Subject: Rev 270 Rings and Atmospheric Occultations Completed

Date: Thursday, April 20, 2017 at 10:04:42 AM Pacific Daylight Time

From: Anabtawi, Aseel (332K)

To: Rss@cdsa.jpl.nasa.gov

Dear All,

We ended the open-loop recordings for Rev 270 rings and atmospheric occultations. The occultations were covered by Madrid (uplink only), Goldstone (uplink and downlink), and Canberra (downlink and uplink for the playback period that followed the occultation). We also recently added a Malargue support to verify the Portable Radio Science Receiver (PRSR) Ka-band recordings before we begin the proximal orbits.

The rings occultation completed nominally. The DST lost lock very briefly during ring B.

The spacecraft is behind Saturn at this time. We lost the Ka-band and X-band coherent signal at occultation ingress at about the expected times. The S-band signal was present for a long time. It is now 1.5hrs after we lost the X-band signal and we're still seeing an intermittent weak 1-way S-band signal!

There were some problems with the Goldstone supports, but the impact to the observation is expected to be small. First, DSS-14 had transmitter problems and the station was 20 minutes late in providing the uplink. This shortened our coherent baseline, but we had some margin so the impact is small. Also, the uplink power was about 16 kW instead of the desired 18 kW, but that reduced the uplink gain by just 1 dB.

Toward the end of the support, DSS-26 released their X-band receiver soon after they lost X-band signal at occultation ingress and before they reached their End Of Track. Our open-loop recordings were not impacted, but we lost SNT measurements at DSS-26 thirty minutes earlier than expected. The other problems at Goldstone were minor. A total of five Discrepancy Reports (DRs) were opened, and another may be opened post-pass, but overall, we acquired very good data and the observation was a success.

The Malargue support was nominal and the PRSR Ka-band recordings were successful.

The Canberra supports were nominal as well.

Ka-band pointing was very good at both DSS-26 and DSS-35. A very small jump in power was observed when Monopulse was first enabled, indicating that the blind models were good.

We have a lot of data to playback. We are exhausted from the long night shift so apologies that we won't be providing the open-loop data files as quickly as we normally do. I'll let you know when the files are available.

Thanks to Elias, Danny, Jay and Clement for all their hard and excellent work.

Regards,
Aseel