

About the Occultation

- S55 Rev 121 Saturn atmospheric occultation
 - Telemetry OFF, 1-way mode
 - Covered by Canberra

- From Essam Marouf:

The S55 Rev121 Radio Science atmospheric occultation is an [egress only occultation](#). It is the second of a sequence of three sets of occultations in the Cassini Equinox Mission (on Revs 120, 121, and 122) that probe Saturn's mid-northern latitude, a range which was sparsely sampled during the nominal mission. The latitude probed on Rev 121 is about 27.5 deg 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								
09 324 1840	2010	2350	0005	DSS-34	CAS	TP	RS121-SAOCC1	4432	N750	1A1	
09 324 1910	2010	2350	0005	DSS-43	CAS	TP	RS121-SAOCC1	4432	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 10 am on Friday, Nov 20st (324/1800)

ORTs

ORT on DOY 314 (November 10) over DSS-34, X- and Ka-band

09 314 1700 1830 2045 2100 DSS-34 CAS TP RS120-OCCORT2 4422 N750 1A1

09 314 1730 1830 0330 0345 DSS-43 CAS TKG PASS 4422 N003 1A1

- DSS-34 prime pass
- Nominal support. Pointing data acquired

ORT on DOY 320 (November 16) over DSS-34, X- and Ka-band

09 320 1625 1755 0300 0315 DSS-34 CAS TP RS121-OCCORT1 4428 N750 1A1

- DSS-34 prime pass
- Acquire pointing (monopulse) data

No DSS-43 S-band ORTs

GSEs surrounding Occultation (all will be scripted)

09 324 0230 0400 1210 1225 DSS-55 CAS TP RS121-KDWN1 4431 N750 1A1

09 324 0300 0400 1300 1315 DSS-63 CAS TKG PASS 4431 N003 1A1

09 325 0815 0945 1200 1215 DSS-55 CAS TP RS121-ENGRV2 4432 N750 1A1

09 325 0845 0945 1200 1215 DSS-63 CAS TKG PASS 4432 N003 1A1

09 325 1005 1135 1710 1725 DSS-25 CAS TP RS121-KDWN2 4432 N748 1A1

09 325 1035 1135 1710 1725 DSS-14 CAS TKG PASS 4432 N003 1A1

Misc

Plan for Cassini Specific 4th Order Pointing Models

- Don to send David pointing data from two ORTs

Equipment Status

- RSR2 at Canberra – OK to use?

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