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Agenda Item 14: Regional preparations for the MET Divisional Meeting (2002)

WAFS EXPERIENCE AND ISSUES

(Presented by New Zealand)

SUMMARY

This paper presents a perspective from New Zealand of the Final Phase of the WAFS. It describes the operational experiences of Meteorological Service of New Zealand (MetService) operational with WAFS, particularly the significant weather component and it provides ideas as to ongoing issues and possible future developments.

1. Introduction

1.1 New Zealand has been a strong supporter of the World Area Forecast System (WAFS) since its inception. Mike Pointer from the NZ Meteorological Service was a member of the original Area Forecast Panel which designed the visionary blueprint for the WAFS. Staff from the Meteorological Service of New Zealand (MetService) have continued to be involved through WMO and ICAO fora in planning for its subsequent evolution. Wellington was a Regional Area Forecast Centre from 1 May 1985 (the day Washington started routine transmission of global winds and temperatures) to 28 February 2001.

1.2 MetService currently utilises all products and services available from the WAFS. GRIB wind and temp data from WAFS are formatted and delivered to airlines for their flight planning systems, and are used internally to produce wind/temp charts for airline meteorological briefing packages and for customised route forecasts.

1.3 Significant weather in T4 format from both WAFCs is utilised in servicing airlines, as is OPMET data available on the ISCS broadcast. To ensure uninterrupted reception, WAFS information can be received in New Zealand via a direct line to London WAFC and by the GTS, as well as through the ISCS/2 (Pacific) broadcast.

2. WAFS Upper wind and Temperature Data

2.1 WAFS global GRIB upper wind and temperature data have provided reliable high quality operational support to airlines for many years. Improvements in the forecast winds and temperatures have also been made and have benefited users. This information has become a vital part of the flight planning process. Airlines have become increasingly dependent on this information, especially long haul operators across the Pacific, who continually strive to make their operation as cost effective as possible by maximising revenue payload and minimising fuel carried or fuel burned. If anything, these operators are becoming more dependent on the WAFS service as they continually fine-tune their operations including ETOPS/LROPS operations.

2.2 In the early years, MetService provided a service of amending WAFS wind and temperature data in our region, based in particular on recent AIREPs. The improved accuracy of the forecasts, and the introduction of four issues per day, has rendered such amendments unnecessary.

3. WAFS Significant Weather

3.1 The advantages in using WMO GRIB code for upper wind and temperature information have been clear. This has allowed for efficient communication of global information, and automatic processing that would otherwise not be possible. There are also clear advantages in using BUFR code for significant weather information. The major advantages are the major reduction in file sizes for the same amount of information, and better scope for local users to electronically process the information and produce tailored products for particular areas and layers.

3.2 While there is essentially global SWH coverage and limited SWM coverage in T4 format from the two WAFCs, the introduction of routine BUFR coded significant weather broadcasts from both WAFCs is eagerly awaited in New Zealand. The decoding and test plotting of BUFR encoded significant weather from WAFC London has been occurring at MetService since early 2001. The data continue to be, evaluated but are not being operationally used as yet.

3.3 We would welcome more written advice from WAFC provider States as to the status and plans for full WAFS BUFR code implementation. In addition, we support any initiative to help interested States that will require assistance in receiving, decoding and processing WAFS output in order to meet the applicability date for Amendment 73 to ICAO Annex 3/Technical Regulations [C.3.1] in November 2004.

4. WAFS Back Up Procedures

4.1 New Zealand would welcome a set of clearly defined backup procedures to be followed by WAFC provider States and user States and would be prepared to assist in any user testing of procedures. It would be an advantage to have such procedures clearly defined in ICAO Annex 3 / Technical Regulations [C.3.1].

5. Harmonization of WAFC Products

5.1 While acknowledging progress to date on the harmonization of output products in terms of look and feel, there should continue to be close co-operation between the WAFCs in this area. Also, at an operational level, there should be close co-operation on the location and description of significant weather systems in areas of overlap or near the boundaries to improve consistency.

6. Status of OPMET Data Broadcast via ISCS/SADIS

6.1 The future status of OPMET data broadcast via ISCS and SADIS should be clarified. We receive large amounts of OPMET data via the ISCS broadcast, and file it operationally. It has become apparent that if the trend to uplink data of this kind continues, then there will be a need for better quality control and correction processes. At present, corrupted OPMET data received via satellite broadcast can cause difficulties for States and end users where automated filing and delivery processes are in place.

7. Turbulence and Icing Products and Format

7.1 Turbulence and icing forecasts require considerable further development. One key to further progress will be the use of automated reports from aircraft, which will allow numerical algorithms to be verified and calibrated. Every effort should be made to encourage the production and use of such automated reports.

7.2 The results of any improved forecasts should be made available in coded format for electronic processing. This may take the form of improved SIGWX turbulence and icing forecasts from the WAFCs in BUFR format, or might entail the development of other standard coded WAFS icing or turbulence forecast products perhaps even in GRIB form, to allow use in flight planning systems. We feel there should continue to be a move away from graphical presentations and towards digital data to allow for automated processing and use of such information.

8. Future Development of the WAFS

8.1 The WAFS will continue to evolve and develop. The past vision for the WAFS has stood the test of time and is an excellent basis on which to make further advances.

8.2 The WAFS will continue to require oversight by an appropriate group to provide vision, focus, planning and co-ordination. Not only will the current use of WAFS products need to be monitored and some States assisted where necessary, but also there will be a need to develop proposals for the future that will enhance the present system on a global and regional basis. The WAFS will need the ability to respond to industry and technological changes within a reasonable time frame and continue to satisfy the requirements of users. Such a group should also consider the evolution from graphical to complete digital coding of WAFC products.

8.3 The WAFS has matured to the point that the term "final phase" no longer seems appropriate and New Zealand strongly supports the concept of removing this term.

8.4 BUFR coded SIGWX needs to be fully implemented as soon as practicable, and continuing efforts made to enable interested users to electronically process both GRIB and BUFR messages. The trend away from the transmission of graphical products needs to continue.

8.5 Feedback mechanisms need to be established whereby advice and feedback on a regional basis can be provided to WAFCs from regional users. This could involve such issues as forecast quality and consistency, technical advice and contingency or backup issues.

9. Action by the meeting

9.1 The meeting is invited to

(a) Note the content, and
(b) Exchange views on the various matters discussed in this paper.