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HONG KONG OBSERVATORY

Reprint 464

Progress of WAFS transition and related issues in the Asia and Pacific Regions

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ICAO Sixth Meeting of CNS/MET Sub-Group of APANPIRG,

Bangkok, Thailand, 15-19 July 2002

International Civil Aviation Organization CNS/MET SG/6 – WP/30

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Bangkok, Thailand, 15 – 19 July 2002

Agenda Item 10b): Review transition to the final phase of WAFS

PROGRESS OF WAFS TRANSITION AND RELATED ISSUES IN THE ASIA AND PACIFIC REGIONS

(Presented by Chairman of WAFS Transition Task Force)

SUMMARY

This paper discusses the progress of WAFS transition and related issues in the Asia and Pacific Regions.

1. Introduction

1.1 In the Asia and Pacific Regions, the responsibility for the production of the required SIGWX charts and wind/temperature charts was transferred from the Regional Area Forecast Centres (RAFCs) at New Delhi, Tokyo, Melbourne and Wellington to the two World Area Forecast Centres (WAFCs) on 1 March 2001. In respect of the implementation of WAFS in the Regions, the WAFS Transition Task Force carried out a survey in early 2001 to assess the operational effectiveness of WAFS in the Regions and identified areas for further improvement. This working paper describes the latest status of implementation of WAFS in the Regions, provides updates in respect of the improvement areas identified and highlights issues for the attention of the meeting.

2. Progress

2.1 The progress of WAFS transition in the Asia and Pacific Regions is tracked by the document "ASIA/PAC WAFS Transition Plan and Procedures" developed and maintained by the WAFS Transition Task Force of the CNS/MET Sub-Group. First developed in 1998, this document was last updated in July 2001 (as Appendix U to the report of CNS/MET SG5). The latest updated 2002 version (4th Edition) is attached to this working paper (see Appendix) for discussion.

2.2 The meeting is invited to review the progress of WAFS transition in the Asia and Pacific Regions against the "Indicative Timetable for Achieving the Final Phase of WAFS" given in the "ASIA/PAC WAFS Transition Plan and Procedures" (see Attachment 1 of Appendix), in particular the progress of the following items which are due or will be due for completion in 2002: -

Item	Task/Stage of Implementation of WAFS	Anticipated Date
1	WAFC London products on access controlled internet site	*late 2001*
2	The establishment of back-up distribution arrangements for WAFS products	*late 2002*
3	Training in the operational conversion of GRIB forecasts to Wind/Temp charts	*late 2002*
6	The provision to States in the Regions of suitable BUFR decoding software	*mid 2002*

3. Improvement Areas and Issues

3.1 **Lead time of SIGWX chart broadcasts** – To ensure that SIGWX charts are available in time to support long haul flights between Asia and Europe, a suggestion about an earlier availability of SIGWX chart broadcasts from WAFC London was discussed by CNS/MET SG5. WAFC London agreed to make available SIGWX charts about 13 hours before validity time with effect from 1 November 2001, 3 hours earlier than its previous schedule. In early 2002, WAFC London advised that the implementation date of this change would be deferred to late 2002. It is understood that WAFC London will provide an update on the status at the meeting.

3.2 **SIGWX chart area and projection** – CNS/MET SG4 invited in 2000 WAFC Washington to issue a new SIGWX chart at the request of Hong Kong, China. The chart would have the same coverage, scale and map projection as the Mercator projection Northern Pacific SIGWX chart previously issued by RAFC Tokyo to support trans-Pacific flights. After discussion by WAFSSG/8 in 2001, WAFC Washington agreed to provide this new chart, now labelled "M", and started production in July 2001. There was also a proposal to extend the WAFS chart area "E" by 5 degrees to the north (viz. from 40°N to 45°N) to cover the northern part of Japan. This proposal was supported by CNS/MET SG5 and is now being considered by ICAO.

3.3 **WAFS backup arrangements** – From the discussion by WAFSSG/8 in 2001, it was noted that for both WAFCs the inclusion of the other WAFC's satellite broadcasts for back-up purpose was almost complete. The two WAFCs are invited to provide an update on the status at the meeting. As regards the availability of WAFS products via other means, such as the Internet, WAFC London had planned a new SADIS internet-based FTP service, as a back-up to the SADIS broadcast. The service would be provided to States and users authorized to receive SADIS or ISCS broadcasts, without any additional cost to States. WAFC London advised in late mid-2002 that the SADIS FTP backup service would be operational very soon.

3.4 **Medium-level SIGWX charts** – In a survey carried out in the Asia and Pacific Regions in 2000, a need for additional WAFS medium-level SIGWX (SWM) charts was identified. CNS/MET SG4 in 2000 proposed that IATA be requested to urgently confirm the express requirement. This matter was subsequently discussed by the CNS/MET SG5 and then by the WMO CAeM Working Group on the Provision of Meteorological Information Required by Civil Aviation (PROMET) in 2001. It was understood that while IATA had no requirement for additional SWM charts currently, IATA nonetheless supported the need to study the requirements and definition of new SWM products in the long term.

3.5 **Migration to GRIB and BUFR**

3.5.1 In a survey on GRIB undertaken by the WAFS Transition Task Force in late 2000, it was found that a number of States in the Regions did not yet have the capability to convert GRIB encoded information into wind/temperature charts. CNS/MET SG5 requested the United Kingdom, in coordination with ICAO, WMO and other States as necessary, to arrange for a GRIB training workshop in the Asia and Pacific Regions in 2002. This workshop is currently scheduled for late 2002.

3.5.2 Considering that the decoding and processing of BUFR encoded information could be more complicated than the handling of GRIB encoded information, the results of the GRIB survey suggested that software, training and assistance would be required in order to enable States in the Regions to acquire the capability to convert BUFR products into standard SIGWX charts. As such, it is important that the provision to States in the Regions of suitable BUFR decoding software (item 6 under para. 2.2) be completed as soon as possible. It is understood that the two WAFCs will update the meeting on the progress. With suitable BUFR decoding software provided to States, the next step appears to be to develop guidelines on the use of BUFR and GRIB codes for the production of WAFS charts and to provide the necessary training for States.

3.6 **WAFS products for turbulence and icing forecast** – Development of specialized WAFS products for turbulence and icing forecast will be discussed by the ICAO Meteorological Divisional Meeting in September 2002. The meeting may like to consider whether such products will be required by the Asia and Pacific Regions.

4. Action

4.1 The meeting is invited to:

(a) review the progress of relevant items in the "Indicative Timetable for Achieving the Final Phase of WAFS" given in the "ASIA/PAC WAFS Transition Plan and Procedures";
(b) consider necessary changes in the "ASIA/PAC WAFS Transition Plan and Procedures" for inclusion in the Report of CNS/MET SG6;
(c) discuss whether new WAFS products for SWM will be required for the Asia and Pacific Regions;
(d) discuss the need for, and hence request the WAFCs to, develop guidelines and provide training on the use of BUFR and GRIB codes for WAFS chart production; and
(e) discuss whether specialized WAFS products for turbulence and icing forecast will be required by the Asia and Pacific Regions.

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ASIA/PAC WAFS Transition Plan and Procedures

4th Edition - July 2001

ASIA/PAC WAFS Transition Plan and Procedures

4th Edition - July 2001

Introduction

1. The Asia/Pacific WAFS Transition Plan and Procedures has been revised to take account of progress already made and in recognition of the impact of the final phase of WAFS.

The Final Phase of WAFS

2. This plan is based on the understanding that the Final Phase of WAFS, as it will apply to the Asia/Pacific Regions involves:

a. Production and dissemination by the WAFCs of global forecast winds, temperatures, tropopause height, tropopause temperature and humidity in GRIB format. The wind and temperature forecasts are now operational. **Note**: Humidity and forecast information for FL140 is expected to be introduced in November 2001 in response to user requirements, especially for ETOPS operations.

b. The transfer of responsibility for the production for SWH from RAFCs to the two WAFCs, and hence the closing down of the RAFCs.

c. The implementation of a communication system/s for the distribution of WAFS products in the Asia/Pacific Regions, to all the States that require the products in support of international air navigation. The final phase envisages this will be achieved via satellite broadcast (SADIS and ISCS/2). States may need to use an alternative distribution system.

d. The production and distribution (via satellite broadcast) by the WAFCs, of Global, quality controlled SWH (FL 250 - 630) in BUFR format, and Global SWM in BUFR format (in raw form, i.e. not quality controlled except over limited geographical areas where required by PIRGS).

e. The capability of States to convert BUFR and GRIB messages to graphical products on an operational basis.

SIGWX Charts

3. The table below shows the status of the SIGWX charts and responsible WAFCs.

Chart area & responsible WAFC
G London (SWH)
K London (SWH)
D London (SWH)
Asia South medium & high
J Washington (SWH)
E London (SWH)

F	Washington (SWH)
I	Washington (SWH)
M	Washington (SWH)

4. There will be an ongoing requirement for NMSs to monitor the quality of WAFC products, at least until the Final Phase of WAFS.

5. Action required to be taken by States to adhere to the provision of Annex 3 to ensure the relevant advisories for tropical cyclones, volcanic ash, the accidental release of radio active material and SIGMETs are made available to the WAFCs in a timely manner.

6. The SIGWX charts produced by WAFC Washington are also available on the US NWS Aviation Weather Center Internet site at: http://www.awc-kc.noaa.gov/awc/hilvl.html, with the exception of Area M. All WAFC London products will be available on an internet site, together with appropriate GRIB and BUFR decoding facilities, by the end of 2001.

7. States are encouraged to send comments to the WAFCs about the quality and accuracy of SIGWX on a frequent and regular basis during the transition period to the Final Phase. Contact details for comments are:

WAFC Washington

i. NWS/Aviation Weather Center
Attention: Mr Ronald Olson
7220 NW 101st Terrace
Kansas City, Missouri
USA 64153-2371
ii. E-mail addressed to: ronald.olson@noaa.gov
iii. Fax number: 1 816 880 0650

WAFC London

i. The Met. Office
Attention: Mr. Neil Halsey
Civil Aviation Branch
Sutton House
London Road, Bracknell
Berkshire RG12 2SY, United Kingdom
ii. E-mail addressed to: neil.halsey@metoffice.com
iii. Fax number: +44 (1344) 854 156

Distribution of WAFS Products

8. Most States in the Asia/Pacific Regions are receiving wind, temperature (and humidity in November 2001) forecasts in GRIB, and SIGWX in T4 facsimile format from the two WAFCs by VSAT, either SADIS or ISCS/2. A range of WAFS products are available via the Internet and through bilateral arrangements with neighbouring national meteorological services.

9. In the final phase of WAFS the two WAFCs will distribute by satellite broadcast Global quality controlled, SWH, and Global SWM in raw form (with quality assurance for limited geographical areas). Once suitable decoding software is made available to States in the Asia/Pacific Regions, to provide them with the ability to operationally construct graphical SIGWX from the BUFR

messages, and graphical products from the GRIB messages, the T4 facsimile format charts will be eliminated from the satellite broadcasts.

The Production of Regional SWM Charts

10. The WAFCs may, where there is a regional requirement, produce as an interim arrangement (prior to the production of Global SWM in BUFR) SWM charts for limited areas of coverage.

The Production of National SWM Charts

11. The production and exchange of SIGWX in BUFR (i.e. when the final phase of WAFS is achieved) will add to the benefits derived from the WAFS by the States within the Asia/Pacific Regions.

Indicative Timetable for Achieving the Final Phase of WAFS

12. The table given in Attachment 1 provides an indicative timetable for the implementation of the Final Phase of WAFS within the Asia /Pacific Regions.

Volcanic Ash Advisory Centres (VAACs)

13. The VAACs will have an ongoing role of monitoring WAFS SIGWX charts that cover their areas of responsibility, and advising the appropriate WAFC to ensure the accurate inclusion of the volcanic ash symbol.

Tropical Cyclone Advisory Centres (TCAC)

14. The TCACs will have an ongoing role of monitoring WAFS SIGWX charts that cover their areas of responsibility, and advising the appropriate WAFC to ensure the accurate inclusion of the tropical cyclone symbol.

ASIA/PAC WAFS Transition Plan and Procedures **Attachment 1**
Indicative Timetable for Achieving the Final Phase of WAFS

Item	Task/Stage of Implementation of WAFS	Anticipated Date
1	WAFC London products on access controlled internet site	late 2001
2	The establishment of back-up distribution arrangements for WAFS products	late 2002
3	Training in the operational conversion of GRIB forecasts to Wind / Temp charts	late 2002
4	All states that receive GRIB products capable of converting GRIB forecasts to Wind / Temp charts	early 2003
5	Removal of T4 Facsimile Wind / Temp charts from the satellite broadcast	mid 2003
6	The provision to States in the Regions of suitable BUFR decoding software	mid 2002
7	Training in the operational conversion of BUFR to SIGWX charts	late 2003
8	States having the ability to operate the decoding software to convert BUFR SIGWX messages into graphical format	mid 2004
9	The satellite distribution by the two WAFCs of global SWH and SWM in BUFR format	2003
10	Removal of T4 Facsimile SIGWX products from the satellite broadcast	late 2004