International Civil Aviation Organization

FIFTH MEETING OF THE ASIA/PACIFIC METEOROLOGICAL REQUIREMENTS WORKING GROUP (MET/R WG/5) OF THE ASIA/PACIFIC AIR NAVIGATION PLANNING AND MPLEMENTATION REGIONAL GROUP (APANPIRG)

Bangkok, Thailand, 19 – 21 April 2016

Agenda Item 4: MET information required to support end user systems

PROVISION OF FLIGHT-SPECIFIC SIGMETS BASED ON FILED ICAO FLIGHT PLANS

(Presented by Hong Kong, China)

SUMMARY

This paper presents information regarding the provision of flight-specific SIGMETs by the Hong Kong, China, for each flight departing from the Hong Kong International Airport using the filed ICAO flight plans. This new service provides an example of addressing user needs raised by the airline dispatchers and pilots through regular liaisons. This paper also discusses the need of pilots for air-reports to confirm or otherwise the hazardous weather phenomenon contained in SIGMET.

1. INTRODUCTION

1.1 SIGMET messages are only valid for four to six hours, and they could be issued, cancelled or updated at any time. This meant the SIGMET messages in the flight documentation would have long expired towards the end of a long haul flight. Through regular liaisons with airline dispatchers and pilots, pilots have expressed the need for updates on the SIGMET information for the remaining part of their flight. As pilots, once airborne, have no means to know if a SIGMET has newly been issued, the responsibility to pass on the SIGMET information may rest with the dispatchers. To facilitate the dispatchers in assessing the need to uplink the SIGMET information, an automatic service has been devised for the regular provision of flight-specific SIGMETs for each flight departing from the Hong Kong International Airport upon the receipt of filed ICAO flight plans.

1.2 The automatic computer program tailors SIGMETs along the flight route as specified in the flight plans, displays information in the Hong Kong Observatory's dedicated system for aviation users, the Aviation Meteorological Information Dissemination System (AMIDS), and informs subscribed airline users by emails.

2. DISCUSSION

2.1 In the course of communications with the airline dispatchers and pilots, it was noted that SIGMET messages as part of the flight documentation for pilots might require an update after briefing. This is because the validity periods of SIGMETs are relatively short (four hours for WS SIGMET or six hours for WC / WV SIGMET) and the flight document is generally prepared at least couple of hours ago. As such, some airlines have the practice to uplink the latest SIGMET updates through ACARS to the cockpit. This brings strain and demand on flight dispatchers in monitoring the status and transmitting SIGMET messages to the flights involved.

2.2 Based on the ICAO flight plan (as required by Hong Kong Civil Aviation Department under ICAO Annex 2), FIRs involved and the ATS flight routes will be identified. The necessity to uplink the SIGMET message is then determined by estimating when the flight would enter the FIR concerned using the accumulated estimated elapsed time (item 18 of the ICAO flight plan form). All new or updated SIGMET messages concerned will be listed against the respective flight numbers on AMIDS for the attention of the users.

2.3 To highlight the validity period of SIGMETs for users, SIGMET-in-force is (1) asterisked if the current SIGMETs will expire before aircraft entering the FIRs or (2) shaded in grey if the aircraft has left the FIR. Users can monitor the situation and acquire the latest SIGMETs if necessary. Positive feedback from users was received as the new product reduced their workload.

2.4 Example:

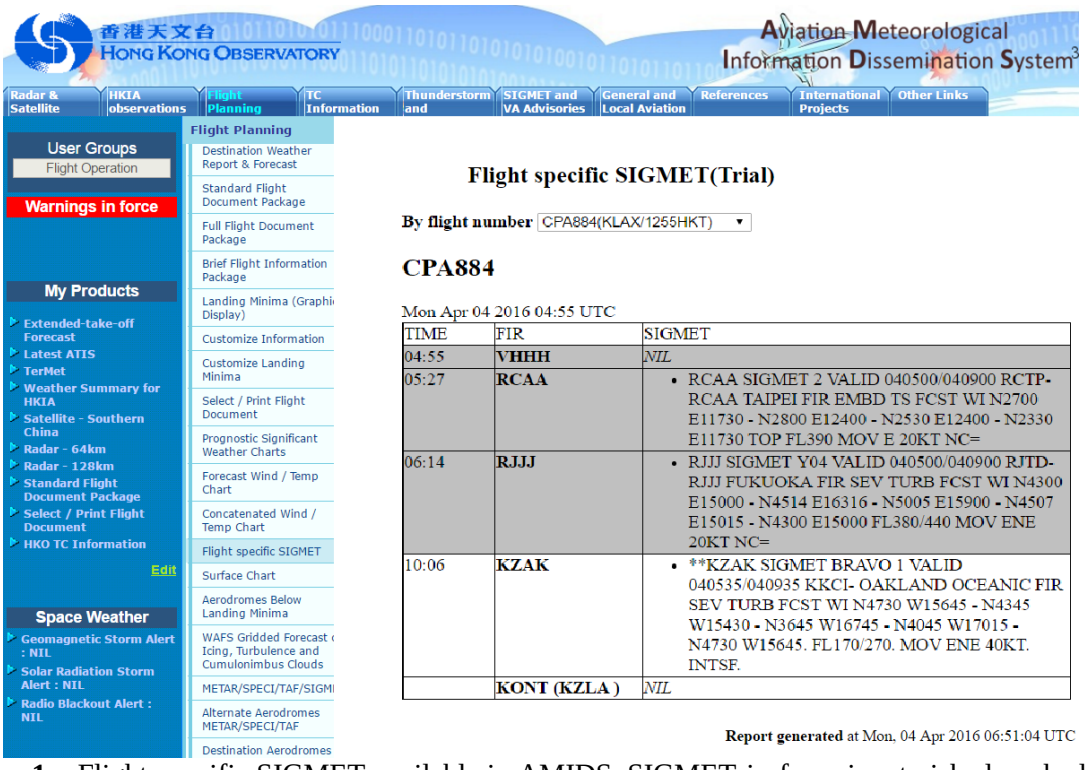

Figure 1 – Flight-specific SIGMET available in AMIDS. SIGMET-in-force is asterisked or shaded in grey as mentioned in para. 2.3. The FIR at which the alternate aerodrome located is also included as a reference.

2.5 To support the trend for the global flight following, the requirement on the provision of real-time en-route MET information for collaborative decision making will be more demanding. A one-stop service platform will assist on-ground staff to send in-flight aircraft the latest MET information. The need is expected to grow as the air-ground communication cost is more affordable. The ATS route in the flight plan facilitates provision of the flight-specific MET information apart from SIGMET.

2.6 Example:

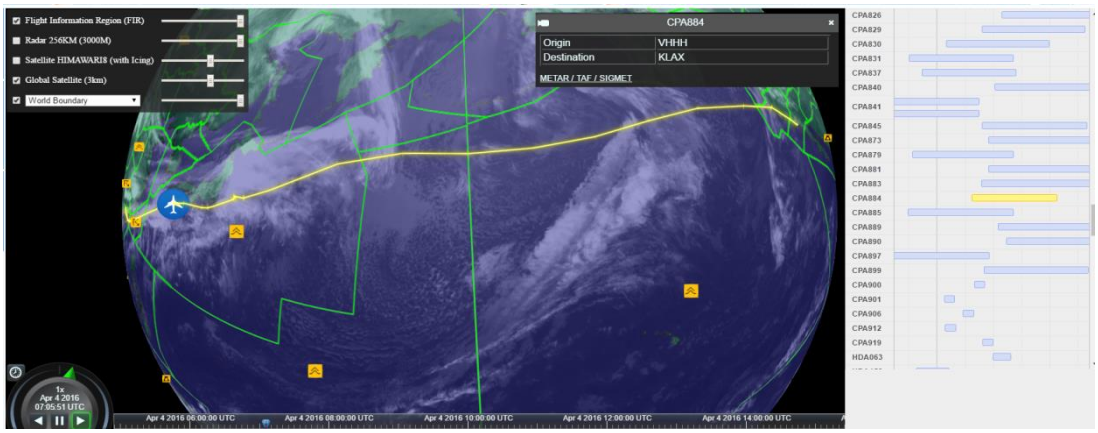

Figure 2 – Three-dimensional view of the Earth to query and display SIGMET information for flight following.

2.7 MET information is displayed naturally on a three-dimensional globe without any distortion of map projection. With the advantage of the display technology, the three-dimensional view of the Earth overlaid with various MET products will enhance the common situational awareness of users at ease and save their efforts for other mission-critical tasks.

2.8 Example:

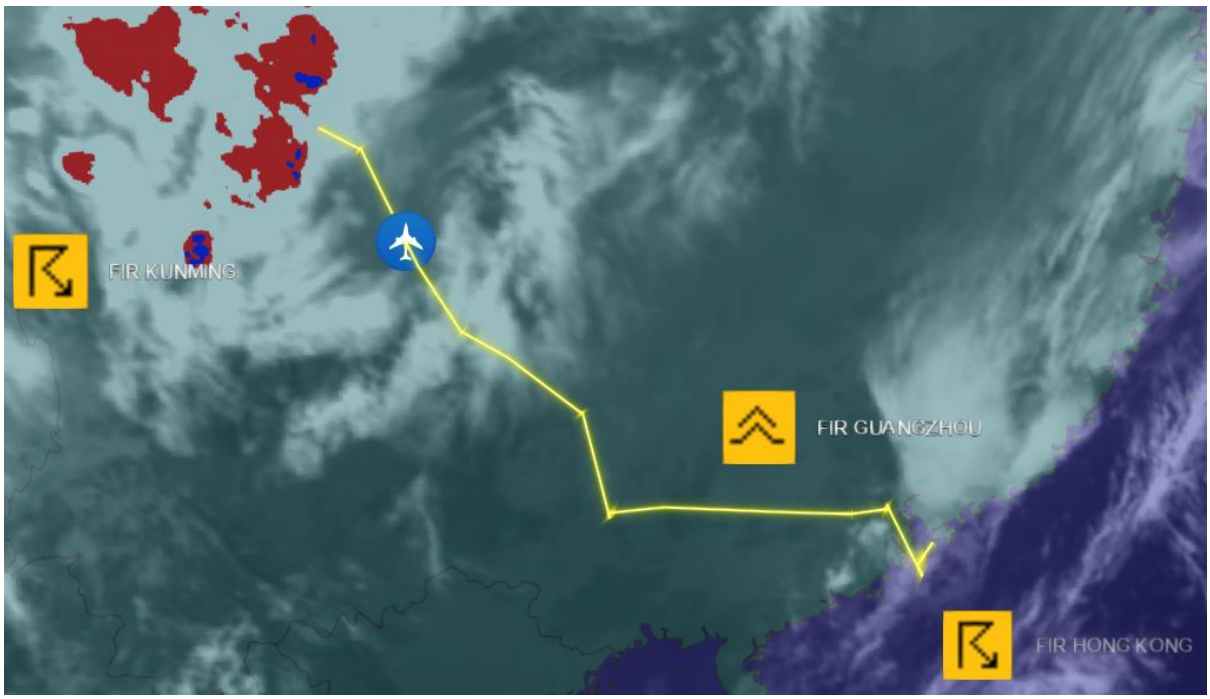

Figure 3 – Overlaying satellite-derived ice crystal icing product together with SIGMETs and ATS route decoded from the flight plan.

2.9 Given the current SIGMET areas are usually fairly large, apart from SIGMET, pilots have expressed the need for air-reports and special air-reports to confirm or otherwise the severity of the hazardous weather. In accordance with ICAO Doc 4444, 4.12, routine MET information is to be reported by aircraft and special aircraft observations shall be given in the form of a special air-report. These are then forwarded without delay to their associated MWOs. The routine / special air-reports are valuable *in situ* observations for supplementing the SIGMET. Currently, according to ICAO Annex 3, Appendix 4, 3.1, meteorological watch office shall transmit without delay the special air-reports received by voice communications to WAFCs; for special air-reports of pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud to associated VAACs; and those that do not warrant issuance of SIGMET in the same way that SIGMET messages are disseminated. ICAO Annex 3, Appendix 4, 3.2 requires that air-reports received at WAFCs be further disseminated as basic meteorological data.

2.10 It should however be recognized that the turbulence information, where available in the routine air-reports, is an important piece of information to pilots. The special air-report, whether it has been included in the preparation of SIGMET, is even more valuable to pilots. The meeting may like to consider to reflect the need for special air-report, and routine air-report where it contains turbulence information, to be made available internationally and for such requirements to be included in future Annex 3 amendment.

3. ACTION REQUIRED BY THE MEETING

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

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