Maneuvers
• 1 Thruster-Only Orbit Raise: 30 Sep 2020
• 2 COLA Orbit Lowers planned but not executed: 13 Feb & 2 Apr 2021

Science Data Outages
• UV-3/EMC Event: 27 August 2020 - TBD

Battery Charging
• Remains nominal MMKI charging in Sun Point Spin (SPS)

New Maneuver Concept Development
• No Burn Delta-V Demos from SPS
• Delta-V Execution & Characterization from SPS (1 & 3 Trim Blocks)

New Operations Concept Development
• Attitude Control Through Two Wheel Operations (ACT-TWO)
Reaction Wheel 2 Failure – 27 August 2020

- The failure of Reaction Wheel 2 caused a UV-3 / EMC Event
- CloudSat has been in Enhanced-SPS (with MMKI battery charging) since the anomaly
- A concept for operating on two wheels has been developed, using primarily Reaction Wheel 4
- Direction to continue development of Attitude Control Through Two Wheel Operations (ACT-TWO) was granted by NASA
  - ✓ ACT-TWO Partial Demo was executed on 17 Mar 2021
  - ✓ ACT-TWO Full Demo is being executed this week
- Execution of COLA maneuvers from SPS has been validated
  - ✓ This will enable the team to respond to potential conjunction events
  - ✓ Maneuver design using RW-3 is also under development
- Our goal is to resuming science operations in the September timeframe
CloudSat Position

Current Position:
~40 min behind CALIPSO
~1050 Km Ground Track Offset

Plan:
Maneuver to realign with CALIPSO
Maintain Frozenness of the Orbit

Plan to reposition with CALIPSO

9 Jun 21: 1.0 m/s Orbit Lower
5 Oct 21: 0.6 m/s Orbit Raise
Formation Flying in ACT-TWO

Old ("DO-Op") Formation Flying

Mean Local Time (MLT) Offset = Equator Crossing Time Offset

New ("ACT-TWO") Formation Flying

Mean Local Time Offset = Equator Crossing Time Offset PLUS Offset Required to Compensate for Off-Nadir Pointing

Ground tracks will align over a portion of the orbit in daylight (next slide)
Formation Flying in ACT-TWO

Illustration – 5° off nadir

MLTAN Offset is used to line up ground tracks during the daylight portion of the orbit
We have confidence that we can resume science operations using the remaining reaction wheels

The project will propose funding for continued operations in ACT-TWO through FY ‘23
  • The proposal will be presented via the Program Project Budgeting Exercise (PPBE) later this month

Looking forward to resuming a modified C-Train formation with CALIPSO