



STEREO

Spacecraft and Ground Segments Status

January 18, 2022

Owen Dudley

STEREO Mission Operations Manager

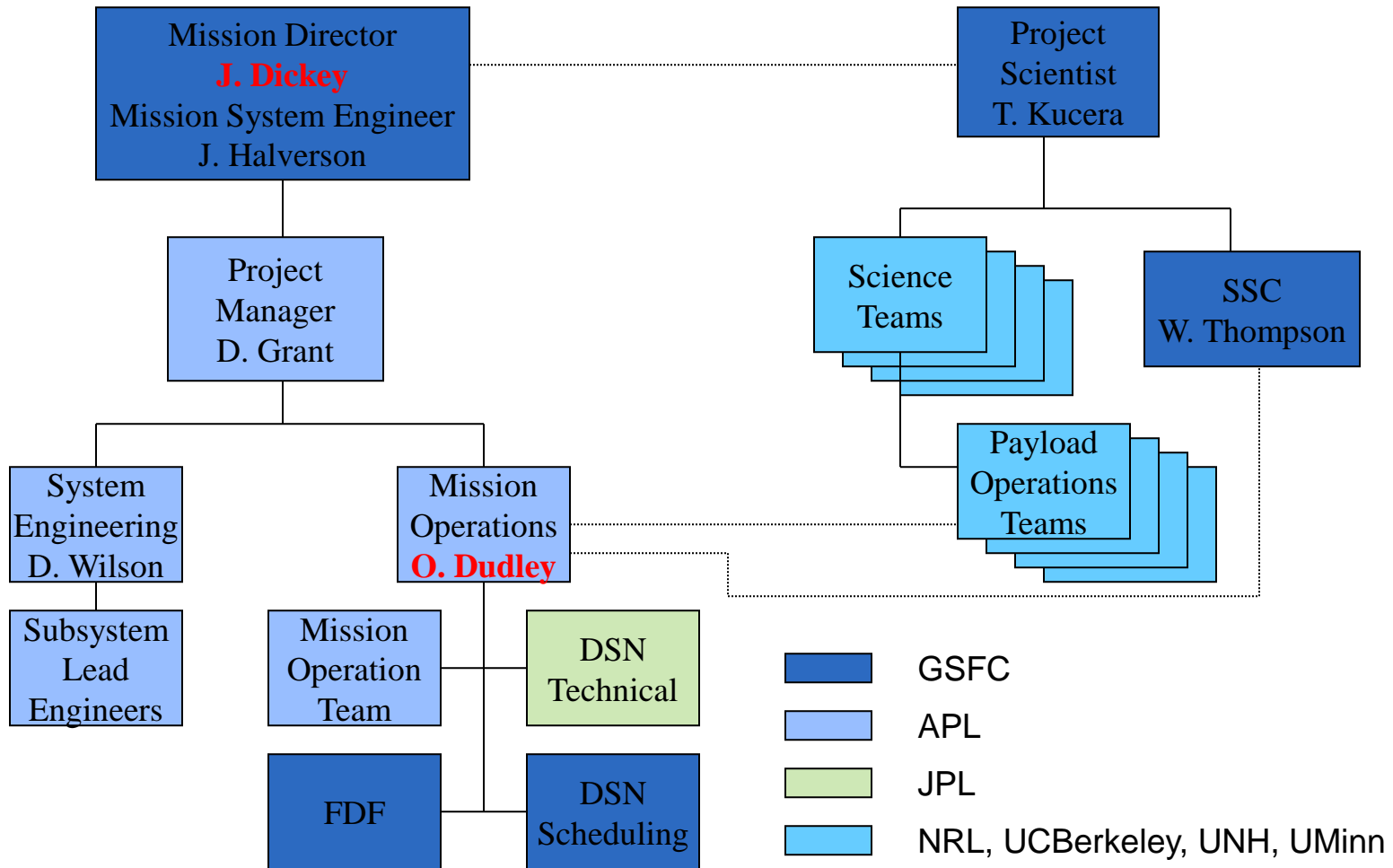
(240) 228-4568



JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

STEREO Phase E Organization Chart

Changes in **red**



MOC Status

- **Mission operations continues to collect ~5 Gbits per day in support of the science mission.**
- **Downlink rates: Varies, 720 kbps to 360 kbps depends on antenna size and track elevation**
 - **Baseline downlink to increase to 720 kbps in Spring 2022**
- **Since 2012, using the 3 ESA deep space stations (35 meter) when needed to maintain data return and in-situ science data continuity**
 - **Due to high periodic DSN loading**
- **Total manpower is approximately 2.9 SM/M for Spacecraft Controllers**
- **MOC Unix workstations are being refreshed (Intel x86 architecture)**
 - **IONET Command & Control workstations completed in 2019.**
 - *Included upgrading to CCSDS SLE Bluebook version 4*
 - **Majority of the DMZ Planning/Assessment workstations completed in 2021.**
 - *The last four servers will be completed in 2022*
- **Special Observatory Events**
 - **SECCHI COR2 Deep Exposure Campaign for each Parker Solar Probe perihelion**
 - **SECCHI stepped calibrations rolls (~every 3 months)**
 - **142 Momentum Dumps to date on STEREO-A (~every 5-6 weeks)**

Spacecraft Status

- **STEREO-A operating nominally using no gyro operations**
 - **No gyro operations limits IMU use to fault protection and high value science events (project scientist directed)**
 - **IMU status (gyros)**
 - IMU-A – failed in April 2007
 - IMU-B – limited remaining life (estimated at ~1400 hours)
- **Last Spacecraft Assessment Review was Oct 2020; next review on Feb 17, 2022**
 - **Brief intermittent losses of fine pointing**
 - **12 occurrences (since post solar conjunction in July of 2015) of low wheel speeds (one or more wheels running for a prolonged period at or near the zero speed avoidance threshold)**
 - Last occurrence was 2018-292
 - Probable cause is bearing lubricant distribution problem after wheel stopped
 - Operating with 4 wheels; can tolerate failure of one
 - Wheels rated for 15 year lifetime; no evidence yet of pending failure
 - **Power, Thermal, Comms, Avionics, Flight Software – all solid**
- **Current (11/24/2021) usable propellant load, measured by PVT, is:**
 - **38.43 ± 0.46 kg (vs. 40.84 ± 0.44 kg @ 2016.06.15)**
 - **Burn Rate of ~0.3 kg/year equals ample supply remaining for operations.**



JOHNS HOPKINS
APPLIED PHYSICS LABORATORY