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: Review

1) implementation of ISCS and SADIS

IMPLEMENTATION OF THE INTERNATIONAL SATELLITE COMMUNICATIONS SYSTEM BY THE UNITED STATES OF AMERICA

(Presented by United States of America)

SUMMARY

This paper summarizes the completed and continuing work of the United States in the implementation of the International Satellite Communications System.

1. Background

1.1 The International Satellite Communications System (ISCS) is composed of two systems for data delivery via satellite communications. The first system, currently broadcasting on permanent virtual channels (PVCs) 1 through 3, is the World Area Forecast System (WAFS) in support of the International Civil Aviation Organization (ICAO) program for distribution of data to support international civil aviation. The second system, broadcasting on PVCs 4 through 6, is a Global Telecommunication System (GTS) that replaced the World Meteorological Organization (WMO) Caribbean and Central America distribution and collection land line systems for WMO Region IV. It is called the Region IV Meteorological Telecommunication Network (RMTN-IV) and as a pilot WMO project is a two-way, or receive and send system. The ISCS uses commercial satellites — INTELSAT VI to broadcast to the Americas (referred to as ISCS1 or Atlantic Ocean Region (AOR)), and INTELSAT V to broadcast over the Pacific and eastern Asia (referred to as ISCS2 or POR (Pacific Ocean Region)). The recurring costs of the point-to-multipoint satellite broadcasts are paid by the U.S.

1.2 The U.S. is pleased to be a partner with registered ISCS Users in a coordinated effort with ICAO and WMO to expand and improve the telecommunications service, weather prediction, and weather planning capability in the region. The combined efforts in meteorological and aviation services of States and other WAFS users, and of ICAO and the WMO exemplifies the excellent cooperation and effective teamwork that have accomplished so much since the ISCS system began.

1.3 A contract for the replacement of the current ISCS system was awarded to WorldCom/MCI on December 9, 2002. There was a protest of that award, which has since been denied. Planning is again underway for the deployment and transition of all registered ISCS sites to the successor ISCS. MCI is now developing a schedule to upgrade each registered satellite receive site. In addition to equipment modification, there will be a change in the interface protocol providing the satellite broadcast to a user's workstation. The new ISCS will involve a transition from X.25 protocol to Transmission Control Protocol/Internet Protocol (TCP/IP). That transition is on schedule with a cessation of X.25 planned in January 2004. This paper will provide an update on the new ISCS contract, and changes intended to improve ISCS service.

2. Changes to be implemented with the new ISCS contract

2.1 The following defines the system changes:

Changes at each site will involve setting the very small aperture terminal (VSAT) equipment to the frequency of the new ISCS space segment, installing the new network interface, inspecting the antenna for excessive wear and possibly refurbishing it, and assisting the site in connecting their workstation to the new interface. As pointed out on the ISCS web page: www.nws.noaa.gov/iscs under Frequently Asked Questions, the schedule once determined by MCI will be posted on the web site and each site will receive an information package within a week of the determination of their particular transition date. The information package will contain all the details as to what to expect from the MCI technician, and what is expected of the site (which is the only access to the VSAT equipment at their site). Two weeks before your scheduled transition your site will be contacted by MCI and by the ISCS program office. Information on what will occur during the transition will be made available to you at that time. You will be required to provide the MCI technician access to the VSAT and Memotec equipment at your site. There are no other requirements for your site and no other resources required of your site. The MCI technician will bring everything necessary to transition your site to the successor ISCS. If the technician cannot gain access to your site on the scheduled transition date, your site will not be transitioned to the successor ISCS system until all sites/States have been completed, and you will be responsible for additional costs for the second visit. Please contact the ISCS Program Office, either Mr. Douglas Walls at douglas.walls@noaa.gov or Mr. Patrick Gillis at patrick.gillis@noaa.gov with any questions you have prior to the scheduled transition date for your site.

2.2 The specific equipment changes are as follows: The Memotec will be removed. Sites will have the Hughes Personal Earth Station (PES) indoor unit replaced with a digital video broadcasting (DVB) receiver by the MCI technician during the transition to the successor ISCS. The MCI technician will assist you in connecting your new ISCS workstation to the new interface device during the transition.

2.3 Interface protocol changes

2.3.1 In an effort to improve service and implement a more robust end-to-end communications-meteorology system the decision was made to upgrade the interface between the Very Small Aperture Terminal and the meteorological workstation in the new ISCS to TCP/IP from the old X.25 protocol. TCP is responsible for verifying the correct delivery of data
from client to server and IP allows for the sharing of data or resources across a network. As stated above, the MCI technician will install the new interface while at your site as part of the upgrade to the new ISCS.

2.3.2 After a site has been upgraded both X.25 and TCP/IP will be provided until the cessation of X.25, planned for the end of January 2004. After January 2004, only TCP/IP will be available. It is extremely important that all STAR4, or similar generation, workstations either be replaced or upgraded prior to that time in order to assure continued reception of the ISCS data products. The STAR4 will not accept TCP/IP, and it is probably not possible to install new system software on the current STAR4 central processing unit (CPU). The exact configuration of the new workstation is for your State and your workstation provider to decide. The VSAT and interface configuration will be part of the information supplied to you as part of the transition package to be sent to you by WorldCom/MCI when the scheduled transition date is assigned for your site. It is also extremely important that the software module, to be supplied by WorldCom/MCI be installed in your workstation prior to cessation of the availability of X.25. More information on the software module is contained in the U.S. Information Paper: “World Area Forecast Center (WAFC) Washington view of the replacement of International Satellite Communications System (ISCS) Computer Workstations.”

3. System Maintenance

3.1 ISCS maintenance

Maintenance for the site network interface will be covered by the United States for all sites. States will be responsible for obtaining a maintenance agreement from MCI for their VSAT. As in the past States sites will be responsible for their workstation maintenance.

4. Satellite Receiving Equipment Implementation

4.1 WAFS - World Area Forecast System, receive-only

Sites served by the Pacific Ocean Region Broadcast

American Samoa
Australia
Brunei
Cook Island
Democratic People's Republic of Korea
East Timor
Easter Island
Fiji
French Polynesia
Indonesia
Japan
Johnson Island
Kiribati
Malaysia
Mariana Islands
Nauru
New Caledonia
New Zealand
Niue Island of Korea
Papua New Guinea
People's Republic of China
  Beijing
  Hong Kong
  Shanghai
Philippines
Republic of Korea
Samoa
Solomon Islands
Singapore
Tonga
Vanuatu
Viet Nam
Wallis Island
Hawaii (PHNL) – National Weather Service site

5. Conclusion

5.1 The Meeting is invited to discuss and comment on note the progress made by the U.S. in implementing the ISCS.