### About the Occultation

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

#### From Essam Marouf:

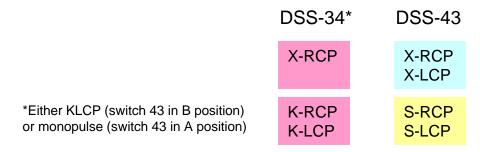
The S55/Rev122 Radio Science ingress-egress atmospheric occultation is the last of a sequence of three occultations in the Cassini Equinox Mission (on Revs 120, 121, and 122) designed to probe Saturn's mid-northern latitudes. The ingress and egress latitudes probed on Rev 122 are about 43 and 31.6 degrees 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

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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
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- 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



- 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