

About the Occultation

- S61 Rev 135 Saturn atmospheric occultation
 - Ingress only
 - Telemetry OFF, 1-way mode
 - Covered by Madrid

- Science Highlights - From Essam Marouf:

The S61/Rev135 Saturn atmospheric occultation is an ingress only occultation that captures the low southern latitude of -13.7 degrees (measured near the top of the troposphere). This range of low latitudes is not usually possible to sample because of ring interference. The rings are still nearly closed at this time. The more complete latitude coverage allows meaningful characterization of the variability of Saturn's thermal structure of the atmosphere with latitude, hence better characterization of ongoing physical processes. A full limb-track spacecraft maneuver implementation will allow tracking of all three radio signals till they are extinguished by microwave gaseous absorption deep in Saturn's troposphere, providing additional information about potential variability of the abundance of these gaseous species with latitude. A detailed profile of the ionospheric electron number density at the low southern latitude will also be acquired at the dusk terminator, shedding more light on the unusually large peak electron number density observed on the recent near-equatorial Rev 133 ingress occultation.

DSN Antennas

- DSN Coverage

	Pre	BOT	EOT	Post							
10 205 1310	1440	1740	1755	DSS-55	CAS	T/P	RS-SAOCC	4678	N750	1A1	
10 205 1340	1440	1740	1755	DSS-63	CAS	T/P	RS-SAOCC	4678	1639	1A1	

- Receivers scheduled

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

- Antennas Band and Polarization Capabilities

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

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

- LCP data are enhancement. Prime are RCP
- Record RCP only at DSS-55

RSR/VSR/WVSR Assignment

Aseel: VOCA

Danny: Ops Room Displays

DSS	Operator	Station	Open-Loop Receiver	RSR Assignment
55	Danny	rsops1	RSR1	VSR1A -> XRCP
				VSR1B -> KRCP
63	John	rsops2	RSR2	RSR2A -> XRCP
				RSR2B -> SRCP
			WVSR1	WVSR1A -> XLCP
				WVSR1B -> SLCP

MRO using RSR1. If problems will VSR, will quit MRO and use RSR1

RSSG will be in the RS Ops Room at 5:30 am on Saturday, July 24th (205/1230)

ORTs

ORT on DOY 179 (June 28) over DSS-63, X- and S-band

10 179 1215 1315 2215 2230 DSS-63 CAS T/P RS-ORT 4652 1639 1A1

- Also prime pass
- Verify X- and S-band, RCP and LCP
- S-MASER red (DR M105848), so RCP on MASER and no S-LCP
- Communication problems with the station, but was able to verify X RCP and LCP, and SRCP
- S-MASER is currently green

ORT on DOY 183 (July 2) over DSS-55, X- and Ka-band

10 183 1130 1300 2200 2215 DSS-55 CAS T/P RS-ORT 4656 N750 1A1

10 183 1200 1300 2115 2130 DSS-63 CAS TKG PASS 4656 N003 1A1

- DSS-63 prime pass
- DSS-55 pointing data acquired
- DSS-55 Ka-band fluctuations. Weather overcast and thunderstorms. SNT vs. Power plot next page

ORT on DOY 188 (July 7) over DSS-55, X- and Ka-band

10 188 1845 2015 0230 0245 DSS-26 CAS T/P RS-ORT 4661 N750 1A1

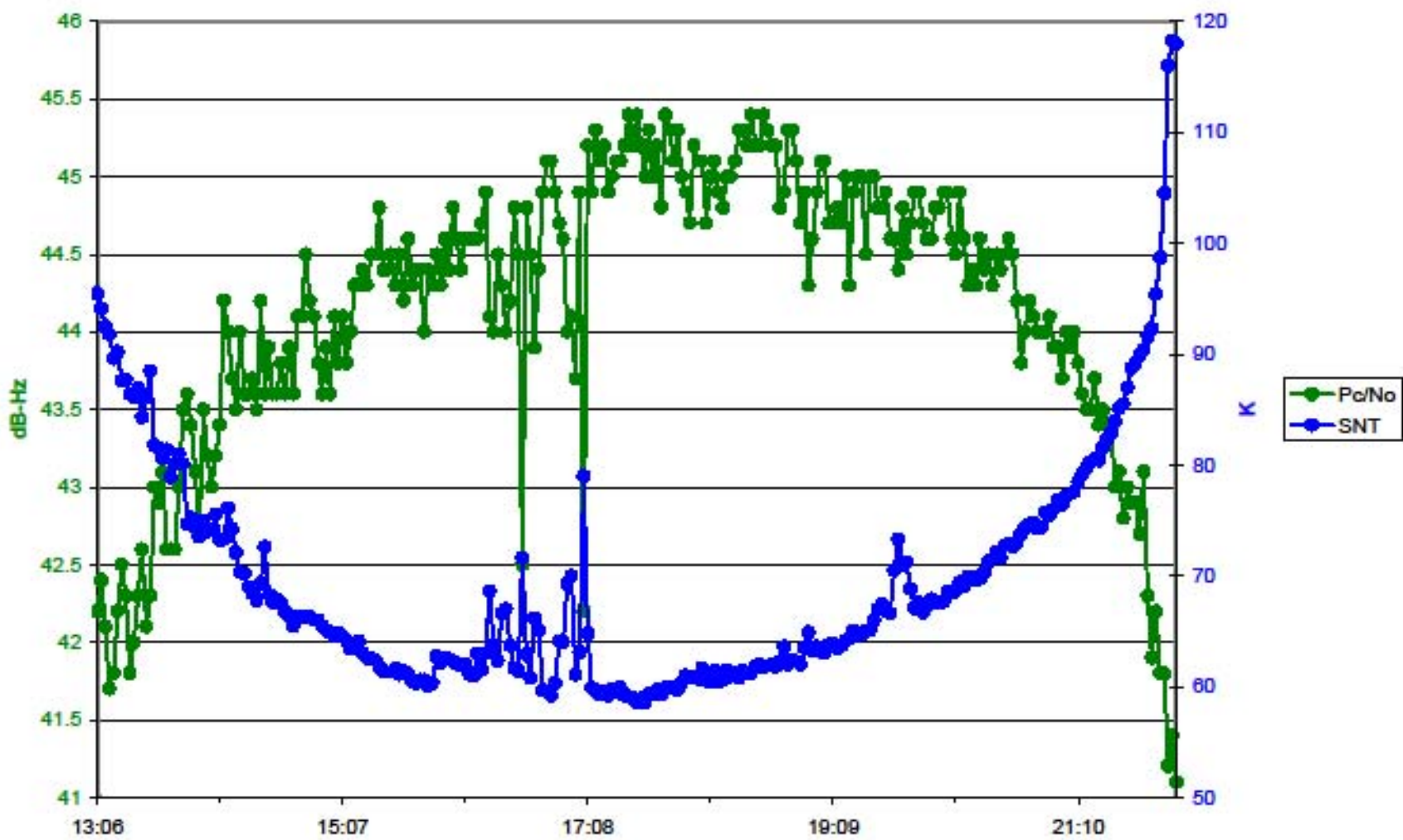
10 188 1845 2015 2230 2245 DSS-55 CAS T/P RS-ORT 4661 N750 1A1

- DSS-26 prime pass
- DSS-55 pointing data acquired (while station setting)
- DSS-55 no visible increase in power when monopulse enabled
- DSS-26 performed monopulse calcs

Inbound GSE planned on DOY 204 (7/23):

10 204 1745 1915 0415 0430 DSS-25 CAS TP RS135-KDW/SEQ 4677 N748 1A1

2010/183 Cassini DSS-55 Ka-Band Closed-Loop Pc/No & System Noise Temperature



Misc

Plan for Cassini Specific 4th Order Pointing Models

- Don sent to David Rochblatt pointing data from the DSS-55 ORTs
 - But David is on vacation July 22!

DSS-55 LQG

- What's the latest?
- AZ angles: BOT (1440) 145 degrees - EOT (1740) 213 degrees
 - Don't exceed 260 degrees limit

SNT

- Enable X only at DSS-55 throughout
 - Remember to change configuration during occultation so that values are recorded in NMC log
- 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