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TWELFTH AIR NAVIGATION CONFERENCE

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Agenda Item 4: Optimum capacity and efficiency – through global collaborative ATM
4.3: Enhanced operational decision-making through integrated meteorological information

CASE STUDY OF ATM CONTRIBUTED BY THE AIR TRAFFIC METEOROLOGY CENTER (ATMetC)

(Presented by Japan)

SUMMARY

The Japan Meteorological Agency (JMA) established Air Traffic Meteorology Center (ATMetC) for the purpose of supporting the Air Traffic Management Center (ATMC) of the Japan Civil Aviation Bureau (JCAB).

ATMetC supports ATMC by briefings with appropriate timing using some meteorological products. This paper introduces the case study when briefings and products by ATMetC has contributed to the air traffic management.

1. INTRODUCTION

1.1 Air Traffic Meteorology Center (ATMetC) of the Japan Meteorological Agency (JMA) was founded in the same place as Air Traffic Management Center (ATMC) of the Japan Civil Aviation Bureau (JCAB) to support the ATM operation in close coordination. Forecasters of ATMetC are working in the joint operation room of ATMC and doing collaborative decision-making (CDM) with ATMC officers at all times (see Figure 1). This CDM enables ATMetC and ATMC to share information on meteorological conditions which may affect the air traffic speedy and smoothly.

1.2 ATMetC supports ATMC by briefings with appropriate timing using some meteorological products described in IP/51 and IP/55. This paper describes the real case study on 10 May 2012.

Figure 1. Joint operation room

2. METEOROLOGICAL CONDITIONS ON 10 MAY 2012

2.1 A cold vortex with very strong upper cold air covered the Kanto region (around Tokyo) and the atmosphere was very unstable. Therefore the possibility of severe weather caused by cumulonimbus was high.

2.2 Some cumulonimbus cloud systems were observed on the inland area from west to north of Tokyo International Airport (hereafter RJTT) around 04UTC. The systems moved to east-southeast and TS OHD (thunderstorm overhead) was observed at RJTT from 05 to 06 UTC and microburst was also observed around the airport (See Figure 2). As a result, landing and takeoff at RJTT were impossible from 0510 to 0530 UTC. The systems moved to east and finished passing the premise of RJTT at 0617UTC.

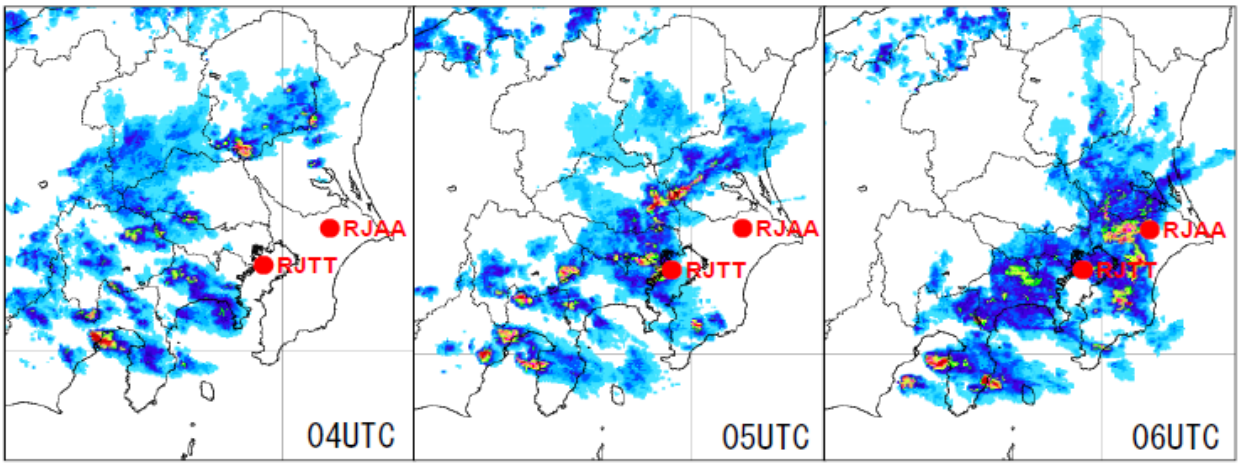

Figure 2. Observed 1 hourly precipitation from 04UTC to 06UTC

3. WEATHER FORECAST AND BRIEFING

3.1 At the time of around 00 UTC, the forecast indicated that thunderstorm would affect the air traffic at RJTT from 04 to 06 UTC (the ATMetC category forecast issued at 00UTC is shown in Figure 3). ATMetC explained in detail about this forecast to ATMC officers at the fixed-time briefing at 2200 UTC on 9th. ATMetC also explained at the fixed-time briefing at 2315 UTC on 9th that there is possibility of TS OHD at RJTT.

3.2 At the time of around 03 UTC, the forecasters modified the expected time of thunder storm to 05 - 07 UTC (See Figure 4) from actual condition. ATMetC immediately made extra-briefing and continued to make extra-briefing as the situation changed. ATMetC explained at 0451 UTC that TS was observed 10km west of RJTT and at 0506 UTC that TS OHD was observed at RJTT. ATMetC also informed at 0535 UTC that the influence of the bad weather at RJTT still remained but had passed the peak.

4. ACTION TAKEN BY ATMC

4.1 The air traffic capacity around RJTT was controlled along the forecast. From 05 UTC, the capacity decreased step by step. After the peak of severe weather passed, the capacity increased gradually. Though EDCT (expected departure clearance time) control was carried out, ground stop control was not conducted.

5. COMMENT TO ATMETC BY ATMC

5.1 ATMC officer gave comments regarding to the forecast provided by ATMetC in this case as indicated below.

5.2 By utilizing the fixed-time and extra briefing, the air traffic was controlled based on the forecast. Therefore it seemed that the load of ATM was not very large. Also, ATMC officers could decide to take measures of the enhancement of EDCT control to optional airplane manually instead of Ground Stop control thanks to the prompt briefing about the peak of thunderstorm.

6. SUMMARY AND CONCLUSIONS

6.1 ATMetC supports the operation of ATMC by briefings with appropriate timing using some meteorological products. In this case, briefings and products by ATMetC contributed to the efficient air traffic management as described in this paper.

6.2 The Conference is invited to note the information in this paper.

Figure 3. Air traffic meteorological category forecast at 00 UTC on 10 May 2012.

Figure 4. Air traffic meteorological category forecast at 03 UTC on 10 May 2012.

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