November 6, 1999 E/SP3:JW

MEMORANDUM FOR: GOES Data Collection System (DCS) Users

FROM: Kay Metcalf
GOES DCS Operations Manager

SUBJECT: Minutes of the 90th GOES DCS Technical Working Group (TWG) Meeting, October 27, 1999

I. Opening Remarks - Kay Metcalf, DCS Operations Manager (NESDIS/DSD)

The meeting was called to order at 9:00 a.m. at the Oppenheimer Conference Center, Los Alamos, New Mexico, hosted by the Los Alamos National Laboratories (LANL). The TWG was well attended, and also included representatives from most of the Data Collection Platform Manufacturers.

Welcoming remarks were given by Kay Metcalf who is the NOAA/DCS Operations Manager. . Kay, on behalf of the DCS/TWG thanked Larry Sanders and Elaine Chavez of the LANL for their efforts in hosting the STIWG and TWG meetings. Kay also introduced the members of the NOAA/NESDIS delegation to the DCS users.

Larry Sanders introduced Elaine Chavez, and welcomed the group to Los Alamos.

Kay then reviewed the agenda, and announced a special presentation on automated DCP updates, to be given by Ernie Dreyer, the STIWG Chairman later.

II. Action Item Review - Dane Clark, DSD/DCS Team Leader (NESDIS)

Dane Clark, the DSD/DCS Team Leader, presented details on NOAA'S current DCS staffing. Phil Whaley is the new DCS certification officer. Phil is located at the Wallops CDA, and has been chosen to fill the void left by Cy Settles recent retirement. Marlin Perkins is now the Satellite Services Program Leader and is handling responsibilities such as international CGMS representation, EMWIN services, High Data Rate development, and digital LRIT replacement for the analog WEFAX. Kay Metcalf is now the DCS Operations Manager and is responsible for the day-to-day DCS operations such as customer interface, TWG Chair, and STIWG attendee. Assisting Kay are Carol Dash who is the DCS Customer Service Coordinator, and Letecia Reeves as Program Assistant.

Dane reviewed the DAPSII procurement status. Warren Dorsey of NESDIS is the COTR for the project. The DAPSII has its own procurement web site at www.osd.noaa.gov/daps which contains requirements, and much of the existing DAPS documentation. The DAPSII RFP is scheduled for release in December 1999. It is estimated that the new DAPSII should be in place within 1.5 to 2 years. In response to a question, Dane explained that the procurement covers hardware and software for a new DCS computer system (the current DAPS) only and not the RF equipment that is at Wallops. He also said that the Suitland, MD portion of the system will have 24x7 full time operational support. Dane gave a brief history of the DAPS development starting at Camp Springs, MD in the 1980s, leading up to the distribution of functions envisioned for DAPSII between the DSD/DCS located in Suitland, MD, and the Wallops CDA in Virginia.

III. System Status

a. Data Processing and Distribution - Kay Metcalf, GOES DCS Operations Manager (NESDIS/DSD).

Kay stated that the DCS is now Year 2000 compliant. Al McMath has been working on this problem for nearly a year, and has replaced or updated much of the DAPS software. Users have been urged to run tests of their own. In response to a user's question, Kay said that she thought that there was an independent auditor's certification of the DAPS as Y2K compliant. (It has been determined that there is periodic auditor oversight, however the Wallops DAPS Y2K software effort is a continuing process).

Responding to a question about the DCS "hit list" that Mike Nestlebush used in past meetings, Kay said she preferred that users go to the DCS Web Site to see if they needed to revise their platform tables. There were continued requests for revising the "hit list" since it motivates the offenders to really clean-up their table parameters. So, Kay agreed to regenerate the list and she will bring it to the next meeting. She will present the list by projection of the web site listing from a computer. Kay related how the new DCS computer, DAPSII, will provide automated e-mailings to users who have problem PDTs or DCPs. She further emphasized the need for users to keep their PDTs current. She continued to encourage users to use the web site for error checking, in order to get the "hit list" down to manageable levels, as there are a lot of errors on the system at this time.

b. Spacecraft - Marlin Perkins - Satellite Services Program Leader (NESDIS/DSD)

Marlin reported that the GOES-8 (launched in April 1994) is the current east satellite, and that GOES-10 (launched in April 1997) is servicing the west. The west satellite experienced an "A" transponder problem in July of this year, resulting in a switch to "B", the second of the two transponders on board. Western users expressed concern that there was now no back-up transponder on GOES-10. The third satellite, GOES-9 has been in a storage mode since July 1998 when it experienced mechanical difficulties, and is parked at 98 degrees longitude. The next satellite in the series is GOES-L, and is presently scheduled for a December launch.

Marlin then reported on the DCS Channel Interference Monitoring System (CIMS). The CIMS is a system that NESDIS has implemented for automatically monitoring both domestic and

international channel interference. Unassigned channel use, whether East or West GOES, can now be efficiently tested and reported. Marlin also reported on a new program that is being studied within NESDIS for detecting and locating unauthorized or other bogus channel interference. While the new system is only in the study phase, it would allow the accurate location of wayward DCS emissions. One or two satellites would be employed for determining the spatial location. The new system has been given the designation Transmitter Location System (TLS). A demonstration test is planned in the near future.

Another exciting study was described by Marlin. NESDIS is studying the use of CDMA spread spectrum utilization within the DCS transmission band. The approach being examined would have the current TDMA communications exist concurrently with CDMA, thus allowing users the option of either high rate technology. This study is also in the preliminary phases, and it is expected to be some time before any demonstrable results occur. We will continue to provide updates as the project continues.

Papers on these studies were presented by Marlin, the NESDIS/ representative, at the recent CGMS Meeting in Beijing, China. Transcripts can be accessed at the WMO Web Site http://www.wmo.ch/hinsman/CGMS27lists.html.

IV. Satellite Telemetry Interagency Working Group (STIWG) Report - Ernest Dreyer, (USGS).

Ernest Dreyer, the chairman of the STIWG, presented a review of the STIWG meeting which was held the preceding day. The first issue covered was the DCS High Data Rate status. Most of the Vitel 300 and 1200 bps demodulators have been tested and delivered to the Wallops CDA. The High Data Rate Improved Test Transmitter has also been delivered. The NESDIS CDA and OSD personnel have the units up and running at Wallops, and now are ready for 300/1200 DCP input. The high data rate system will be running in a preliminary test mode until declared operational in about six months.

The DOMSAT contract is to be extended into the year 2002**.** NESDIS will immediately start on the contract extension.

There is concern about the DCS system reliability. If the current west antenna had been stowed for Hurricane Floyd, the smaller antenna at Wallops would not have been able to support the DCS needs. Also the planned NASA/GSFC backup facility will not have DCS support functions. So the STIWG is going to present a letter to NOAA expressing the view that DCS should be considered a Primary System with first order support. This position was supported by the group. He reported to the members that his LRGS upgrades will include open systems software to facilitate network availability. He went on to report that the STIWG has decided to form a committee to arrive at a set of data standards. A set of standards, even if limited, would enhance DCS data sharing. This has been a long standing issue within the community.

V. New Business

a. High Data Rate Transition Plan - Kay Metcalf (NESDIS/DSD)

Kay informed the group that the a final appendix had been issued to the High Data Rate Certification Standards. The appendix is labeled "Version 1.0A of the 300/1200 BPS GOES Data Collection Platform Radio Set (DCPRS) CERTIFICATION STANDARDS", and is date October 1999. Warren Dorsey, who is the High Data Rate COTR, had mailed copies of the addition to all manufacturers. This last appendix completes the standards.

Representatives from various manufacturing companies who were in the audience asked to be recognized to make comments on the Hi Data Rate Certification Process. They were given permission to speak, but were asked to remember that the engineers who developed the standards were not present, so they should not expect an engineering discussion to ensue. In addition, they were asked to be brief, in order to keep to the meeting schedule. . Rick Lockyer of Vaisala/Handar Corp. was given permission to address the group. Rick presented issues that he thought represented a lack of responsiveness by the High Data Rate COTR, Warren Dorsey. He said that certification questions that he sent to the COTR went unanswered. He presented scenarios that would imply that their high data rate development work was impeded by the COTR's actions. This led ad to heated discussion within the group.

Pete Nyberg, of Sutron Corp. made a very short presentation of their High Data Rate efforts. Duane Prebel of Vitel Corp. next informed the group that they have successfully completed and tested High Data Rate demodulators, and a test transmitter, and expect to have high data rate DCPs certified within 2 months.

At this point the STIWG called for a breakout meeting to consider the Vaisala/Handar complaints. So the rest of the TWG had a 45 minute intermission, during which they were encouraged to visit the vendor display area while the STIWG met.

After reconvening the TWG, Ernest Dryer, the STIWG Chairman, presented the results of their meeting. He emphasized that the motivation of the High Data Rate contract was to foster healthy competition in the manufacture of the high data rate equipment. The STIWG is of the opinion that, as the High Data Rate development effort was funded by the STIWG, that they should have possession of the standards developed by VITEL. (It has since been noted that Vitel was only tasked with developing draft standards, that the final standards are a NESDIS product, not a VITEL product. However, it is in the best interests of the DCS community, including NESDIS, for the High Data Rate project to succeed, so it is the feeling of the DCS Project Management staff that NESDIS should work cooperatively with the STIWG to address any unresolved issues.) The STIWG took the action to poll the vendors for unanswered questions, and to forward those questions to the COTR, along with a request to reply to the STIWG, who would post the answers to all of the interested vendors, possibly through an Internet web site..

The meeting returned to the high data rate transition planning at this point. Kay stated that there are currently enough Demods for initial high data rate use, and that there are 5 years remaining for purchase of Demods under the present Vitel contract. There was much discussion about high data rate time slot duration. Five and ten second windows are viable in the new high data rate

world. The question of certification of new high data rate DCPs was discussed. While the initial certification could take longer, there seems to be no reason that future DCPs could not be certified within 2 weeks at the most, but the Certification Officer at Wallops will have control of this task It was emphasized that the new high data rate transition plan represents guidelines, and must allow exceptions. Also, high data rate users need to exercise careful planning as they move into this new era. The possibility of using mixed speed Demods on the same channel was mentioned. This is a new concept, and the members agreed to look more closely into this. Kay will examine the impact on the DAPS associated with utilization of 5 and 10 second windows.

Users expressed concern over lack of spare GOES-West demodulators. Also demand for time slots at the top of the hour was mentioned. The solution would be to use the shorter time slots associated with high data rate technology. A user wanted to know if one who supplied a demod would be required to furnish a spare, and the answer was no. NESDIS will explore the possibility of using 100 and 300 bps on the same channel.

A suggestion was made to have reports by users who are doing something different with the DCS in place of the traditional user reports that are given during the second half of the TWG. There seemed to be general agreement with the suggestion.

It was announced that Ernie Dryer would give a demonstration of his automated PDT update software at the end of today's meeting.

VI. Data and Time of Next TWG meeting

The next TWG meeting will be during the week of March 6, 2000 in Reston, Virginia.

300 BPS Data Collection Platform (DCP)
Operation & Assignment Policies

Kay Metcalf
NESDIS GOES DCS Coordinator
Revised 2/22/1999
DRAFT

This document is a guideline for policies pertaining to the operation and assignments for 300 and 1200 BPS data collection platforms.

1. All demodulators for dedicated channels will be purchased by the user. Once purchased, these demodulators become the property of NESDIS, and will be allocated with priority given to the purchaser as long as the criteria for maintaining a dedicated channel are met.

2. All dedicated channels must utilize a minimum of 30% of the available time slots within the first year, 50 % of the available time slots within the second year, and 70% of the time slots within the third year.

3. Messages of 318 bytes or less will be assigned to 15 second windows, messages between 318 bytes and 693 bytes will be assigned to 30 second windows, and messages between 694 bytes and 1819 bytes will be assigned to 1 minute windows on shared and general use channels. . Windows on dedicated channels may be smaller at the discretion of the user as long as proper maintenance procedures are maintained. Messages between 1819 bytes and 2943 bytes will be assigned on a user-by-user basis for shared, dedicated and general use channels, and must be demonstrated to be of extreme programmatic importance to gain approval..

4. 300 bps random reporting channels will follow the same requirements as 100 bps channels with respect to number of bytes per message:

① 32 bytes maximum data message length plus the current short preamble at 300 bps = 1.133 seconds (.5 second clear carrier + .48 seconds alternating 1s and 0s + 15 bits of MLS + 31 bits of BCH coded address work). Overhead may change with 300 bps certification specifications and capture time of 300 bps demodulators.

Maximum message length in time = 2.0 seconds.

5. Random reporting data precision will be the users choice. The current random reporting format, or as outlined in the random reporting certification specification for 300 bps DCPs must be followed.

6. NESDIS will stop 100 bps assignments after 6 months from the time that a minimum of two (2) manufacturers have been certified to produce 300 bps transmitters.

7. 100 bps DCPs will be grand fathered for TEN (10) YEARS from the date that NESDIS stops 100 bps assignments. NESDIS will not guarantee support of 100 bps DCP's beyond this 10 year period, and will convert 100 bps channels to 300/1200 bps operations when (a) no 100 bps platforms remain in operation or (b) no 100 bps demodulators remain in operation to provide data reception.

8. When the number of assignments on a 100 bps channel has been reduced to less than 50% of the capacity of the channel, NESDIS will begin making the effort to free up the channel for 300 or 1200 bps use by beginning to shift the remaining assignments to other channels, in cooperation with the users assigned to the channel.