

**Report on Availability of Special Sensor Microwave Imager and Sounder (SSM/IS) Data**

The USA provides an overview of the SSM/IS implementation and distribution plan. The SSM/IS data will be made available via FTP through the NOAA CEMSCS system and the NESDIS Satellite Active Archive. NOAA will NOT generate sounding-related level 1B from the SSM/IS. There is no current requirement for SSM/IS sounder related level-1B products.

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### **Introduction**

NESDIS will provide standard FTP access to files containing SSM/IS Temperature Data Records (TDRs), Environmental Data Records (EDRs) and Sensor Data Records (SDRs) through the Shared Processing distribution system to the participating Centrals approximately one (1) year after launch of the Defense Meteorological Satellite Program's (DMSP) F-16 spacecraft (depending on Cal/Val – see below) that is scheduled for launch in November 2001. Currently, the data are selected to be in native format (Aerojet Binary) from the Air Force Weather Agency (AFWA). NESDIS will not serve SSM/IS Upper Air Sounding and Lower Air Sounding data through Shared Processing unless a request for these data is received and approved. The most current set of products will be kept on the NESDIS server. All archived sources shall be through NESDIS's [Satellite Active Archive](#).

### **Calibration/Validation and Data Availability**

A joint Air Force/Navy SSM/IS Calibration/Validation (Cal/Val) program has been established to manage the on-orbit checkout and evaluation of data from this first in a new series of DMSP microwave sensors. The successful execution of the Cal/Val program will determine how soon the SSM/IS TDRs, SDRs, and EDRs will be available to NOAA and to other operational users. A detailed SSM/IS Cal/Val plan, patterned after the successful SSM/I Cal/Val program, has been developed that restricts the availability of all SSM/IS data until the Cal/Val team has completed the verification of the radiometer absolute calibration accuracy, geo-location accuracy, and validation of the EDRs.

The sequence of events for the Cal/Val phase involves: (1) early orbit evaluation; (2) initial assessment; (3) detailed system calibration; (4) detailed validation; and, if necessary, (5) algorithm improvements. A number of approval/release gates have been established that are associated with these phases of the Cal/Val program to review over-all sensor performance and recommend potential release of sensor and EDR products. Currently, the gate for possible release of EDR products meeting specification has been scheduled for approximately 12 months after launch. At this gate, or possibly sooner, the Cal/Val team will have established the accuracy of the EDRs and, for those meeting specification, recommend to the DMSP System Program Office (SPO) that they should consider releasing these data to the operational users. Those EDRs not meeting specification will be addressed in a subsequent Cal/Val phase through algorithm improvements. Approximately 6 months have been allocated for this second phase, expecting that no major algorithm developments will be needed and that the release of the remaining EDRs will occur within 18-20 months after launch. Once the DMSP SPO has approved release of the SSM/IS data, these data will be made available upon receipt to authorized recipients. As evidenced with the success of the SSM/I data utilization, the SSM/IS Cal/Val plan has been developed with team members from NASA, NOAA, Navy, and Aerospace remote sensing scientists and sensor specialists to ensure high quality SSM/IS sensor and EDR products are produced for both the operational and scientific users.

NESDIS will provide SSM/IS TDR data from DMSP F-16 in BUFR format to NWS and other customers once these data have been approved by the DMSP SPO for release (approximately one (1) year after launch). These data can be obtained through standard FTP. The user must obtain an account from NESDIS to access these data. The data will be available as soon as possible after delivery by the NESDIS Central Environmental Satellite Computer System "CEMSCS" servers. Data will be obtained from Fleet Numerical Meteorology and Oceanography Center (FNMOC) if possible in a timely manner. Otherwise the BUFR conversion will be done by NESDIS. The distribution system for this has not been finalized.

### **Data Types Available**

There are three (3) product types for each satellite provided on the server. These data types are:

TDRs contain calibrated and earth-located data prior to irreversible antenna pattern correction. The temperature data represent microwave energy levels measured by the seven SSM/IS channels of the radiometer instrument. The energy levels are expressed as an equivalent blackbody temperature (antenna temperature).

SDRs are time-tagged, earth-located and calibrated antenna-pattern-corrected brightness temperatures for all seven SSM/IS channels.

EDRs are time-tagged earth-located meteorological and oceanographic parameters produced from the SSM/IS SDRs. The derived parameters include Cloud Water Vapor, Cloud Liquid Water, Rain Rate, Sea Ice Concentration, Sea Ice Age, Sea Ice Edge, Soil Moisture, Surface Wind, Water Vapor over oceans (precipitous water), Surface Temperature, Snow Water Content, Cloud Amount, and EDR Surface Type.

### **Delivery Details**

NESDIS will provide on-line access to SSM/IS TDR, EDR and SDR data to the public via CEMSCS FTP and the Satellite Active Archive (SAA) approximately one (1) year after launch of DMSP's F-16 spacecraft. This access will use the same method that SSM/I TDR, SDR, and EDR data are currently served. These data will be in native format from AFWA.

NESDIS will serve and archive data to members of the SSM/IS Cal/Val team as soon as possible after launch of DMSP F-16. NESDIS will generate daily mapped polar stereographic projection grids (Mastermaps format) and derived products in the Man-computer Interactive Data Access System (McIDAS) format which incorporate SSM/IS EDR and SDR imager data beginning approximately one (1) year after launch of DMSP's F-16 satellite. However, NESDIS will NOT generate sounding-related level 1B data from SSM/IS. There is no current requirement.

These plans reflect NESDIS activities and plans accurately as of October 2001. However, they are subject to change. For further information concerning the distribution of the SSM/IS data,

[Mac.McCreary@noaa.gov](mailto:Mac.McCreary@noaa.gov) is the NESDIS contact. In the future, NESDIS will provide SSM/IS technical documentation and processing source code on the [NESDIS server](#).