

CGMS-XXIX USA-WP-11  
Prepared by USA  
Agenda Item: F.1  
Discussed in Plenary

## **Channel Interference Monitoring on The GOES System**

To provide a report on the Interference Monitoring on the  
GOES IDCS channels.

## Channel Interference Monitoring on The GOES System

### **I Introduction**

As a member of the Coordination Group for Meteorological Satellites (CGMS), NOAA is tasked with managing the GOES frequency resources for the International Data Collection Service (IDCS). To efficiently utilize these resources requires that NOAA monitor and report interfering signals on unassigned international channels so that new services can be initiated on interference free channels. In January 1996, the Wallops Command and Data Acquisition Station (WCDAS) developed the IDCS Automatic Monitoring System (IDAMS) to provide interference monitoring. Although this system provided continuous, automatic frequency monitoring and reporting, the system was limited in its capabilities and reaction time. The IDAMS provided a “proof of concept” to build on. In May 1999, the WCDAS deployed an improved system, the Channel Interference Monitoring System (CIMS).

The CIMS provides continuous, automatic testing and reporting for both GOES East and West unassigned international channels. Its capabilities have also been expanded to provide operator scheduled testing of all GOES DCS channels, both International and Domestic. Along with statistical reporting of Radio Frequency Interference (RFI), the CIMS proves the capability to capture, archive and analyse a Spectrum Analyser plot of all tested signals.

### **2 System Reporting**

A statistical log of all unassigned international channels where the CIMS indicates the presence of RFI is maintained in the form of an Excel spreadsheet to help in manipulating the data. A monthly report is generated (see Table 1) from this spreadsheet showing a running account of the percent time that any channel has interference when tested. The running account begins January 1 each year so that the cumulative monthly reports shows statistics gathered from January 1 until the date of the report. The Spectrum Analyzer plots of channel RFI are also archived and can be printed out, along with the measurement parameters, for analysis. CIMS system level work continues on automating the posting of monthly reports on the website.

Table 1

Channel #	Phase Locked	Times Tested	% Time Locked
202	3	29143	0.010294067
204	3	19790	0.015159171
206	4	19493	0.020520187
208	2	19947	0.01002657
210	1	19482	0.005132943
216	1	19938	0.005015548
218	0	19938	0 0
222	1	19932	0.005017058
238	0	19927	0 0
244	0	19922	0 0
246	0	19918	0 0
248	3	19914	0.015064779
250	2	19908	0.010046213
252	0	19902	0 0
254	0	19897	0 0
256	0	19891	0 0
258	2	19888	0.010056315
260	0	19884	0 0
264	2	19883	0.010058844
266	6866	19882	34.53374912
100	15014	15019	99.96670884

### 3 Data Analysis for Year 2001

Analysis of the monthly data over the past year indicates that, with the exception of Channel 266, the current unused GOES International DCS channels are relatively free of any long-term interference that would prohibit their operational assignment. Channel 266 still continues to exhibit a near continuous interfering signal which renders the channel unsuitable for IDCS operations.

### 4 DAPS II and CIMS

NOAA has awarded a contract for the design and implementation of the next GOES DCS Automated Processing System, DAPS II. DAPS II will fully integrate the CIMS system and functionality, providing real-time data and interference “snapshots” through the Internet as well as archiving the data for long-term statistical analysis.

### 5 Dissemination of DCP messages (GTS or other means)

International Channel	NESDIS Id.	Messages
I-6	212	8,139
I-7	214	2,034
I-10	220	5,101
I-12	224	10,363
I-13	226	1,209
I-14	228	7,279
I-15	230	8,689
I-16	232	26,648
I-17	234	18
I-18	236	16,581
I-20	240	667
I-21	242	1110

Total messages for all IDCS channels = 87,838

Note: SEAS Program is using a commercial satellite system for primary transmissions, and is no longer using the IDCS in significant amounts.

### 5 Conclusion

With the deployment of the CIMS in May 1999, GOES IDCS is able to provide a flexible, continuous, automated service in the monitoring of the international channels. Through better interference detection and monitoring, NOAA helps to ensure that new services offered through the GOES IDCS are as efficiently used as is possible.