



International Civil Aviation Organization COM/MET/NAV/SUR SG/4-IP/6

Fourth Meeting of COM/MET/NAV/SUR Sub-Group of APANPIRG

Bangkok, Thailand, 17-21 July 2000

Agenda Item 7:

Review:

- a) implementation of the ISCS and SADIS**
- b) transition to the final phase of WAFS**

PLANNING FOR WAFS TRANSITION IN HONG KONG, CHINA

(Presented by Hong Kong, China)

Summary

This paper presents the plan and progress made by Hong Kong, China to align the provision of flight documentation with the ASIA/PAC WAFS transition plan, and feedback obtained from airline operators.

1. Introduction

1.1 The Hong Kong Observatory (HKO) receives WAFS products from the SADIS and ISCS-2 broadcasts. This paper presents the plan and progress made by Hong Kong, China to align the provision of flight documentation with the ASIA/PAC WAFS transition plan, and feedback obtained from airline operators.

2. Background

2.1 In addition to preparing its own SIGWX and Wind/Temperature charts, the HKO routinely makes use of T4 facsimile charts from the SADIS data stream to compile flight documents for about 250 flights departing from the Hong Kong International Airport (HKIA) every day. These flights have destinations in the ASIA, PAC, AFI, EUR, MID, and NAM regions. Although the majority of them require high level SIGWX (SWH) and Wind/Temperature information, some require medium level SIGWX (SWM) and Wind/Temperature information either because they are medium level flights or are twin-engine extended range operations (ETOPS). These medium level flights and ETOPS flights are operated to destinations in China, Southeast Asia, Japan, Guam, Australia and possibly to New Zealand and Hawaii in the future. It is recognised that ETOPS flights are on an increasing trend in the Asia/Pacific Region.

2.2 In late 1999, the ASIA/PAC WAFS Transition Plan and Procedures (Revision 2) were drawn up by the ICAO Asia/Pacific WAFS Transition Task Force. The Plan provided an indicative timetable for the implementation of the final phase of WAFS within the Asia/Pacific Region. According to the timetable, the WAFCs would be in a position to take over the responsibility for the production of SWH charts (and SWM charts from New Delhi) from the RAFCs in the Asia/Pacific Region around mid-2000. The transfer of responsibility from the RAFCs to the WAFCs and the closing down of the RAFCs would then follow.

2.3 On the longer term, the ASIA/PAC WAFS Transition Plan and Procedures indicated that global SWH and SWM products would be distributed in BUFR format on the WAFS satellite broadcasts. Suitable BUFR decoding software would be provided to States in the Region for converting BUFR SIGWX messages into graphical format. With this feature in place, T4 facsimile products would ultimately be removed from the WAFS satellite broadcasts and individual States could construct their own SIGWX charts from the BUFR messages.

3. Progress and Current Status

3.1 To prepare for WAFS transition, the HKO started liaison with airline operators on the proposed changes to the flight documentation packages in December 1999. These changes included the following:

- (a) the SWH charts prepared by the HKO for flight documents would be replaced by the most appropriate WAFS chart(s). The Wind/Temperature charts would also be replaced accordingly; and
- (b) the HKO SWL/M (<FL250) chart would be replaced by a HKO SWM (FL100-250) chart covering the area 10°S-45°N 100°E-148°E issued four times daily to meet the requirements of medium level and ETOPS flights. The preparation of this chart would continue until SWM chart(s) covering the same area became available from WAFS by end of 2000 according to the ASIA/PAC WAFS Transition Plan and Procedures.

After further discussions with airline operators and obtaining further information from the WAFCs, details on the changes were provided to all airlines operating at the HKIA in May 2000 for implementation in June 2000. Airlines' views on the requirement for additional SWM chart(s) in the Asia/Pacific Region were also requested at the same time to facilitate discussion in the present COM/MET/NAV/SUR SG4 meeting (see para. 4.2 below).

3.2 WAFS charts for the following chart areas are used to compile the new flight documentation packages:

- SWH – Areas A, C, D, E, F, G
- SWM – Middle East and Asia South
- Wind/Temperature – Areas A, C, D, E, F, G, I

4. Feedback from Airline Operators

SWH Charts

4.1 During discussion with airline operators, a feedback was received that the WAFS SWH chart for Area I (Northern Pacific) in polar stereographic projection (PGBE07 KKCI) covered too big an area and as a result the chart information in the poleward direction became overly cluttered. On the other hand, the WAFS Wind/Temperature charts for Area I do not have this problem and are considered acceptable. Since SWH information for the higher latitudes is essential to the frequent North Pacific flights to destinations in the NAM Region (currently about 100 flights per week), it was decided that the existing SWH chart for Alaskan region available from WAFS Washington via the Internet would be provided to supplement the WAFS SWH chart for Area F (PGGE07 KKCI) for all these flights. This interim measure will continue until alternative SWH chart(s) become available from WAFS. One suggestion is to add a new WAFS SWH chart with the same coverage, scale and map projection as the existing SWH chart from RAFC Tokyo (PBNE10 RJTD).

SWM Charts

4.2 Feedback from airlines supports the need of additional SWM chart(s) from WAFS in the Asia/Pacific Region. There are currently ETOPS flights to the Middle East, Australia and Guam, as well as regular twin-engine flights to other Asian countries including Japan, Singapore, Korea, Indonesia, Malaysia and the Philippines. To support the existing ETOPS flights to Australia, the HKO has been requested to continue to provide the SWM/H chart from RAFC Melbourne (PGKE00 AMMC) for Southwest Pacific as long as this chart is available. Also, ETOPS flights to New Zealand are quite likely in the near future. All the above point to a requirement for additional SWM chart(s) from WAFS over the western half of the Asia/Pacific Region, extending from Japan and eastern China across Southeast Asia to Australia and New Zealand. A possible coverage is:

50° N 100° E – 50° N 145° E – 40° S 180° E – 50° S 180° E – 50° S 100° E – 50° N
100° E

4.3 In respect of SWM charts for other areas, there is a need to note the likely trend in the increased use of twin-engine aircraft for long-haul flights. For example, twin-engine aircraft are already occasionally being used for non-scheduled flights to destinations in the NAM Region and plan is underway to operate ETOPS flights to Hawaii in about two years' time. In time, this trend is expected to lead to additional requirements for SWM charts covering areas beyond the Asia/Pacific Region.

5. SADIS BUFR Trials

5.1 To prepare for the reception of SIGWX information in BUFR format from the SADIS broadcast, the HKO acquired a software modification of the existing SADIS reception workstation. The workstation has been able to receive and store the BUFR data stream since the broadcast first started on 13 March 2000. With assistance of WAFS London, the HKO also contacted one of the suppliers of BUFR decode, manipulation and display software and received a demonstration software for decode and display of the received data on a trial basis.

Figure 1 shows a sample SIGWX chart decoded from the BUFR data stream received on 13 March 2000 using this demonstration software. Subject to the availability of appropriate software, further trials will be conducted on the manipulation of the decoded BUFR information such as putting in or adjusting weather features like tropical cyclones, fronts, jet streams, etc. to produce tailored SIGWX charts. It is desirable that the appropriate decoding, display and manipulation software could be made available as early as possible so that weather services like Hong Kong could construct tailored SIGWX charts based on BUFR data to meet specific user needs.

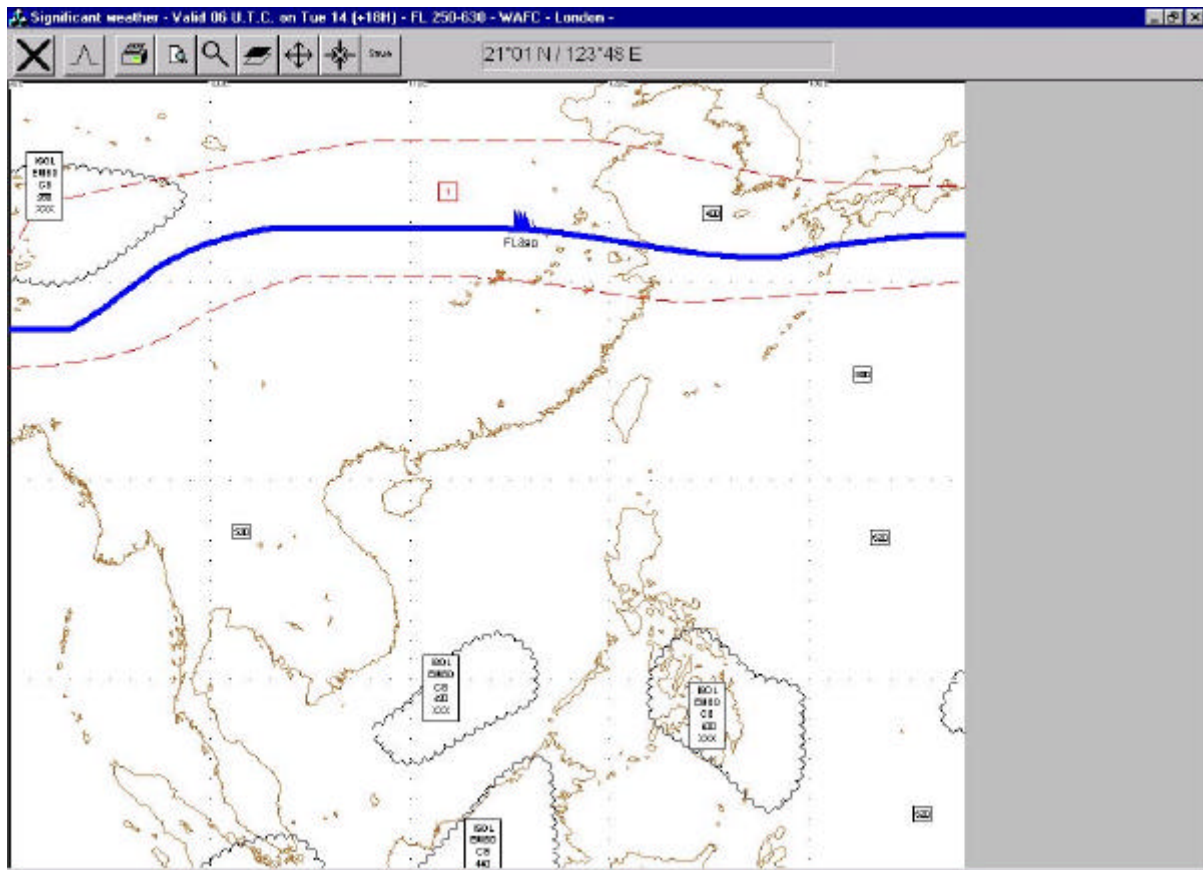


Figure 1. Sample SIGWX Chart Decoded from the BUFR Data Stream Received from the SADIS Satellite Broadcast

6. Action by the Meeting

6.1 The meeting is invited to note the information provided in this paper.