Geophysical Research Abstracts
Vol. 20, EGU2018-2371, 2018
EGU General Assembly 2018

Effects of ISS Disturbances on SAGE III Solar and Lunar Retrievals

David Huber (1), Charles Hill (2), Kevin Leavor (1), and Marsha LaRosee (1)
(1) SSAI, Hampton, United States (david.b.huber@nasa.gov), (2) NASA, Hampton, United States (charles.a.hill@nasa.gov)

The Stratospheric Aerosol and Gas Experiment mounted on the International Space Station (SAGE III/ISS) scans over the brightness centroid of the Sun or moon. Any deviation from the centroid will result in apparent decreases in transmission and may also affect altitude registration. The instrument experiences disturbances caused by human-spacecraft interactions, spacecraft maneuvers, onboard mechanics, etc. These are monitored using a Honeywell YG9666HA Radiation Hardened Miniature Inertial Measurement Unit Inertial Reference Unit (IRU). Rotational angles measured by the IRU are reported at 200hz and are used during product generation to determine if disturbances may have resulted in veering off of the brightness centroid during events. The disturbances may last anywhere from a few seconds to several minutes. A detection and mitigation algorithm is presented. The results show the effects of disturbances on the pointing system, apparent solar transmission, and altitude registration. Also shown are the final products before and after applying the detection and mitigation algorithm.