

# 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

DSS-63	DSS-55
X-RCP X-LCP	X-RCP X-LCP
S-RCP S-LCP	K-RCP K-LCP

Either KLCP (switch 43 in B position)  
or monopulse (switch 43 in A position)

- 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 atmospheric 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?