

GRACE Science Operations for next several weeks

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Plans for final data collection (1)

- Science data collection halted on June 29, 2017
- GRACE-B has been in a “hibernation” mode since beginning of September (on – and – off)
- Maneuvers on GRACE-A over the past 2 weeks to bring the satellites into science formation
- Roughly same amount of fuel remaining on both satellites
- Satellites entering full Sun orbit within a day
- Full Sun orbit ends around Nov 5th

Plans for final data collection (2)

- Activities to wake up GRACE-B have commenced this morning
- Once the GRACE-B attitude is under control
 - Arrest the separation rate between the two satellites
 - Prepare the satellites for KBR data collection with a day.
- ICU on GRACE-2 may not be working
 - Software upload activity planned to get ICU working

Plans for final data collection (3)

- Dual acceleration data collection mode if ICU is operational
 - Else operate in single accelerometer mode
- Thermal control
 - Full sun creates a problem for battery charge control
 - Use heater control table D (or table F)
 - Will help with battery charge control
 - Will also provide stable thermal control for the satellite environment
 - The GRACE satellites have not been under thermal control since 2011
- Opportunity to collect a complete Science data set; dual accelerometer with thermal control

Plans for final data collection (4)

- Plan to collect data until the onset of data gaps due to low voltage
 - With 13 cells data gaps will begin around Nov 9
 - With 14 cells data gaps will begin in the first week of Dec.
 - Dual accelerometer mode will only be possible during the full Sun period
 - Thermal control will only be possible during the full Sun period
- There is some evidence that 14 cells are providing voltage on discharge from the intermittent TM
 - We will have a better idea once GRACE-B is full operational

Plans for final data collection (5)

- Once the data gaps begin on the GRACE-B, preparation will be to passivate the satellite according to the End of life mission plan.
- Accelerometer characterization maneuver (ACM) will be performed on GRACE-A after the KBR data collection campaign is on GRACE complete
- After the ACM is completed on GRACE-A, preparation will be to passivate the satellite according to the End of life mission plan.