

October 10 - 16, 2003

<P>The Terra spacecraft is in nominal mode. All instruments are in Science Mode.</P>

<P>On October 14, 2003, a large number of uncorrectables was observed in the downlink from the Solid State Recorder (SSR) MODIS buffer. Downlinked science data and diagnostic dumps from the SSR were analyzed throughout the day on October 14, leading to the conclusion that supersets 42 and 43 in the MODIS buffer were bad. This is in addition to the loss of supersets 50 and 51 in the MODIS buffer on September 24, 2003, and loss of supersets 114 and 115 in the ASTER buffer on September 25, 2003, as well as two previous losses in May 2001 and July 2003. The bad supersets indicate potential failure of Printed Wire Assemblies (PWA) in the SSR Data Memory Unit (DMU) boards. For all five events, the spacecraft was at high latitudes at the time of the incidents, outside of the South Atlantic Anomaly and other regions of high electron/proton flux, but in regions where Galactic Cosmic Rays or high energy particles from the Sun could be having an impact or contributing to a compound effect.</P>

<P>The SSR superset select and move procedure was used to move the two bad supersets out of the MODIS buffer, enabling normal processing of MODIS data to resume. Reallocation of buffer space by moving one superset from the MISR buffer to MODIS will likely be performed to help with potential MODIS overwrite problems prior to lockup replay. The MISR recorded data volume rarely exceeds the 15 superset level and the instrument is currently allocated nineteen supersets.</P>

<P>The Anomaly Investigation Team, led by the Terra Mission Director, includes the Terra Flight Operations Team, the C&DH Lead Engineer and additional subsystem personnel from the spacecraft manufacturer, the SSR vendor, and personnel from several AETD branches. The team has accelerated the investigation of this string of anomalies, and emergency procurement requests were drafted to ensure full funding to cover contractor members of the sustaining engineering team as needed. The team is continuing to collect information relevant to these anomalies and will work to identify potential failure mechanisms, develop potential PWA restoration procedures, and determine if there is any potential pre-emptive action that might serve to reduce the likelihood of the occurrence of these types of anomalies in the future.</P>

<P>The lunar calibration roll maneuver for MODIS was successfully executed on October 15.</P>