

NATIONAL WEATHER SERVICE INSTRUCTION 10-1721

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Operations and Services

Dissemination Services, NWSPD 10-17

***INTERNATIONAL SATELLITE COMMUNICATIONS SYSTEM
SYSTEM MANAGEMENT***

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Signed

11/14/2002

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Date

Director, Office of Operational
Systems

International Satellite Communications System System Management

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1. Document Purpose. This procedure describes how the National Weather Service (NWS) as the functionary specified in an Inter-agency agreement with the Federal Aviation Administration (FAA) manages, operates and maintains the ISCS.

2. System Description. The ISCS is a satellite data distribution system operated by NWS. The system is part of an integrated global weather distribution network covering the Atlantic and Pacific regions. ISCS is composed of three major components; the data provider, the data delivery and acquisition system for data broadcast and collection, and the end processor.

2.1 System Purpose. The purpose of ISCS is to provide support to the WAFS* and the GTS.

2.1.1 ISCS support for WAFS. ISCS support for WAFS is on behalf of the International Civil Aviation Organization (ICAO) and World Meteorological Organization (WMO). ISCS/WAFS purpose is to provide the worldwide aviation community with operational meteorological forecasts and information about meteorological phenomena required for flight planning and safe, economic and efficient air navigation. As a real-time, point to multi-point service, it operates on a 24-hour/365-day basis. For those sites that have it located at an airport, it functions as an additive component to the Aeronautical Fixed Telecommunication Network (AFTN).

2.1.2 ISCS support for GTS. ISCS support for GTS service to Caribbean, Mexico and Central American nations [a.k.a ISCS/RMTN (Region IV Meteorological Telecommunications

Network)] is part of cooperative efforts between NWS and WMO to improve meteorological data and information dissemination within that region; WMO Region IV. Additionally, RMTN allows for two-way exchange of meteorological information between the United States and nations of the Caribbean Islands, Mexico and Central America.

** ISCS and SADIS (United Kingdom WAFS - Satellite Distribution System) are the two components of the worldwide WAFS program; providing vital meteorological support for flight planning and air traffic management throughout the world.*

2.2 First Component. The Washington WAFC communications facility and the GTS/Regional Telecommunications Hub (RTH) on the GTS/Main Telecommunications Network (MTN) are located together in Silver Spring MD and jointly comprise the first component as data provider to the ISCS. This facility distributes grid products from connected producing facilities, composes and/or switches observational collectives, and distributes worded forecast messages from other communication centers on the multiple data streams of the ISCS. The data is transmitted using the TCP/IP protocol (by January 2004) from the Washington RTH/WAFC to the communications service provider satellite up-link facility.

2.3 Second Component. The delivery and acquisition system is a communications provider which uses satellite technology. The provider services are currently under an openly competed contract with NWS. The contracted satellite system uses Hughes Corp. up-link facilities located at Andover, Maine for utilization of a contracted space segment of an INTELSAT-IV at 325.3 degrees E over the Atlantic Ocean and also an up-link at Yacolt, Washington for utilization of the an INTELSAT-V at 177 degrees E over the Pacific Ocean. The satellite broadcast uses a C-band (5-6 Ghz) system. The Hughes VSAT (2.4 meter antenna, RF electronics) and a network interface device make up the downlink equipment. All downlink equipment with exception of network interface equipment (and maintenance) is the responsibility of the owner/end-user. The components as indicated comprise the communications system and will be placed where users establish their service. The global area of potential reception of the two satellites cover two-thirds of the globe. SADIS (United Kingdom WAFS - Satellite Distribution System) covers the remaining one-third.

2.4 Third Component. A computer processing system must be connected to the communications port of the network interface device. This computer system is selectable by the user, but the interface of the selected computer must be prepared to utilize from three to six Permanent Virtual Channels to receive the various data streams. The system can be a stand alone workstation as the third component of the ISCS. This component receives the data stream and stores the data for retrieval and use. Countries (or agencies within authorized countries) desiring connection to receive the ISCS satellite broadcast may select any workstation from the available commercial vendors. These vendors (located around the world)** have built computer systems which must meet the functional requirements for an ISCS workstation.

*** A partial list of companies with ISCS ready computer systems is located on the internet at <http://www.nws.noaa.gov/tg/iscsmaj.shtml>*

3. Organizational Responsibilities. This section describes the responsibilities of the NWS Headquarters concerning ISCS. Additional information on ISCS responsibilities can be found in the NWS Policy Directive (NWSPD) 10-17, *Operations and Services Dissemination Policy* and

NWS Instruction (NWSI) 10-1720, *International Satellite Communications System Dissemination*.

3.1 NWS Headquarters (HQ). The Assistant Administrator (AA) for Weather Services has overall responsibility for HQ ISCS program and coordinates ISCS program administration with FAA, WMO, and ICAO management.

3.1.1 Office of Operational Systems (OPS). OPS provides staff assistance to the AA for Weather Services and the FAA for ISCS program management and configuration control. The Data Dissemination Branch (OPS17), has overall responsibility for the following:

- a. Program Management of the ISCS; including program and financial management and operational, engineering and communications;
- b. Management of the ISCS communications and system maintenance contracts; monitoring the maintenance and logistical support required;
- c. Engineering and technical support for ISCS, including programming consoles, telecommunications, and station components;
- d. Technical and system management liaison with ISCS stakeholders; including HQ, equipment manufacturers, other government agencies and user communities (foreign and domestic); and
- e. Outreach to government and private organizations (both foreign and domestic), individuals and the public regarding ISCS and its importance in support of free global aviation weather data and products dissemination required for flight planning and safe, economic, and efficient air navigation.

3.1.2 Office of Climate, Water and Weather Services (OS). OS is responsible for establishing policy regarding the broadcast program content of ISCS in accordance with WMO and ICAO requirements (NWSPD 10-17, *Operations and Services Dissemination Policy*).

4. Broadcast Service Area. The service area shall be the region as indicated in NWSI 10-1720, *International Satellite Communications System Dissemination*. ISCS broadcasts can usually be received on WAFS compliant systems and other computer systems as configured with WMO International Standard interface and data format capability. Current ISCS service area includes those regions covered by INTELSAT-VI; Atlantic Ocean Region (North America, Central America, Caribbean Islands, South America, parts of Western Europe, and Western North Africa) and INTELSAT-V; Pacific Ocean Region (Alaska, Western North America, New Zealand, Australia, Asia and Eastern Russia).

5. Weather Products and Information. The ISCS aviation weather broadcast format conforms to WMO and ICAO specific guidelines. Information that is broadcast to the aviation community is selected and prioritized based on the weather needs of the people in the service area and in accordance with the guidelines established (NWSI 10-1720, *International Satellite Communications System Dissemination*).

6. Policy on ISCS Access. Access to the ISCS broadcast is free based on the user's purchase of a VSAT antenna, downlink, and registration with the NWS/WMO-ICAO representative.

7. ISCS Maintenance. OPS17 performs a staff function within HQ; acting with authority delegated from the AA and the FAA, providing direction, assistance, resources, and other support to the registered users of the ISCS broadcast and ISCS Memorandum of Understanding (MOU) signatories.

