

STEREO MOC Status Report
Time Period: 2014:244 - 2014:250

STEREO Ahead (STA) Status:

1. The following Ground System anomalies/events occurred during this reporting period:

- On day 246, during the DSS-14 support, initial reception of telemetry in the MOC as delayed two minutes until 1527z due to a transmitter calibration anomaly. Later in the support, the MOC lost real-time telemetry, commanding, and monitor data due to a link anomaly at the station at 1717z. The communications link was restored and SLE command and telemetry binds were re-established at 1730z. These anomalies resulted in the loss of 13 minutes of real-time telemetry and commanding. See DRs #G115420 and #G115422 for more information.
- On day 245, during the DSS-84 contingency support for the Ahead star tracker recovery, side lobe communications were tested with an ESA 35 meter station, Malargüe, with the Ahead observatory. At the low downlink rate of 633 bps and 12 degrees elevation, there was ~6 dB downlink margin on the first side lobe. Commanding was successful at 125 bps. The downlink configuration of the observatory was then switched to 3 kbps and while the station locked successfully to telemetry at an 36.9 degrees elevation, there was very little margin, i.e., at lower elevations or any adverse weather, telemetry lock could not be maintained. The project considers the ESA stations viable for emergency use as well as occasional spacecraft bus checks at the low downlink rate of 633 bps.

2. The following spacecraft/instrument events occurred during this week. Note that the Ahead observatory is operating on the first lobe of the HGA to prevent overheating of the HGA feed assembly.

- On day 241, during the DSS-43 support, after the 71st momentum dump completed, the prime real-time telemetry rate for SWAVES, 0.4606 kbps, decreased to its non-prime rate of 0.0726 kbps. This was caused by the RTDFD table used for monitoring the momentum dump to fill the SWAVES science queue with a wider range of APIDs then switching to the SWAVES prime RTDFD which throttles the SWAVES APIDs. This

resulted in the certain APIDs blocking the SWAVES science queue. On day 251, the SWAVES science queue was emptied by using a higher downlink rate RTDFD.

- On day 244, the star tracker on STEREO Ahead had reset at 1528z, 16 minutes before the Behind star tracker anomaly. The STEREO space weather data provided a strong indication that an X-class solar flare was the cause of the star tracker resets on both observatories. After the star tracker failed to promote back to AAD mode, fault protection powered on IMU-B at 1529z. With the star tracker unavailable, due to the low pointing allowance while on the first side lobe, during the next support with DSS-63 on day 245, telemetry lock was established at 0902z, 2.7 hours late. Noop commands were sent to reset the 60 hour soft command loss timer. The star tracker never returned to AAD mode for the remainder of the track. On day 246, during a contingency support with the ESA Malargüe station, DSS-84, the star tracker was back in AAD mode after fault protection had successfully promoted it at 245-1010z. The star tracker was in Standby mode for 18.7 hours. IMU-B was powered off at 1220z after being on for 44.2 hours. This was the 5th star tracker reset on the Ahead observatory since launch.
- The average daily SSR playback volume for Ahead, while operating on the first side lobe, was 0.080 Gbits during this week.

STEREO Behind (STB) Status:

1. The following Ground System anomalies/events occurred during this reporting period:

- On day 245, during the DSS-43 track, turbo decoder lock was lost briefly at 2158z. SSR pointers were re-positioned and all SSR data was received.
- On day 246, during the DSS-54 support, initial receipt of telemetry in the MOC was delayed 2.5 hours until 1018z due to a network anomaly at APL caused by an undetected brown-out condition. The RIONet connectivity was restored and the MOC rebound to SLE telemetry server. All SSR data was received.

2. The following spacecraft/instrument events occurred during this week:

- On day 244, during the DSS-26 support, the star tracker reset at 1544z. After the star tracker failed to promote back to AAD mode, fault protection powered on the IMU-A at 1545z. At 1721z, the telemetry lock was lost due to a very weak signal from inaccurate HGA pointing due to the loss of the star tracker data and contingency operations were suspended. The star tracker never returned to AAD mode for the remainder of the track and the last 1.5 hours of the track were lost. Later in the day, the BEHIND space weather beacon images provided insight that perhaps the star tracker anomaly had cleared. On day 245, during the DSS-54 support, the star tracker was back in AAD mode after fault protection had successfully promoted it at 244-2026z. IMU-A was powered off at 1102z after being on for 19.5 hours. SSR pointers were repositioned and all SSR data was recovered. This was the second star tracker reset on the BEHIND observatory since launch.
- On day 245, G&C parameters version 1.3.1 were loaded to G&C EEPROM in preparations for Behind solar conjunction testing to commence on day 270.
- On day 247, the SECCHI instrument reset at 18:16:16z. The SECCHI team reconfigured the instrument to operational mode at 1730z. This was the 23rd reset of SECCHI on the Behind spacecraft.
- The average daily SSR playback volume for Behind was 3.4 Gbits during this week.