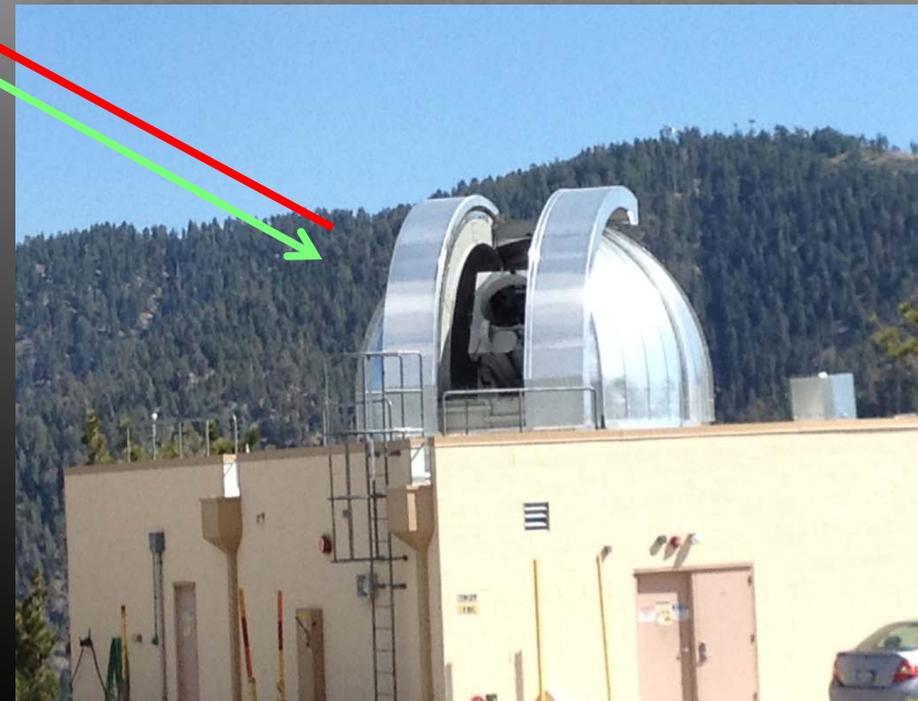




Lunar Lasercom OCTL Terminal (LLOT)



Operations-Day in the Life Joe Kovalik

Jet Propulsion Laboratory
California Institute of Technology.

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A DAY IN THE LIFE: PRE-PASS



- **Laser Safety** ~week before mission
 - Request and obtain predictive avoidance files for all possible passes
- **Cryogenic Detector** entire mission
 - Maintain detector at cryogenic temperature
 - Schedule regular delivery of cryogenics to maintain adequate supply
- **Prepare for spacecraft pass** 8 hours before pass
 - Notification of actual pass or standby status TBD hours before hand
 - Verify that necessary support personnel or alternates are available: 4 people minimum
 - Mission Operations
 - Telescope Control
 - Optics and lasers (intervene in coudé room if necessary)
 - Receiver and detector
 - Check weather forecast
- **Verify System Status** 8 hours before pass
 - Verify NISN line and ITOS communication
 - Verify that sub systems are operational
- **Operational Readiness** 1 hour before pass
 - Receive LLST ephemeris file
 - Have personnel on standby at OCTL

A DAY IN THE LIFE: PASS



- **Prepare System** **Every Pass**
 - Launch radiosonde weather balloon
 - Load ephemeris file
 - Turn all systems on and verify communication between them
 - Open ITOS connection
 - Have optical system set to wide beam and maximum light on focal plane array
 - Verify that LLOC prepared over telephone
 - Wait for pass to begin
- **Begin Pass** **Only when LLOT designated as ground receiver**
 - Start step stare procedure
 - Receive downlink signal
 - Verify via RF telemetry that LLST is receiving beacon
 - Set zoom to narrow uplink beacon and maximum light on detector
 - Verify that data detector is receiving signal
 - Commence checking data word status
 - Verify performance with LLOC over telephone line
- **Break in link**
 - Re-start step stare with ephemeris offset by value from last contact
- **Close Pass** **Every Pass**
 - Verify via telephone that all operations are complete
 - Close ITOS connection
 - Shut down sub systems
 - Launch radiosonde weather balloon **(Only when LLOT designated as ground receiver)**

A DAY IN THE LIFE: POST-PASS



- **Power Down**
 - Turn power off to all equipment that is normally unpowered **Every Pass**
 - Assemble local stored data **Only when LLOT designated as ground receiver**
- **Decode data** **Only when LLOT designated as ground receiver**
 - Decode stored raw data
 - Send data to LLOC when ready
- **Debrief** **Only when LLOT designated as ground receiver**
 - Assemble local stored data and produce quick analysis
 - Meeting with LLOC