About the Occultation

- S41 Rev 72 Saturn Atmospheric occultation
  - Ingress and Egress
  - Telemetry OFF, 1-way mode
  - Covered by Goldstone, Canberra and Narrabri

- From Essam Marouf:

  The S41 Rev 72 atmospheric occultation is the third in a family of five radio science atmospheric occultations that systematically probe the northern and southern hemispheres of Saturn. The ingress occultation probes 33.4 degrees North latitude and the egress occultation probes 60.7 degrees South latitude, both measured near-the top of the troposphere. Collectively, the occultations will provide important information about the winds in Saturn's atmosphere. They also provide information about the large- and small-scale structure of the atmosphere, the temperature/pressure profile, abundance of microwave absorbing species, and the electron number density profile in the ionosphere.
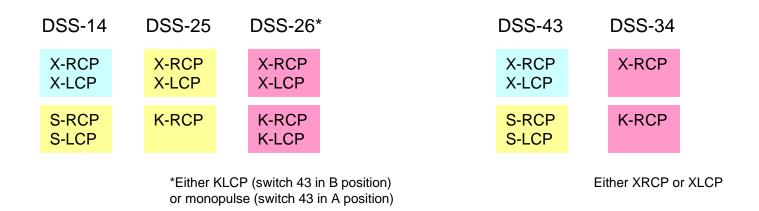
DSN Antennas

- DSN Coverage

Station	Pre-cal	BOT	EOT	Post-Cal
DSS-14	168/0245	168/0345	168/0635	168/0650
DSS-43	168/0255	168/0400	168/0800	168/0815
DSS-25	168/0300	168/0400	168/0635	168/0650
DSS-26	168/0300	168/0400	168/0635	168/0650
DSS-34	168/0300	168/0400	168/0800	168/0815
DSS-47	168/0400	168/0430	168/0530	168/0600

25, 26 and 34 scheduled as downlink only pass

DSS-47 first "official" Cassini support (not proficiency pass)

- Receivers scheduled
  - 2 closed-loop receivers per antenna
  - Six RSRs at 10, Two RSRs at 40, One VSR (A&B) and One WVSR (A&B) at each complex, One RSR at Narrabri
    - Total: 13 open-loop receivers at Goldstone
  - Open-loop data are prime. Closed-loop data are backup
  - LCP data are enhancement. Prime are RCP

Antenna Band and Polarization

DSS-14	DSS-25	DSS-26*		DSS-43	DSS-34
X-RCP X-LCP	X-RCP X-LCP	X-RCP X-LCP		X-RCP X-LCP	X-RCP
S-RCP S-LCP	K-RCP	K-RCP K-LCP		S-RCP S-LCP	K-RCP

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

Either XRCP or XLCP

DSS-47 Ka-band downlink only (either X or Ka)

Plan not to collected LCP data to simplify operations

RSR/VSR/WVSR Assignment

VOCA: Danny
Displays: Elias

DSS	Operator	Station	Open-Loop Receiver	RSR Assignment
43	Don	rsops3	VSR1	VSR1A -> XRCP
				VSR1B -> SRCP
14	Don	rsops3	RSR3	RSR3A -> XRCP
				RSR3B -> SRCP
25	Elias	rsops2	RSR1	RSR1A -> XRCP
				RSR1B -> KRCP
26	Elias	rsops2	RSR2	RSR2A -> XRCP
				RSR2B -> KRCP
34	Danny	rsops1	RSR1	34 RSR1A -> XRCP
				34 RSR1B -> KRCP
47	Danny	rsops1	RSR2	47 RSR2A -> KRCP

RSSG will be in RS Ops Room at 7:00 pm on Sunday 6/15/08 (168/0200)

Aseel will call-in and remotely monitor/help

ORTs

ORT on DOY 157-158 (June 5-6) over DSS-25, DSS-34 and DSS-47, X- and Ka-band   Complete
08 157 1900 2030 0530 0545 DSS-25 CAS TP RSR71-OCCORT1   3897 N748 1A1
08 158 0200 0300 0530 0545 DSS-34 CAS RSR71-ORT2 D/L   3898 N71D 1A1
- DSS-25 prime pass
- 25 and 34 supports nominal
    - Acquire monopulse (pointing) data to update the 4th order pointing models
- DSS-47 no spikes in FFT! Team will analyze data for phase noise

ORT on DOY 158-159 (June 6-7) over DSS-26 and DSS-34, X- and Ka-band   Completed
08 158 1900 2030 0530 0545 DSS-26 CAS TP RSR71-OCCORT2   3898 N750 1A1
08 159 0200 0300 0530 0545 DSS-34 CAS RSR71-ORT2 D/L   3899 N71D 1A1
- DSS-25 prime pass
    - Acquire monopulse (pointing) data to update the 4th order pointing models
- Nominal supports

ORT on DOY 163-164 (June 11-12) over DSS-14 and DSS-43, X- and S-band
08 163 1900 2000 0500 0515 DSS-14 CAS TP RSR71-OCCORT3   3903 1639 1A1
08 164 0130 0230 0500 0515 DSS-43 CAS TP RSR71-OCCORT3   3904 1639 1A1
- DSS-14 prime
- Verify X- and S-band, RCP and LCP

DSS-25 GSE on DOY 166 (June 14), can verify pointing model
08 166 1845 2015 0500 0515 DSS-25 CAS TP RSR72-KADWN1 3906 N748 1A1

Misc

Monopuls Status

Cassini Specific 4th Order Pointing Models
-       Status/plan

SNT
-       Enable X only at DSS-26 and DSS-34 throughout
-       Conduct SNT measurements

DSS-43 Maser status?

70-m 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
-       If DSS-43 S-Maser is still red, SRCP to the HEMT