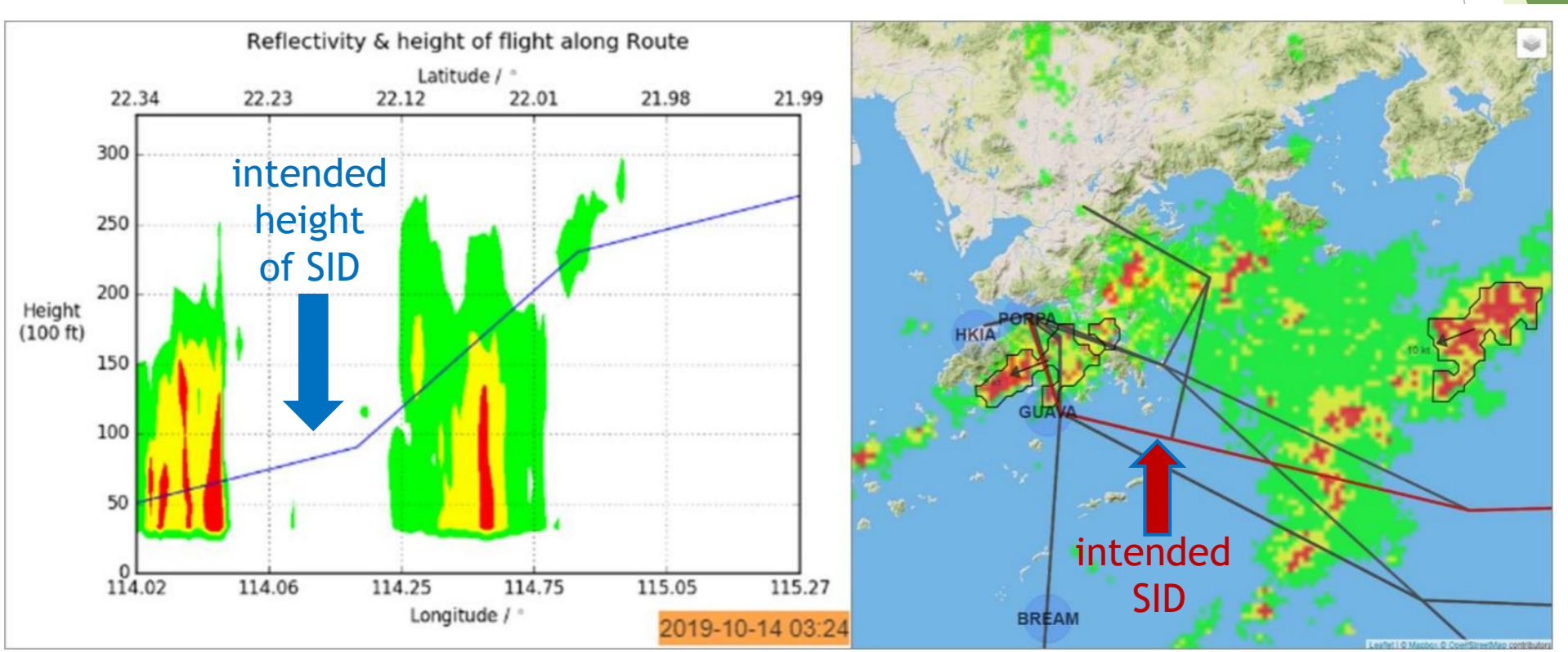
Radar vertical cross section

- Enhanced with vertical cross section of actual radar reflectivity
- Allow ATC to better assess the depth of thunderstorms and whether they would affect the standard height of the flight along the intended route and for appropriate flight level to deviate as necessary for safety concerns



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Thank you for your attention!

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