About the Occultation

- S42 Rev 79 Saturn atmospheric occultation
 - First rings occultation experiment in extended mission
 - Telemetry OFF, 1-way mode
 - Covered by Madrid
- From Essam Marouf:

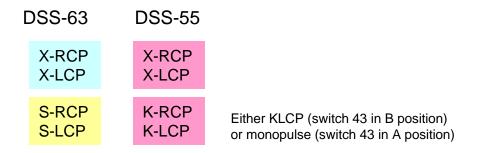
The S42 Rev 79 occultation is the first radio science ring occultation in the Cassini Equinox Mission (Extended Mission). It is also the first in a family of four fast chord occultations that probe the rings when the opening angle B is small (about 4 to 7 degrees). For Rev 79, B = 6.8 deg. The long path of the radio signals through the rings when B is small makes these occultations especially sensitive to ring features of small optical depth, like Ring C and the Cassini Division. More optically thick ring regions, like Ring B, become mostly noise-limited. The observation geometry complements in nature earlier occultations conducted at larger B angles, providing valuable information about the variability of ring structure and scattering properties with viewing geometry.

DSN Antennas

• DSN Coverage

| Station | Pre-cal | BOT | EOT | Post-Cal |
|---------|----------|----------|----------|----------|
| DSS-55 | 217/0940 | 217/1110 | 217/1430 | 217/1445 |
| DSS-63 | 217/1010 | 217/1110 | 217/1430 | 217/1445 |

- Receivers scheduled
 - 2 closed-loop receivers per antenna
 - All open-loop receivers
 - Total: 8 open-loop receivers
 - Open-loop data are prime. Closed-loop data are backup
- Antennas Band and Polarization Capabilities



- LCP data are enhancement. Prime are RCP

RSR/VSR/WVSR Assignment

Aseel: VOCA

| DSS | Operator | Station | Open-Loop Receiver | | RSR Assignment | |
|-----------|----------|---------|--------------------|--|-------------------|---------|
| 63 | Danny | rsops1 | RSR1 | | RSR1A -> XRCP | |
| | | | | | RSR1B | -> SRCP |
| | | | | | | |
| 55 | Danny | rsops1 | RSR2 | | RSR2A -> XRCP | |
| | | | | | RSR2B -> KRCP | |
| | | | | | | |
| 63/55 LCP | Don | rsops3 | WVSR1 & VSR1 | | 63 WVSR1A -> XLCP | |
| | | | | | 63 WVSR1B -> SLCP | |
| | | | | | 55 VSR1A -> XLCP | |
| | | | | | 55 VSR1B -> KLCP | |

RSSG will be in RS Ops Room at 2:30 am on Monday 8/4/08 (217/0930)

ORTs

- ORTs for T45 gravity on DOY 212-213 were also considered ORTs for occ
 - No additional ORTs for the occultation
 - No S-band ORT
 - Last verified on DOY 189 (7/7/08) for Rev75 armospheric occultation
- DSS-55 monopulse data sent to David
 - More data will be sent after completion of T45 DSS-55 pass

- In general, fewer ORTs during extended mission
 - Combine ORTs when possible

Misc

Oscillations at DSS-55

Plan for Cassini Specific 4th Order Pointing Models

SNT

- Enable X only at DSS-55 throughout
- Conduct SNT measurements

DSS-63 Microwave Configuration

- Configure SRCP low noise to the SP MASER to the 01 output
- Configure SLCP through the diplexer to the SB HEMT to the 02 output

DSS-55 microwave configuration?