



NESSDIS OSO Operational Overview NOAA/NASA Network Agreement Meeting

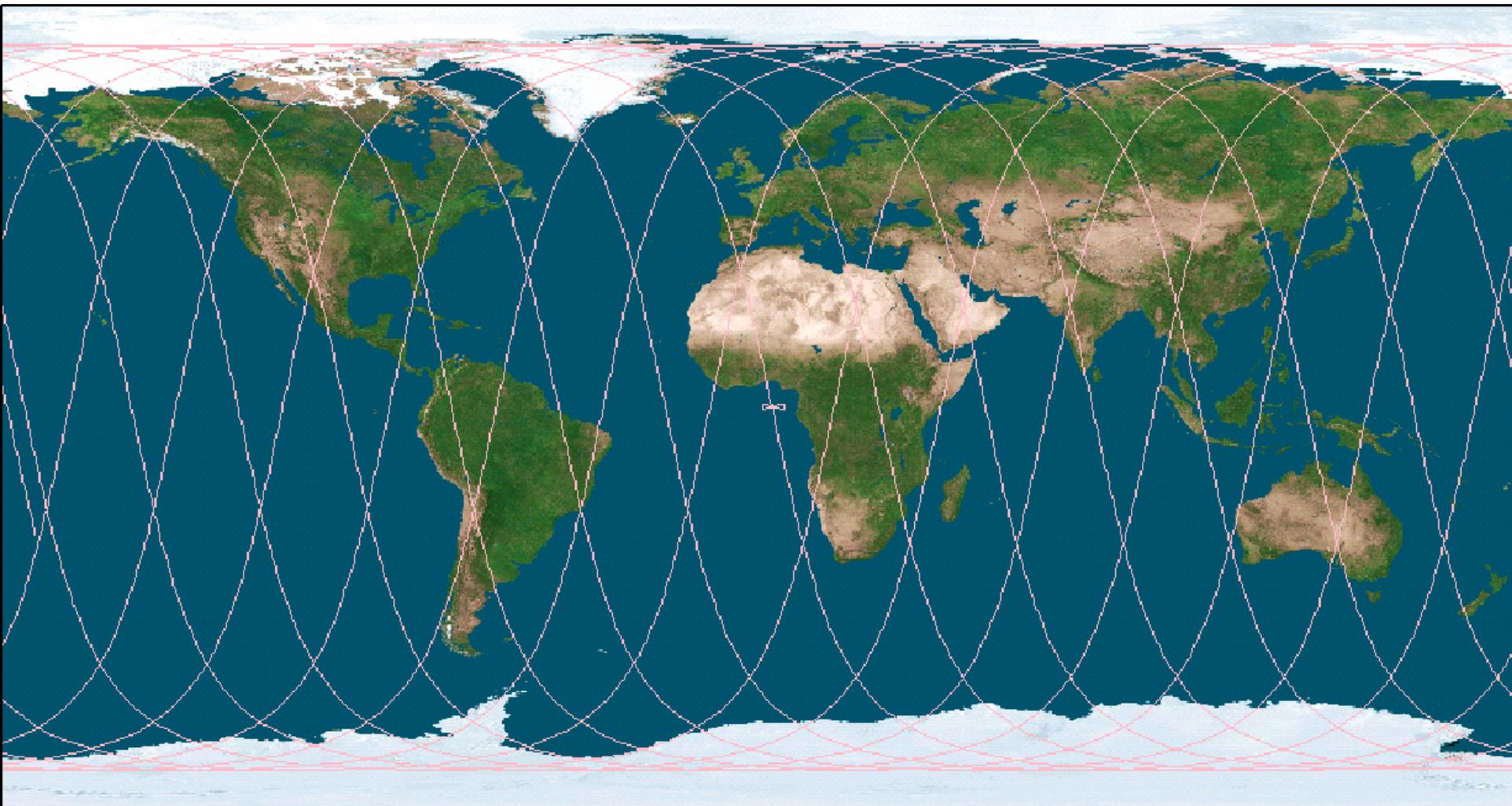
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Mission





OSO Overview

- Operational responsibility for the Satellite Operations Control Center (SOCC) at Suitland, MD and Command and Data Acquisition (CDA) facilities at Wallops, VA and Fairbanks, AK to command and control satellites, track satellites, and acquire their data
- Supports launch, activation, and evaluation of new satellites and the in-depth assessment of satellite and ground systems anomalies
- Prepares plans and procedures for responding to satellite and ground anomalies, and establishes and coordinates the schedules for satellite operation and data acquisition to meet users' needs
- Evaluates the technical performance of the satellites and maintains current information and future prediction on satellite orbits and attitudes
- Evaluates the effectiveness of the operational facilities and procedures in terms of the quality, quantity, coverage, and timeliness of the data acquired



OSO Antenna/Comm Assets*



	Antenna	% Util	Communications (Between CDA & Suitland)	% Util
WCDAS	Polar: 1 - 26m), 1 - 14.2m, 2 - 13m Geo: 2 - 18m, 2 - 16.4m, 1 - remote 16.4m (GSFC), 1 - 13m, 1 - 7.2m	25 50	DOMSAT: 1 – 1.33 Mbps (POES) Terrestrial: 5 – T1s S-band/Terrestrial: 4 – T1s	10 50 35
FCDAS/ Barrow	FCDAS: Polar: 2 - 26m (1 VLBI) 3 - 13m 2 – VHF Tx , 1 – VHF Rx 2 – SARSAT LUT Geo: 1 – 21m Barrow: 1 – 4m remote Tx 1 – 3m remote Rx	55 100 25	DOMSAT: 2 – 3.22 Mbps (DMSP/Coriolis) 1 – 1.33 Mbps (POES) 1 – T1 (POES, GOES) 1 – 2.11 Mbps (GOES) 1 – T1 Barrow to FCDAS Terrestrial Copper and Fiber: 3 – T1s Suitland 1 – T1 Shriever AFB (DMSP), 1 – T1 FCDAS to WCDAS	100 35

* Capable of supporting launch, day-to-day, and contingency (back-up) operations 4



Current Status

- Polar and Geostationary operations in SOCC have been moved to new control room facilities; the Launch Control Room (LCR) can be used by both satellite systems. Launch can be supported from FCDAS or WCDAS
- WCDAS and FCDAS 26-meter antennas have been converted from hydraulic to electric drive
- FCDAS and WCDAS are in process of multiple upgrades
 - Dual IMUX record and playback feature
 - Signal and data processing equipment upgrades
 - Control software upgrades supporting remote operations
 - Replacement of DSI bit syncs with Viterbi capable GDP units
 - METOP ground system upgrade
 - Includes X-band HDR's, PTP EX-4's, Cortex TT&C System and network interface equipment



Current Status

- FCDAS completed the installation of a 4-m command antenna in Barrow, Alaska during February 2004. This system ensures once-per-orbit command coverage for the current POES satellite series
- FCDAS 13-meter C certification for the AQUA mission should be completed on June 18th, with the AURA test and certification process commencing the week of June 21st
 - Two GSIP units, but only one GDP subcarrier generator on site
 - 2nd X-band HDR on station and to be installed in 13-meter B
 - New GDP bit syncs are being installed in 13-meter B
 - One Tracking Data Formatter and one Carrier Doppler Measurement system on site and installed in 13-meter C



Planned Upgrades

- Antennas
 - FCDAS to convert the VHF receive antenna to a 4-meter S-band command antenna. The 4-meter will be slaved/paired with the 26meter receive system providing additional TT&C support capabilities
- Networks
 - Metop Support: Combined 12 Mbps capability between EUMETSAT (Darmstadt) and Suitland
 - JASON: TBD networks between Suitland, CNES, JPL, and EUMETSAT
 - Meteosat Second Generation (MSG): T1 between Darmstadt and WCDAS is installed and operational with MSG HRIT data being broadcast over CONUS from WCDAS– plans are underway to augment this data path with a commercial domsat link.



NASA Network Interfaces



- SOCC OPS LAN (Flight Dynamics) to Building 28 at GSFC
- SOCC interface to NASCOM
- WCDAS fiber interface to NASA Wallops Flight Facility (Buildings 162 and M16)
- WCDAS 56Kbps circuit to NASCOM
- Fiber connectivity from Poker Flats to NASA Ground System Interface processing Facility (GSIF) at FCDAS; 52 Mbps DOMSAT link from FCDAS to Building 32 at the GSFC
- 256 Kb and T-1 circuit between FCDAS and Bldg 32 at GSFC for GSIF remote control and GSIP telemetry and command
- VLBI 64 Kbps circuit between FCDAS and JPL
- Dark fiber being installed between Suitland (OSDPD) and GSFC



Interoperability Opportunities



- CCSDS Space Link Extension (SLE)
 - NOAA WCDAS successfully demonstrated SLE interfaces with NASA Houston and the Air Force CERES control center.
 - Commands were transmitted and telemetry/instrument data was received from the following satellites; COBE, DSCS2, DSCS3, and TSX5.
 - Demonstration equipment has now been removed and returned to GSFC.

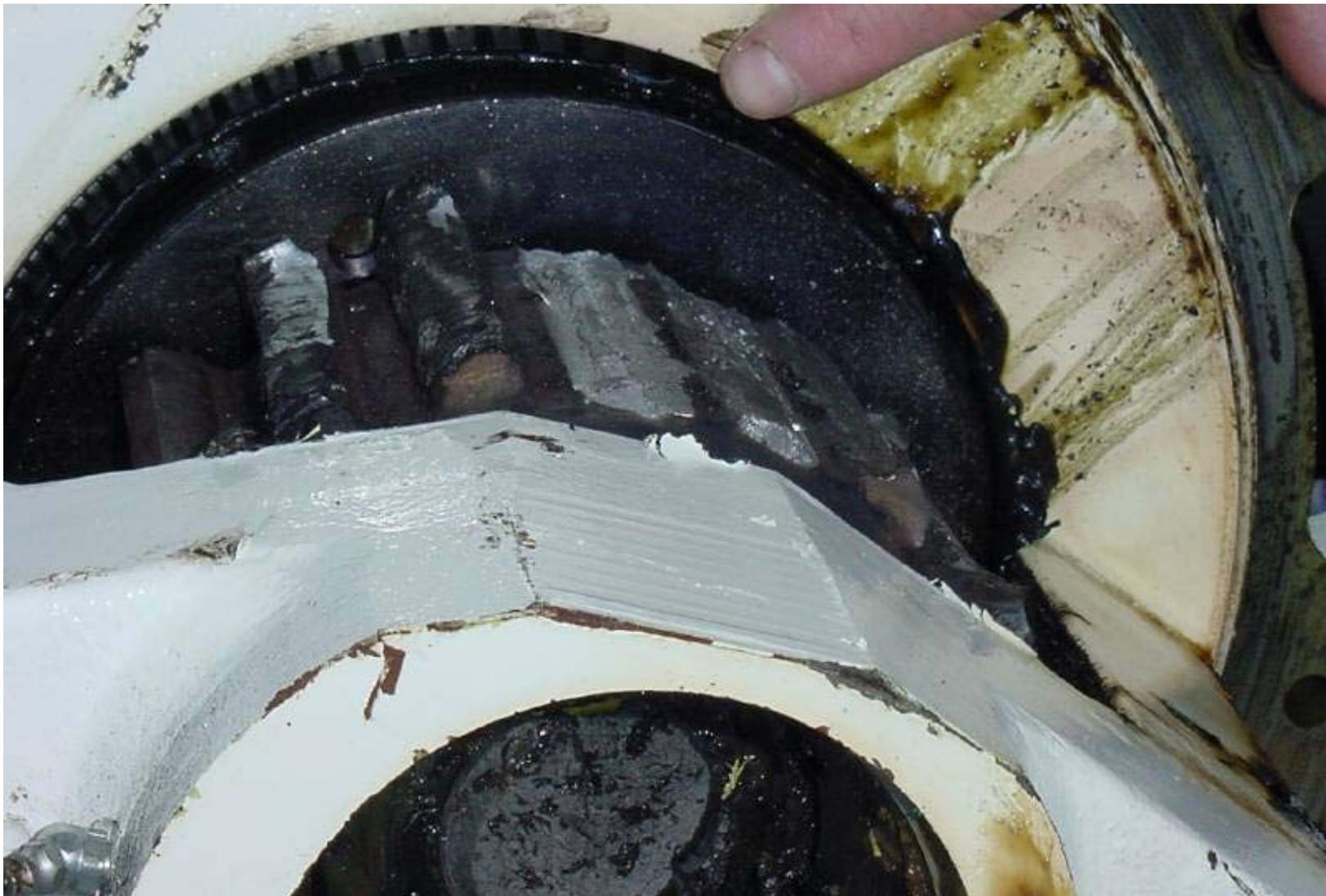


Areas of Concern

- CDAS 13m Antenna drive system failures
 - Failures of gearboxes pinion and bullgear at WCDAS (4/26/04) and FCDAS ((6/18/04) have impacted the reliability of NOAA's 13m antennas.
 - A full investigation is underway with the cooperation of Aerospace and Datron.
 - Awaiting metallurgist's analysis of gear components



Areas of Concern





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