

## STATUS OF THE 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 II (DAPS II) project, intended to replace the 18 year old DAPS-I has been cancelled. A new system called the DCS Alternative Data Distribution System (DADDS) is being built from functionality already provided in new digital demodulators to provide emergency backup for the faltering DAPS system, and to form a basis for a new replacement system. NOAA has just completed new Certification Standards to allow transmitters to use smaller channels, and plans to begin development of new transmitters within 18 months to 2 years. 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 28,000 platforms assigned reporting at 300 or 1200 baud. Work continues on the Channel Interference and Monitoring System (CIMS). This system, which will enable better monitoring and evaluation of the international channels, is due for acceptance testing and final acceptance by September 30, 2007. 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 effort which will deliver a prototype receiver and wave form definition has just been awarded. 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, but it will remain open for action in the future.

## STATUS OF THE IDCS

NOAA has been very active in the DCS area in the past year. We've had some successes, and some failures, and begun several new activities to improve the performance of our Data Collection System. The use of the DCS continues to grow, with approximately 28,000 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 five 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.

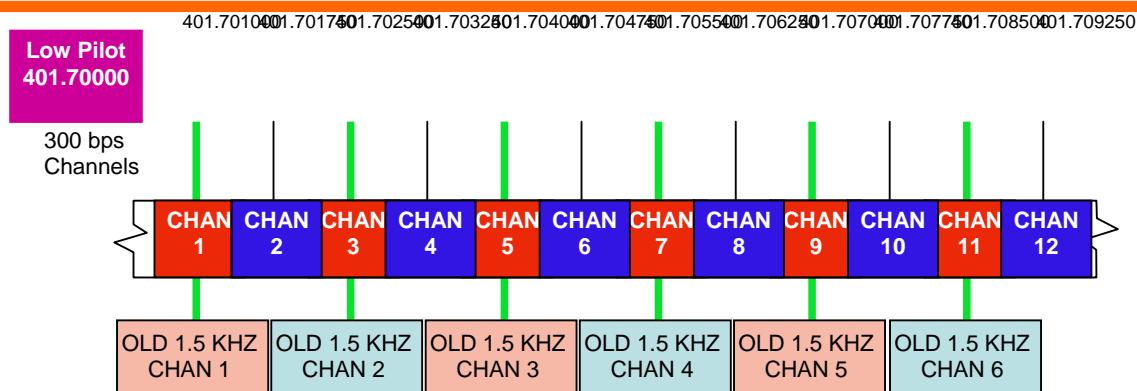
### 1.1 DAPS II Status

NOAA's DAPS II project, intended to replace the 18 year old DAPS (DCS Automated Processing System) has been cancelled. Operability and security issues made most of the system unusable. However, a new set of digital demodulators was developed under this contract which has 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. A new system called the DCS Alternative Data Distribution System (DADDS) is being built from functionality already provided in the digital demodulators to provide emergency backup for the faltering DAPS system, and to form a basis for a new replacement system. Some modules of the system are already available, and have been utilized for emergency situations.

### 1.2 Narrow Band Transmitter

NOAA has just completed new Certification Standards to allow transmitters to use smaller channels, and plans to begin development of new transmitters within 18 months to 2 years. 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 signals 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 will 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



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



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## New DCS Frequency Plan

### 1.3 High Data Rate Transition.

The transition to high data rate continues, with approximately 19,000 of the 28,000 platforms assigned reporting at 300 or 1200 baud. A significant portion of the original 100 bps transmitters remain on the system, with most of the high data rate transmitters being new installations, and not replacements. 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. Under current operations a channel must be either 100 bit per second, or 300 bit per second. A simple change will allow transmissions of both data rates to be received on a single channel, and NOAA plans to implement this change in the near future, for channels with a single user. 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. This is expected to

speed up the movement from low to high data rate, and allow system growth to proceed.

#### **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 was just awarded. 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 looking forward to watching this development activity.

#### **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, but it will remain open for action in the future..

### **2. STATUS OF IDCS**

This document presents a status report on the performance of the International Data Collection System (IDCS). Due to indefinite delays in the deployment of DAPS II, NOAA will be utilizing the Channel Interference Monitoring System (CIMS) in a stand alone mode. This system is due to be delivered to the Wallops CDA Station in November 2007. This system will enable better monitoring and evaluation of the international channels.

From October 2006 through July 2007 the total international channels assigned in the system were as follows:

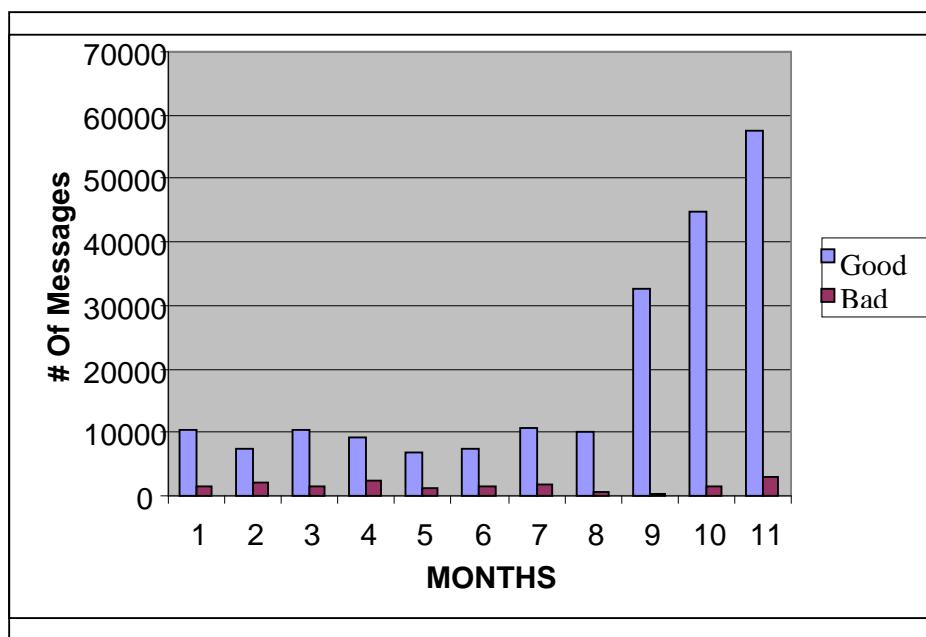
OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
missing	97	97	412	97	369	missing	224	97	104

During the same timeframe the total number of channels that were active in the international channel region were as follows:

OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
missing	13	17	67	16	59	missing	26	17	22

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. The NOAA plans to address this discrepancy after the completion and phase-in of DAPS II. Since DAPS-II has been indefinitely delayed, there is no current plan to address this issue.

The chart below is a summary of the good and bad messages transmitted on the IDCS channels during the months of October through August 2007. The blue column is good messages; the red column is bad messages. The months are from Oct 06 through August 07.



The actual data is as follows:

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Good	10354	7458	8398	9136	6961	7431	10603	9954	32695	44897	57503
Bad	1364	1994	2154	2319	1288	1421	1683	676	311	1425	2841

### 3. INTERFERENCE TO THE IDCS

NOAA is preparing for the installation and checkout of its new DCS Automatic Processing System II. However this system has been indefinitely delayed. Therefore, several subsystems that were scheduled to be utilized to monitor international channel activity will not be 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 by the end of the year.

#### **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).