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Commission for Aeronautical Meteorology
Twelfth Session

Montreal, 9 to 27 September 2002

Agenda Item 1: Meteorological component of CNS/ATM systems
1.2: Uplink/downlink of OPMET information

(Presented by China)

SUMMARY

This paper presents the development in respect of uplink/downlink of OPMET information in Hong Kong, China.

1. INTRODUCTION

1.1 Development of meteorological system in support of the new Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) systems in Hong Kong, China, started in 2000. Over the past two years, trials were conducted on the downlink of meteorological information. Operational uplink of OPMET information was also launched in 2001. This paper reports the development in these two areas.

2. DOWNLINK

2.1 Trials with Automatic Dependent Surveillance (ADS) and Controller-Pilot Data Link Communications (CPDLC) data links for automatic weather reporting from B747 aircraft were conducted in 2000 over the South China Sea. Further ADS trials with B777 and Airbus aircraft were conducted in early 2002. During the trials, 1077 in-flight valid weather reports from B747, about 57 reports from B777 and 18 reports from Airbus aircraft were received and analysed.

2.2 For B747 trial in 2000, it was found that over 90% of the wind reports are within the range of acceptable deviations with the model analysis [according to assessment criteria as recommended in WMO AMDAR Reference Manual]. Cases with larger deviations were studied and some of them were found to be associated with small scale convective activities over the data-sparse South China Sea. Over 98% of the temperature reports are acceptable. For a small number of temperature reports with large deviations, it was found that they originated from one of the aircraft. The airline concerned was informed of the finding.

2.3 Analysis of the B777 ADS data received in the 2002 trial revealed large wind direction errors in the reports. The 5th ICAO Meteorological Information Data Link Study Group meeting in 2000 also noted the same problem. Recognizing the problem, the manufacturer released a software upgrade in late 2001 for installation on-board the aircraft to rectify the problem. The airline participating in the B777 trial was advised of the availability of the software upgrade.

2.4 For the Airbus trial, no abnormal wind reports were found. All temperature reports received from B777 and Airbus aircraft during the trials were found to be of acceptable quality.

2.5 With the digital aeronautical telecommunication network still being developed, automatic weather reporting have to be carried out through FANS-1/A systems (FANS: Future Air Navigation System) and airline company data links. Under the tight operating environment currently experienced by the aviation industry, airlines have expressed some concern over the additional telecommunication charges incurred by these data link trials. The prospect of airlines' participation in future large-scale trials is uncertain.

2.6 In respect of the SSR Mode-S data link for weather reporting, the *ICAO Manual on Mode S Specific Services* (Doc 9688) specifies the formats for meteorological routine air reports and meteorological hazard reports. Unlike weather reporting using ADS or CPDLC based on FANS-1/A system, there is no extra cost for using the Mode-S data link. Hong Kong, China is exploring the use of such data link for weather reporting and is working on trials with small aircraft.

3. UPLINK

3.1 Hong Kong, China introduced the Datalink Automatic Terminal Information Service (D-ATIS) and Datalink VOLMET service in 2001. Aircraft equipped with suitable data link capabilities can request full scripts of the ATIS and VOLMET messages and have them printed inside the cockpit. These data link services are operated in parallel with the voice ATIS and VOLMET broadcast. Compared with the voice services, the data link services enable pilots to more efficiently acquire the latest runway weather conditions at the Hong Kong International Airport and OPMET information of Hong Kong, China as well as a number of nearby international airports.

4. ACTION BY THE MEETING

4.1 The meeting is invited to note the information contained in this document.

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