

About the Occultation

- S55 Rev 122 Saturn atmospheric occultation
 - Telemetry OFF, 1-way mode
 - Covered by Canberra

- From Essam Marouf:

The S55/Rev122 Radio Science ingress-egress atmospheric occultation is the last of a sequence of three occultations in the Cassini Equinox Mission (on Revs 120, 121, and 122) designed to probe Saturn's mid-northern latitudes. The ingress and egress latitudes probed on Rev 122 are about 43 and 31.6 degrees North (measured near-the top of the troposphere). Measurements of the S-, X-, and Ka-band signals amplitude, frequency, and phase provide information about the large- and small-scale structure of the atmosphere, the temperature/pressure profile, zonal wind, abundance of microwave absorbing species, the electron number density profile of the ionosphere, and on variability of the profiles with latitude and solar zenith angle.

DSN Antennas

- DSN Coverage

Pre	BOT	EOT	Post							
09 343 1635	1805	0030	0045	DSS-34	CAS	TP	RS122-SAOCC1	4451	N750	1A1
09 343 1705	1805	0030	0045	DSS-43	CAS	TP	RS122-SAOCC1	4451	1639	1A1

- Receivers scheduled

- 2 closed-loop receivers per antenna (RSRs, WVSRs, VSRs)
- Open-loop data are prime. Closed-loop data are backup

- Antennas Band and Polarization Capabilities

	DSS-34*	DSS-43
	X-RCP	X-RCP X-LCP
*Either KLCP (switch 43 in B position) or monopulse (switch 43 in A position)	K-RCP K-LCP	S-RCP S-LCP

- LCP data are enhancement. Prime are RCP
- Record RCP only DSS-34

RSR/VSR/WVSR Assignment

Aseel: VOCA

Don: Ops Room Displays

DSS	Operator	Station	Open-loop Receiver	RSR Assignment
34	Danny	rsops1	RSR1	RSR1A -> XRCP RSR1B -> KRCP
43	John	rsops2	RSR2 and WVSR1 (WVSR1 backup to RSR2)	RSR2A -> XRCP RSR3B -> SRCP WVSR1A -> XRCP WVSR1B -> SRCP
43	Don	rsops3	VSR1	VSR1A -> XLCP VSR1B -> SLCP

RSSG will be in Ops Room at 8 am on Wednesday, December 9 (343/1600)

ORTs

ORT on DOY 332 (November 28) over DSS-34, X- and Ka-band

09 332 1545 1715 0215 0230 DSS-34 CAS TP RS121-OCCORT2 4440 N750 1A1
09 332 1615 1715 0215 0230 DSS-43 CAS TKG PASS 4440 N003 1A1

- DSS-43 prime pass
- DSS-34 fluctuation around same time that increase in winds was noted
- Nominal support. Pointing data acquired

ORT on DOY 336 (December 2) over DSS-34, X- and Ka-band

09 336 1600 1700 0200 0215 DSS-43 CAS TKG PASS 4444 N003 1A1
09 336 2030 2130 0200 0215 DSS-34 CAS TP RS122-ORT D/L 4444 N71D 1A1

- DSS-43 prime pass
- DSS-34 some drop in Ka-band power after 0100. SNT increased around that time. Due to weather?
- Acquire pointing (monopulse) data

No DSS-43 S-band ORTs

No GSEs surrounding Occultation

Misc

Plan for Cassini Specific 4th Order Pointing Models

- Don to send David pointing data from two ORTs
- All indication are that we had a very good model during Rev121 occultation on DOY 324. Check if model requires slight upgrades?

SNT

- Enable X only at DSS-34 throughout
- Conduct SNT measurements

DSS-43 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