International Civil Aviation Organization

Seventh Meeting of CNS/MET Sub-Group of APANPIRG and Tenth Meeting of CNS/ATM IC Sub-Group of APANPIRG

Bangkok, Thailand, 15 – 21 July 2003

Agenda Item 8 (2): Review Transition to the final phase of WAFS

WORLD AREA FORECAST CENTER (WAFC) WASHINGTON VIEW OF THE REPLACEMENT OF INTERNATIONAL SATELLITE COMMUNICATIONS SYSTEM (ISCS) COMPUTER WORKSTATIONS

(Presented by United States of America)

SUMMARY

Graphical products in T4 format are scheduled to be removed from the WAFS satellite broadcast on 1 July 2005. Wind/temperature and significant weather (SIGWX) charts will be produced by States from GRIB and BUFR data files produced and provided by the two WAFCs. X.25 protocol will be replaced by TCP/IP on ICSC in January 2004. STAR4 workstation software is no longer supported; its' software is not capable of producing all wind/temp charts required by Annex 3 from GRIB or any charts from BUFR, and it will not support TCP/IP, thus states in the ISCS footprint with STAR4 workstations have to procure new workstations to continue to receive the WAFC broadcast, and to provide the necessary charts when they are removed from the WAFS broadcast. This paper addresses the workstation change issue, and the timetable for removal of T4 products from the ISCS broadcast.

1. Background

1.1 At the CNS/MET SG/6 meeting, representatives from World Area Forecast Center (WAFC) Washington stressed the need for States to initiate the process to acquire new workstations or to develop or buy software to run on a new or existing hardware platform to replace STAR4 workstations, and replace or upgrade other workstations. A number of the papers described changes to the information to be provided on the World Area Forecast System (WAFS) broadcast, and differences in the interface protocol for the International Satellite Broadcast System. A paper was also presented which listed known workstation manufacturers and contacts for each of them.

1.2 The U.S. presented a timetable for the transition to a new International Satellite Communications System (ISCS), and the U.S. and U.K. jointly presented information on the transition to the final phase of WAFS. This paper will provide an updated time table for transition of ISCS and WAFS, and information on back up available, if required by a State to acquire WAFS data.

2. Changes to be implemented with the new ISCS contract and the WAFS transition schedule

2.1 Changes in ISCS

2.1.1 The current schedule for implementation of the new ISCS is for X.25 protocol to be removed from broadcast at the end of January 2004. Thus, for a workstation to receive data ISCS, it must be capable of interfacing to Transmission Control Protocol/Internet Protocol (TCP/IP). Until January 2004, ISCS will support both X.25 and TCP/IP.

2.1.2 The ISCS transmission in TCP/IP will no longer provide the data in the current 6 permanent virtual channels (PVCs), but will provide it in 9 "sockets." This will require a software module be installed in all workstations. Information on this module will be supplied by MCI as part of the transition to the new ISCS for your State. Information will also be made available to all known workstation manufacturers and a link will be available on the www.nws.noaa.gov/iscs web page with a downloadable module.

2.2 Transition of the World Area Forecast System

2.2.1 In accordance with Annex 3, the two WAFCs will provide global meteorological model data four times daily in a gridded data base on a 1.25 x 1.25 degree latitude - longitude grid in GRIB (**Gri**dded **B**inary) code form, and forecasts of significant weather in BUFR (**B**inary **U**niversal **F**orm for the **R**epresentation of Meteorological Data) code form. The WAFCs will no longer provide graphical products on the WAFS broadcast. States will produce the required wind and temperature charts from the GRIB data and significant weather forecast charts from the BUFR data. At the ICAO Meteorological Division Meeting in September 2002, the decision was made to delay removal of the graphical products from the broadcast until July 1, 2005.

2.3 Workstation issues for States

2.3.1 States need to acquire new workstations or purchase or develop software to operate on a hardware platform to replace the STAR4, and either replace or upgrade other workstations to be able to provide the necessary graphical products from GRIB and BUFR provided by the WAFCs and to receive WAFS products when the new ISCS is implemented.

2.3.2 Information on possible workstation providers was included in a paper presented by WAFC Washington at the CNS/MET SG/6 meeting. For reference, the manufacturers and contacts, and the workstation specification are available on the web site: www.nws.noaa.gov/iscs. The U.S. said it would not endorse a particular manufacturer. The representative of U.K. noted that five of the manufacturers were providers of SADIS (Satellite Distribution System) workstations and were being audited against the WAFS functional requirements by WAFC London. States were told the workstations could be supplied with varying capabilities from just providing WAFS products and data to meteorological workstations handling all of a National Meteorological Services weather analysis and forecasting needs, with, of course, differing cost.

2.3.3 The VSAT and interface configuration will be part of the information that will be supplied to you as part of the transition package to be sent to you by MCI when the scheduled transition date is assigned for your site.

3. WAFS Satellite Broadcast backup

3.1 If your State does not have a new or updated operational workstation at the time X.25 is no longer supported on ISCS, there may be alternative methods of acquiring WAFS data. At the ICAO Meteorological Division Meeting 2002, a recommendation was proposed and adopted by the meeting to amend Annex 3 to allow for the use of Internet as a backup for the WAFS broadcast. U.K.

London currently provides a free File Transfer Protocol (FTP) service via Internet as a WAFS backup for all approved WAFS users. However, there are no graphical products available by FTP. Only operational data sets are provided. Therefore, a user must have the capability to produce graphical products from the GRIB and BUFR files. The U.S. provides all WAFS graphical products and links to OPMET data and the global gridded data at the web site: http://aviationweather.gov and then clicking on "flight Folder." In the U.S. the Federal Aviation Administration has recently issued an Internet policy allowing the operational use of data from the Internet if it is provided by a Qualified Internet Communication Provider (QICP). The National Weather Service, which maintains the above referenced web site is not yet a QICP.

3.2 An option suggested by the U.K. Met Office is for a State to purchase cost effective visualization software. The U.K. Met Office can furnish a State with the name of a software company which can provide that software for approximately US$800 for a single customer license, decreasing as the number of licenses required increases, to just US$400 for more than 4 licenses (assuming that they are bulk purchased by a single user). This software can be used to seamlessly (automatically) access WAFS T4 wind and temperature charts, and WAFS T4 significant weather (SIGWX) charts from the U.K. WAFS backup server FTP server and display them through a T4 viewing application. The U.K. Met Office has tested the software and finds it highly effective. Modules to display other WAFS products such as GRIB, BUFR and OPMET are available but the license cost obviously increases accordingly. Richard Orrell, Richard.orrell@metoffice.com, can be contacted for further information on this option.

4. Conclusion

4.1 The Meeting is invited to discuss and comment on noted WAFS workstation issues.