

## **STATUS OF THE INTERNATIONAL DATA COLLECTION SYSTEM (IDCS)**

### IN RESPONSE TO CGMS PERMANENT ACTION 01

NOAA-WP-14 provides a status report on the performance of the International Data Collection System (IDCS). NOAA's DCS Automated Processing System (DAPS) is still running, but a new emergency backup system has been developed to keep data distribution flowing in case of a crash. The DCS Alternate Data Distribution System (DADDS) can now be brought online when needed, providing distribution of critically needed data. through the Internet, through a commercial communications satellite (DOMSAT), and through NOAA's National Weather Service Telecommunications Gateway (NWSTG, which feeds the Global Telecommunication System (GTS)) DADDS is planned to expand to provide all the functionality of the DAPS system, with improved system monitoring capabilities and better user interface. NOAA has finalized new Certification Standards to allow transmitters to use smaller channels, and plans to begin development of new transmitters within 6 to 12 months. This will allow us to double the number of channels on our system over the long term (estimated 10 years to completion) from approximately 200 channels to 400 channels. The transition to high data rate continues, with approximately 19,000 of the 26,000 platforms assigned reporting at 300 or 1200 baud. The number of 100 baud transmitters is finally beginning to drop, indicating that users are decommissioning the older transmitters. NOAA is investigating the use of two way communications to better command and control platforms. A phase I analysis was completed, and a Phase II effort which will deliver a prototype receiver and wave form definition has been underway for one year. A prototype is due in approximately 6 months. As previously noted, a conflict in the addressing scheme makes it difficult for the NOAA to include new addresses generated by EUMETSAT. There is no current plan to address this issue, as use of the international channels is minimal.

## **STATUS OF THE INTERNATIONAL DATA COLLECTION SYSTEM (IDCS)**

NOAA has been very active in the DCS area in the past several years. The use of the NOAA Regional DCS continues to grow, with approximately 26,000 transmitters operating on the system at the current time. New users, new sites, and more frequent reporting schedules for existing sites are added every week. In the six years since the deployment of our high data rate transmitter, use of the system has more than tripled. The demand continues to grow, so NOAA is focusing on several activities to increase system capacity, and to improve system efficiency.

### **1.1 DADDS Status**

NOAA's DADDS project, intended to replace the 19 year old DAPS (DCS Automated Processing System) is underway.. The digital demodulators, developed under the mostly unsuccessful DAPS II project have revolutionized the performance of NOAA's DCS. These demodulators have allowed flexibility in our use of the system that has not been available in the past. Two immediate advantages are: better monitoring of radio signals for troubleshooting of platform problems, and flexibility to define channels. Some modules of the DADDS are already available, and have been utilized for emergency situations. The system management and monitoring functions are yet to be completed, and are the final step to complete operational replacement of the DAPS.

### **1.2 Narrow Band Transmitter**

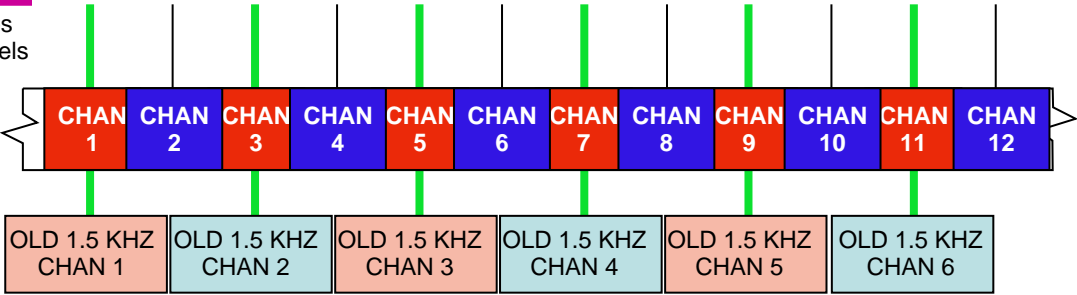
NOAA has finalized new Certification Standards to allow transmitters to use smaller channels, and plans to begin development of new transmitters within 6 to 12 months. This will allow us to double the number of channels on our system over the long term (estimated 10 years to completion) from approximately 200 channels to 400 channels. Because our demodulators and transmitters are all digital systems, most of the changes will take place in software, and are anticipated to be simple changes. The new channels are expected to maintain the same center frequency as the existing channels, but with new smaller bands around those frequencies. Once the existing channels are realigned, we will insert new channels between them, minimizing the impact on users of existing systems. NOAA must build new certification test sets before the certification process begins, so it may be up to one year before we begin implementation of the new transmitters. The current high data rate transmitters and the new transmitters are expected to be able to operate on the same channels, and the existing demodulators will be able to pick up both signals, so the impact on the ground system should be minimal.

# FREQUENCY PLAN #1

401.7010	401.7017	401.7025	401.7032	401.7040	401.7047	401.7055	401.7062	401.7070	401.7077	401.7085	401.7092
00	50	00	50	00	50	00	50	00	50	00	50

Low Pilot  
401.70000

300 bps  
Channels



EVEN NUMBERED (RED) CHANNELS ON EAST SATELLITE  
ODD NUMBERED (BLUE) CHANNELS ON WEST SATELLITE



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## New NOAA Regional DCS Frequency Plan

### 1.3 High Data Rate Transition.

The transition to high data rate continues, with approximately 19,000 of the 26,000 platforms assigned reporting at 300 or 1200 baud. A significant portion of the original 100 bps transmitters remain on the system, but we are beginning to see some decreases in those numbers. We have used all of the available channels on the system, and are now in a position where we have no new channels to deploy. We have implemented a change that will allow transmissions of both 100 and 300 bit per second data rates to be received on a single channel, and NOAA is selectively allowing this to be used to speed up our transition. This will be restricted to only those users who have a large volume of transmitters, and who will be capable of receiving both rates on one channel if they have their own ground system. So far this change has been very successful, and is allowing system growth to proceed. However, NOAA will be very grateful to receive permission to use a portion of the international band, if the plan presented to distribute those channels is approved.

## 1.4 Data Collection Platform Command (DCPC) development

NOAA is also investigating the use of two way communications to better command and control platforms. A phase I analysis was completed, and a phase II project to develop prototypes has been underway for about one year. Not only will this allow users to reprogram their platforms remotely, but it will allow NOAA to better manage the system by managing such things as power levels and performance (i.e. reset a bad clock, send a stop command in extreme instances, etc.) This capability would allow such practices as moving all platforms on a single channel to another channel in case of an interference problem. We are anxiously watching this development activity, and hope to see a successful completion over the next year.

## 1.5 Issues

As previously noted, a conflict in the addressing scheme makes it difficult for the NOAA to include new addresses generated by EUMETSAT. Some of the addresses generated for the IDCS by EUMETSAT already exist in the NOAA database, assigned to US platforms that have been operating for decades. This conflict was not recognized by the NOAA delegation to the CGMS at the time that the scheme was agreed upon, and has been recognized as a serious problem in database coordination among the satellite operators. There is no current plan to address this issue, and as use of the international channels decrease this problem is not expected to have much impact on the system...

## 2. STATUS OF IDCS

This document presents a status report on the performance of the International Data Collection System (IDCS). NOAA will be utilizing the Channel Interference Monitoring System (CIMS) in a stand alone mode once it is available. The system is for all intents and purposes complete, but NOAA has not received final delivery from the contractor. This system, originally intended to provide better monitoring and evaluation of the international channels, has proven to be useful for overall system monitoring, including troubleshooting of interference problems..

From October 2007 through September 2008 the total number of platforms assigned to the international channels were as follows:

00	06	07	08	12	13	14	15	16	17	18	20	23	27	31	32
10	9	13	14	11	1	3	6	1	2	10	8	20	3	18	59

### **3. INTERFERENCE TO THE IDCS**

Several subsystems that were scheduled to be utilized to monitor international channel activity are not available. Therefore, activities associated with monitoring the IDCS for interference are available through the heritage (1989) Data Collection System. However, a new system that will utilize card-based spectrum analyzers is under contract and will be tested at the Wallops CDA Station in the near future.

### **4. CONSOLIDATED LIST OF IDCS ALLOCATIONS**

There have been very few new allocations of IDCPs within the past year.

### **5. CONCLUSION**

CGMS members are invited to take note of the status and performance of the IDCS at [www.dcs.noaa.gov](http://www.dcs.noaa.gov).