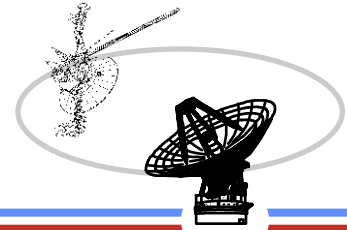




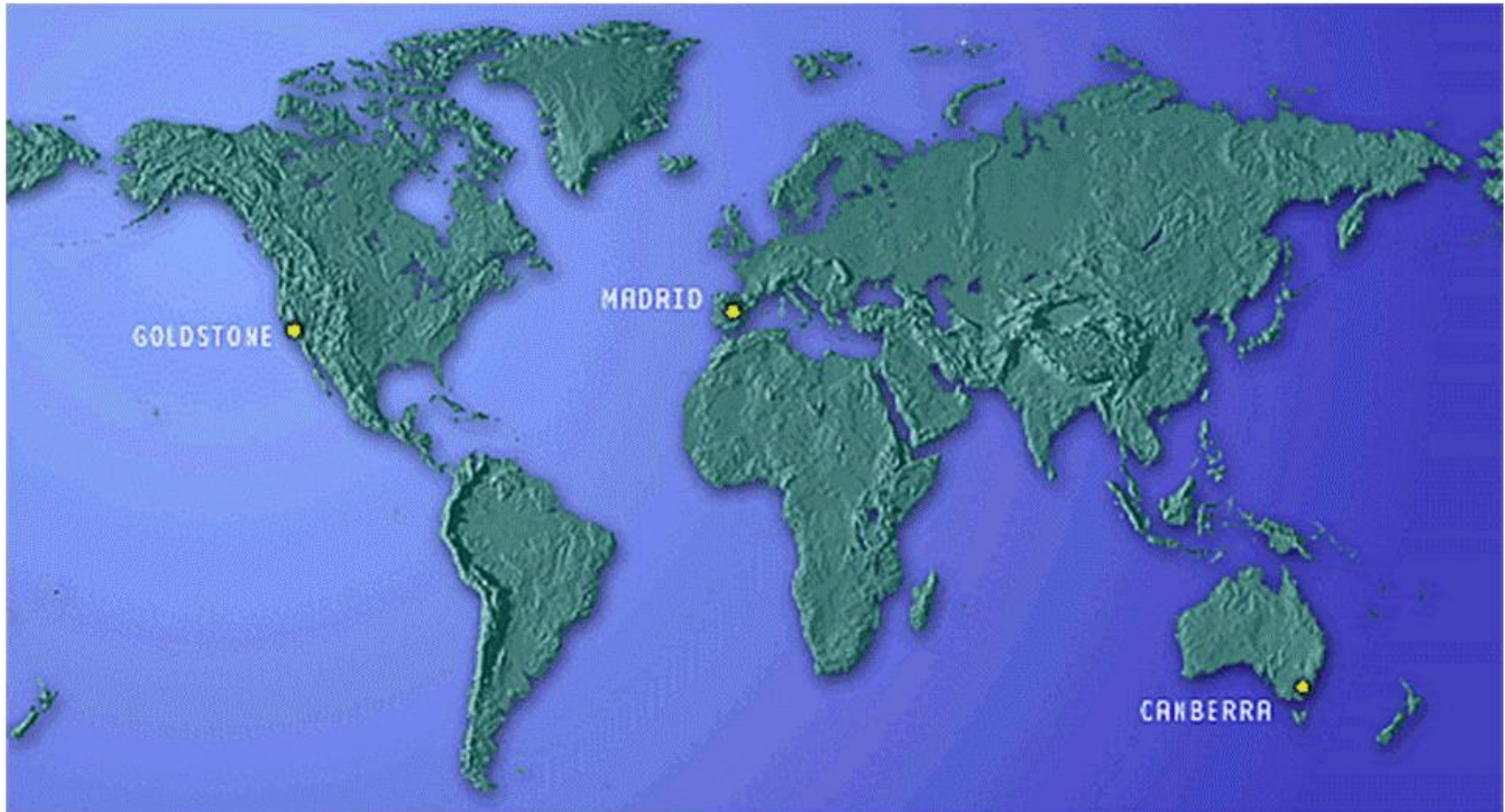
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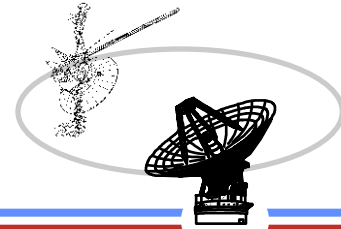
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DSN Antenna Downtime Status and Forecast





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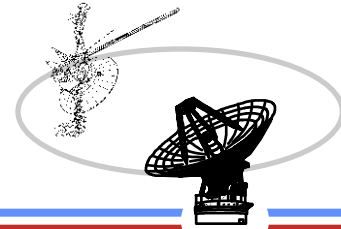
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Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
APCA	DSS-14	Jan 2016	May 2016	04 – 19	Anna Fan, Barzia Tehrani, Dave Taylor	In preparation for JNO JOI. Suggest doing a demo with JNO prior to RTS. DTRR scheduled for 1/6. Possible weather mitigation at DSS-14, need to stay within the scheduled time. Switchgear upgrade is NIB in week 18 & 19. Task is few days ahead of schedule
	DSS-43	Oct 2017	Feb 2018	42 – 06		
	DSS-63	Mar 2018	Oct 2018	10 – 41		
S-Band TXR Install	DSS-43	Feb 2016	Mar 2016	7 – 10	Harout Matossian	Require 1 block per week, day shift, NIB to Maintenance. Completed, testing needs to be done.
TXR Controller Upgrade	DSS-24	Apr 2016	Apr 2016	15		This downtime requested to upgrade the TXR Controller with Demos following upgrade. Upgrade did not pass testing. Need to schedule new time when CDE modifications area completed.
TXR S/W Controller Upgrade	DSS-35	May 2016	May 2016	19 & 22		This downtime was requested in Feb, Require 3 days dayshift – no night time tracking with 4 hours at end for DEMO track. A contingency downtime was added in week 22, If the contingency is not used the time will be offered to J. Cucchissi for EIB installation task.
S-Band Tuner Upgrade	DSS-34	Nov 2016	Nov 2016	44 & 45		Moved to weeks 44 & 45 NIB to Ka2 Tune-up and activity changed to Tuner Upgrade



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Antenna Downtime Status and Forecast

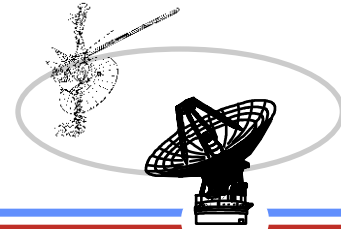
Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes		
Pedestal Metrology	DSS-63	Feb 2016	Jul 2016	04 & 32	David Munoz	Will measure pedestal stability twice a year in Summer and Winter, through Summer 2019. Require 2 consecutive nights.		
		Feb 2017	Aug 2017	07 & 34	Muchon Bernardo			
		Feb 2018	Aug 2018	08 & 32	Lopez			
		Feb 2019	Aug 2019	06 & 31				
		DSS-54	Feb 2016	Jul 2016	28			Will be NIB to LNA and Exciter in week 28 Will be NIB to Ka2 Tune-up in week 5
			Feb 2017	Aug 2017	05 & 32			Bernardo will firm up schedule for DSS-54 Pedestal Metrology downtimes
	Feb 2018		Aug 2018	03 & 34				
	Jan 2019		Aug 2019	04 & 33				
	DSS-55		Feb 2016	Jul 2016	34		Start time reduced by 45 minutes for CAS support scheduled during first block in week 34.	
			Feb 2017	Aug 2017	06 & 35		Will be NIB to LNA in week 5	
		Feb 2018	Aug 2018	05 & 29		Bernardo will send a presentation of reason why the metrology is needed. Pete, Belinda and Bernardo are required on copy before any deletions are made.		
		Feb 2019	Aug 2019	08 & 35				
							This could go seasonal	



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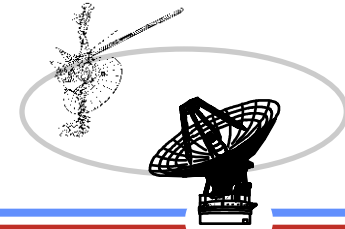


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex downtime for Power House Commission	CDSCC	Mar 2016	Apr 2016	12 & 15	Cameron Lyon, Dave Taylor	Additional downtime requested for Feb/March timeframe. Week 14 downtime moved to week 15 due to high contention in week 14. Both were completed.
LNA Replacement	DSS-35	Mar 2016	Mar 2016	12	Kevin Piechowski	Replacing defective LNA, the first 6 hours combined with Power and LNA Upgrade. There will be a S/W upgrade. Work completed in a prior task.
LNA Upgrade	DSS-35			13	Chris Link	



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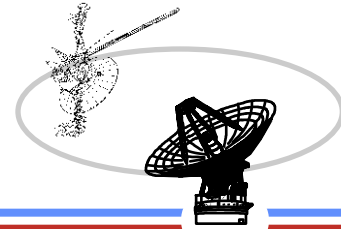
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Antenna Downtime Status and Forecast

Downtime`	Antenna	Start Date	End Date	Weeks	POC	Notes
NMC 4-MSPA I&T	GDSCC	Apr 2016	Apr 2016	16	Jim Buckley, Shirley Cizmar, Dave Taylor	Require 8 hour downtimes for each task Week 16 is completed. All NMC task need to be scheduled during dayshift hours. NMC 4-MSPA Task cannot be NIB to other downtimes. Dayshift required with a two day separation between downtimes Require additional 8 hour blocks in November for B230 Operational Readiness testing. CDSOC was moved to week 45 prior to MDSCC due to a conflict with a mission event. Require 10 hours complex downtimes separated by 2 weeks with no other downtimes scheduled.
	MDSCC	May 2016	May 2016	19		
NMC 4-MSPA AT	MDSCC	Jun 2016	Jun 2016	23		
NMC 4-MSPA SOAK/Install	GDSCC	Jul 2016	Aug 2016	30		
	CDSOC	Jul 2016	Aug 2016	31		
NMC 4-MSPA OPS Install	CDSOC & MDSCC	Oct 2016	Oct 2016	43		
NMC B230 OPS	CDSOC & MDSCC	Nov 2016	Nov 2016	45		
		Nov 2016	Nov 2016	45		
		Nov 2016	Nov 2016	46		
n-MSPA I&T	GDSCC CDSOC MDSCC	Nov 2017	Dec 2017	44, 46 & 49		
n-MSPA AT	Network wide GDSCC/DSOC CDSOC MDSCC	Mar 2018	Mar 2018	10 & 12	Require 2 14-hour network wide downtimes Favor Goldstone local time Will move antennas during this time	
n-MSPA SOAK/install:	Network wide GDSCC/DSOC CDSOC MDSCC	May 2018	May 2018	21	Require 1 14-hour network wide downtime Would like downtime to occur within this window: DOY 143 to DOY 149.in order to complete 30-Day SOAK before HYB2 Asteroid Target/Arrival) on July 3, 2018 Favor Goldstone local time	



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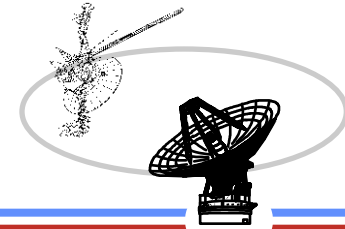


Antenna Downtime Status and Forecast

Downtime`	Antenna	Start Date	End Date	Weeks	POC	Notes
Shimming	DSS-63	May 2016	May 2016	20 & 21	Dave Taylor Ryan Higuera David Munoz Mochon, Bernardo Lopez,	Approved additional 2 weeks in May
Epoxy Grouting		Jul 2016	Aug 2016	29 - 33		July is shortened due to Cas. Have done 2 60 degree and 1 120 degree for a total of 240 degrees. This will reduce the downtime requirement in 2018 for APCA and HBA grout effort.
Grouting/APCA		Sep 2016	Sep 2016	35 - 39		Additional downtime in Aug/Sept allows Engineering to replace more of the HBA grout. Rosetta EOM scheduled for weeks 39/40 (9/28). Will need 70m support. Demos during the end of week 39.
		Mar 2018	Nov 2018	10 - 41		Downtime reduced to 32 weeks and moved to weeks 10-41 based on NSYT arrival date. Grout and APCA will be combined and divided between each activity..
Electrical and Ground Inspection	DSS-24	May 2016	May 2016	20	Hal Ahlstrom	First two days for Power on/off's, possibly a bit of the third day. The Third and fourth days will be utilized for grounding measurements. This will not effect testing of other tasks.
	DSS-26	May 2016	May 2016	21		
Generator Switch Gear Update	DSS-14	May 2016	May 2016	18	Ethan Copitch	This task will be NIB to APCA and level 4 tracks. No back-up or recovery system will be available during a power interruption.



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Antenna Downtime Status and Forecast

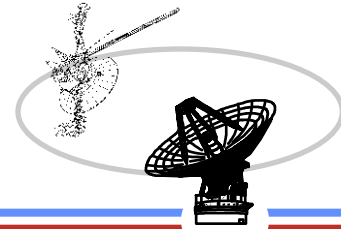
Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex Generator Power	CDSCC	May 2016	May 2016	19 & 20	Cameron Lyon	It was discovered there is an issue with the existing power control system that causes us to need to take the power to the entire CDSCC complex down for a short time on a couple of days. Requirement is to add 2 critical 1 hour complex downtimes in preparation for the SWUPS Installations starting in week 21 using diesel generators and manually have them support the load in week 19 and transition from a test condition of the generators to commercial power for the level 2 TGO support in week 20.
Apollo ARC Flash	DSS-24 DSS-25 DSS-26	May 2016	May 2016	20	Ethan Copitch	Completion of work started during an earlier downtime. Moved to week 20 NIB to LNA maintenance at DSS-24.
Apollo Switch Gear		Nov 2016	Dec 2016	48	Bob Schuerger	Requires 12 hours of downtime
Mini DLM	CDSCC	May 2016	May 2016	20 & 21	Paul Richter Bernardo Lopez, John Phillips	Mini DLMs are scheduled for 12-hour blocks and will include S-Band TXR Upgrade during DSS-34 Mini DLM.
Depot Level Maintenance	DSS-43 DSS-14	Feb 2017 Jun 2017	Mar 2017 Jun 2017	07 – 09 22 - 26		NIB to Exciter Obsolescence Installation and LNA Maintenance. Routine DLM with Roof Repair and XMTR Controller Replacement NIB



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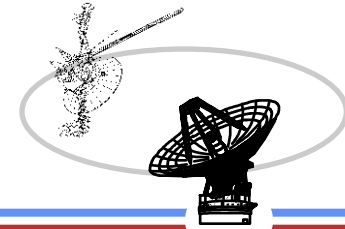


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Power Plant Controller Replacement	MDSCC	May 2016	Aug 2016	21, 31,	Javier Lopez-Perea,	Week 21 and 31 are not part of the task. Checking with complex at this time for activity change.
		Nov 2016	Jan 2017	46, 49, 02	Ethan Copitch	Added weeks 46, 49 and 02 for the Power Plant requirements with a minimum of 15 days separation between downtimes.
SWUPS Installation	CDSCC	May 2016	May 2016	21	Dave Taylor	Require 12 hours during daylight. Week 20 moved to 21 and times in week 2 day requirement in week 21 moved to 22 due to critical activities in week 20. This is the last week to complete task. There is a connection to the power house. There may be Fire Detection issues. Mini DLM will be scheduled NIB at DSS-43.. Will be completed prior to JNO JOI. Will use diesel power instead for the JOI. Chiller Installation scheduled NIB in week 22 at DSS-43
		May 2016	Jun 2016	22	Hal Ahlstrom	
Chiller Installation	DSS-43	May 2016	Jun 2016	22	John Phillips	Work will be done in parallel with the SWUPS powerhouse outages. Scheduled 2 12 hour blocks NIB..
Single Axis LOTO	DSS-54	July 2016	July 2016	28		



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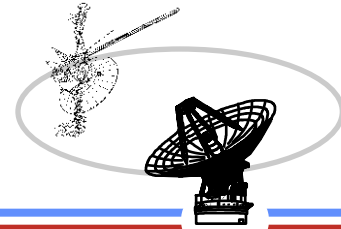
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Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Ka2 Tune-up	DSS-34	Oct 2016	Nov 2016	44 & 45	Wendy Hodgins	DSS-34 moved to 2016, weeks 44 & 45 with LNA NIB in week 44. Scheduled S-Band Tuner Upgrade NIB. This is budget/resource driven. Need a Ka2 contact for each complex There is a task to build 4 th Ka2/S-Band capabilities. This needs to be done 6 months prior to TESS Launch. MERR is scheduled 6 weeks prior to launch. LNA downtime will include Ka2 after the Tune-ups.
	DSS-54	Jan 2017	Feb 2017	04 & 05		
	DSS-24	Mar 2017	Mar 2017	11 & 12		
DSS-36 Operational	DSS-36	Oct 2016		40	Pam Rothman	DSS-36 will be operational in week 40. DSS-45 will be decommissioned in week 44. Complex wide downtime is required for testing
AZ Encoder Cover Installation	DSS-35	Nov 2016	Dec 2016	47 – 49	Pam Rothman	LNA will be NIB. Need to know all work being performed. Will keep the LNA at this time, but may change dates of any other DSS-35 LNAs planned later.
Antenna Inspections/ TXR RF Characterization	CDSCC	Jan 2017	Jan 2017	02 & 03	Dave Taylor Daniel Olson Harout Matossian	All inspections slipped 1 year Inspections require 12 hours, 8 hours NIB to maintenance with 4 hours following for TXR RF Characterization during inspections. Per discussion with engineers the Inspection will use the first 6 hours of downtime and release the last 6 hours for TXR task at each complex. Note: Cannot do Inspection/TXR RF Characterization on 2 antenna on a given day.
	MDSCC	Jun 2018	Jun 2018	24 & 25		
	GDSCC	May 2019	May 2019	21 & 22		
	CDSCC	Jan 2020	Jan 2020	04 & 05		



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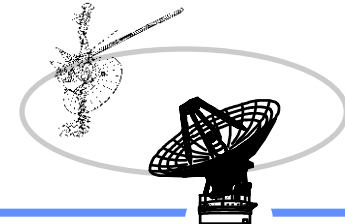


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Follow the Sun Ops Test	Network wide, SPC-10, 40, 60	Jan 2017	Jan 2017	03	Shirley Cizmar	Require 14 hour Network downtime for testing the Follow the sun (FtS) remote Ops.
	Network wide, SPC-10, 40, 60	Mar 2017	March 2017	10		Require 14 hour Network downtime for testing the Follow the sun (FtS) remote Ops.
	Network wide, SPC-10, 40, 60	May 2017	May 2017	19		Require 14 hour Network downtime for testing the Follow the sun (FtS) remote Ops.
Follow the Sun SOAK/Install	Network wide, SPC-10, 40, 60	Jun 2017	Jun 2017	25		Require 14 hour Network downtime for testing the Follow the sun (FtS) remote Ops Performing remote Ops during the last test. No additional task can co-exist during these (FtS) downtimes.
Follow the Sun MSPA Testing	Complex Wide SPC-10,40,60	Nov 2017	Dec 2017	44, 46, 49		Require a minimum 8 hour Network downtime
Network Wide DCD V6.1 Install	GDSCC DSOC CDSCC MDSCC	Feb 2017	Feb 2017	09	Sheila Garrett Anna Fan	First install will be daylight hours M-F at GDSCC
Complex Wide DCD V6.1	CDSCC	April 2017	April 2017	16		Daylight hours T-TH at CDSCC
Complex Wide DCD V6.1	MDSCC	May 2017	May 2017	21		Daylight hours M-TH at MDSCC



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Antenna Downtime Status and Forecast

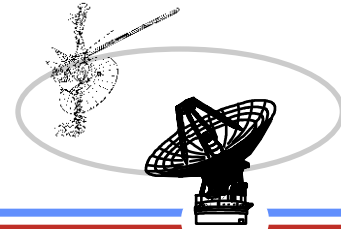
Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
XMTR Controller Replacement	DSS-14	Jun 2017	Jun 2017	22 – 24	Ryan Higuera	Require 3 weeks for transmitter controller replacement in place of L-Band Install task. NIB to DLM
S-Band Install	DSS-26	Sept 2017	Oct 2017	36 – 42	Wendy Hodgins	GDSCC cannot support the downtime in weeks 14-19, downtime has moved to weeks 36-42. Exciter install will be NIB. May move to 2018, weeks 10 – 16. Will impact decommission of DSS-15. Will be moved to start 1 month after S-Band installation. If DSS-36 goes as planned, will keep the time in 2017 and remove the time in 2018.
		Mar 2018	Apr 2018	10 – 16		
Maser Replacement	DSS-25	Apr 2018	May 2018	17 – 20	Wendy Hodgins	Reduced to 4 weeks and renamed to Maser Replacement instead of XX/Ka– NIB to AZ Track. Placeholder Reduced to 4 weeks and renamed to Maser Replacement instead of XX/Ka. Placeholder
	DSS-24	Feb 2019	Apr 2019	11 - 14		
AZ Track Replacement	DSS-25	Apr 2018	Jun 2018	17 – 27	Pam Rothman Daniel Olson	Prime activity with Maser Replacement, Exciter Obs Install and LNA NIB
70m Roof Repair	GDSCC	Jun 2017	June 2017	22 – 26		DSS-14 NIB to DLM Need to perform roof repairs at all 70m antenna. Require 5 weeks at each antenna.
	CDSCC	Feb 2019	Mar 2019	06 – 10		
	MDSCC	Jul 2019	Aug 2019	29 – 33		



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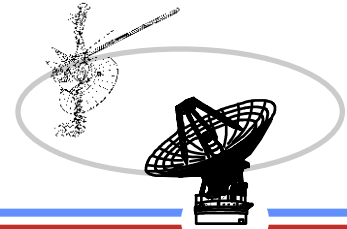


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Pedestal Rehab	DSS-54	Nov 2019	Apr 2021	45 – 17	Bernardo Lopez	This Rehab could take 15 – 18 months to complete. Servo Replacement and Transmitter Replacement will be NIB. DSS-56 will become operational October 1, 2019 with Ka2/S-Band feed. If DSS-54 is not available for JWST, the Ka2 will be installed at DSS-55. If we wait for DSS-56 to become operational and DSS-54 can operate until then, DSS-54 will start Pedestal Rehab the first weeks of Nov 2019 and end the last week of April 2021. DSS-56 has to be operational prior to taking this antenna down. This is dependent up DSS-56, Could keep DSS-54 up for all activities at Mars. Could move to the 2021 – 2023 time frame.
El Bearing Replacement	DSS-63	Apr 2021	May 2021	14 - 19	Bernardo Lopez	There are about 5-6 years of bearing life left based on last inspection. Requires only 6 weeks. If bearings continue to show healthy conditions and longevity, this work may be reduced to seals replacement. Moved to 2021 NIB to 20Kw XMTR Replacement.



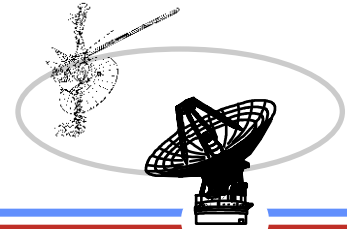
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Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
20 Kw XMTR Replacement	DSS-14	Mar 2020	Sep 2020	12 – 37	Pete Hames	This downtime must be completed prior to HYB2 Earth Re-Entry This will back up in the schedule and require 26 weeks.
	DSS-63	Apr 2021	Oct 2021	14 – 39		EI Bearing Replacement NIB.
	DSS-43	Jan 2022	Jul 2022	03 - 28		

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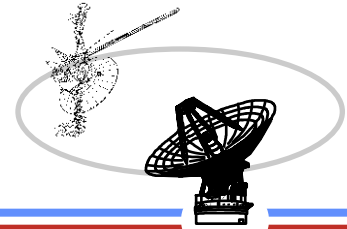
70m Major Downtimes 2016 - 2022

Downtime	Ant	Start Date	End Date	Weeks	Status	# of Days	Notes and next downtime date
APCA	DSS-14	Jan 25, 2016	May 13, 2016	04 – 19	Approved	109	LNA is scheduled NIB in week 04 Next downtime is May 2017
DLM	DSS-14	May 29, 2017	Jun 30, 2017	22 – 26	Proposed	32	XMTR Cntrl Rplc/Roof Repair/Exctr NIB Next downtime is June 2020
20 KW XMTR Replacement	DSS-14	Mar 16, 2020	Sep 12, 2020	12 - 37	Proposed	179	
APCA	DSS-43	Oct 16, 2017	Feb 9, 2018	44 – 06	Approved	115	LNA is NIB in week 02 of 2018 Next downtimes is Feb 2019
Roof Repair	DSS-43	Feb 3, 2019	Mar 08, 2019	05 – 10	Proposed	32	Next downtime is Jan 2022
20 KW XMTR Replacement	DSS-43	Jan 16, 2022	Jul 15, 2022	02 – 28	Proposed	179	
Shimming	DSS-63	May 16, 2016	May 27, 2016	20 – 21	Approved	11	Next downtime is Jul of 2016.
Epoxy Grout	DSS-63	Jul 18, 2016	Aug 19, 2016	29 – 33	Approved	31	Exciter Obsolescence Install is NIB Next downtime is Aug 2016.
Epoxy Grout	DSS-63	Aug 29, 2016	Sep 28, 2016	35 - 39	Approved	31	Next downtime is Mar 2018
Grouting/APCA	DSS-63	Mar 5, 2018	Oct 12, 2018	10 – 41	Proposed	221	Next downtime is Jul 2019
Roof Repair	DSS-63	Jul 15, 2019	Aug 16, 2019	29 – 33	Proposed	32	Next downtime is Apr 2021
20 KW XMTR Replacement	DSS-63	Apr 5, 2021	Oct 1, 2021	14 – 39	Proposed	179	El Bearing Replacement NIB



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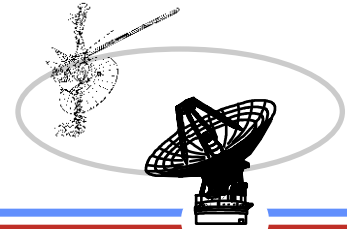
Proposed GDSCC LNA Maintenance for 2016 - 2021

Antenna	Month	Week	STATUS	Number of Days	Last LNA	Number of months since last LNA NOTES
DSS-14	Mar 2017	10	Approved	5	Jan 2016	14
	Feb 2018	09	Proposed		Mar 2017	12
	May 2019	19	Proposed		Feb 2018	14
	Jul 2020	30	Proposed		May 2019	14 NIB to 20Kw XMTR Replc.
	Aug 2021	32	Proposed		July 2020	13
DSS-15	Aug 2016	32	Approved	4	Mar 2015	17
	Oct 2017	43	Proposed		Aug 2016	14 Decommission 5/21/2018
DSS-24	May 2016	20	Approved	4	Apr 2015	13 NIB to Elec Grnd Insp.
	Jul 2017	28	Proposed		May 2016	13
	Sep 2018	39	Proposed		Jul 2017	14
	Dec 2019	49	Proposed		Sep 2018	14
	Feb 2021	05	Proposed		Dec 2019	14
DSS-25	May 2017	21	Proposed	3	Jun 2016	11
	Jun 2018	24	Proposed		May 2017	13 NIB to AZ Trk Replc
	Jul 2019	31	Proposed		Jun 2018	14
	Oct 2020	41	Proposed		Jul 2019	14
	Dec 2021	49	Proposed		Oct 2020	14
DSS-26	May 2016	21	Approved	3	Apr 2015	12
	Sep 2017	36	Proposed		May 2016	16 NIB to S-Band Install
	Nov 2018	45	Proposed		Sep 2017	14
	Jan 2020	04	Proposed		Nov 2018	14
	Mar 2021	12	Proposed		Jan 2020	14



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Proposed CDSCC LNA Maintenance for 2016 - 2021

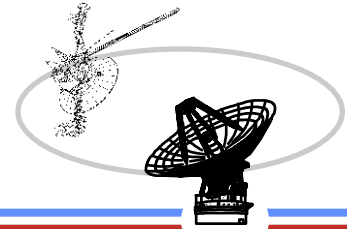
Antenna	Month	Week	STATUS	Number of Days	Last LNA	Number of months since last LNA NOTES
DSS-34	Oct 2016	44	Approved	3	Sep 2015	11
	Feb 2018	09	Proposed		Oct 2016	16
	Apr 2019	18	Proposed		Feb 2018	14
	Aug 2020	32	Proposed		Apr 2019	15
	Sep 2021	37	Proposed		Aug 2020	13
DSS-35	Dec 2016	49	Approved	3	Oct 2015	14
	Apr 2018	16	Proposed		Dec 2016	16
	Jun 2019	23	Proposed		Apr 2018	14
	Sep 2020	37	Proposed		Jun 2019	15
	Nov 2021	45	Proposed		Sep 2020	14
DSS-43	Feb 2017	08	Approved	5	Jan 2016	13 NIB to DLM
	Jan 2018	02	Proposed		Feb 2017	11
	Mar 2019	10	Proposed		Jan 2018	14
	May 2020	20	Proposed		Mar 2019	14
	July 2021	28	Proposed		May 2020	14
DSS-45	Apr 2016	17	Approved	4	Feb 2015	Decommission 10/31/2016



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Proposed MDSCC LNA Maintenance for 2016 - 2021

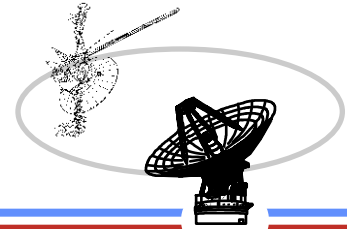
Antenna	Month	Week	STATUS	Number of Days	Last LNA	Number of months since last LNA NOTES
DSS-54	Jul 2016	28	Approved	3	Jun 2015	11 NIB to Exciter Obsolescence Inst
	Sep 2017	39	Proposed		Jul 2016	14
	Oct 2018	43	Proposed		Sep 2017	13 Down for Pedestal Rehab Nov 2019
DSS-55	Dec 2016	50	Approved	3	Aug 2015	16 NIB to Exciter Obsolescence inst.
	Jan 2018	05	Proposed		Dec 2016	14
	May 2019	21	Proposed		Jan 2018	15
	July 2020	29	Proposed		May 2019	14
	Sep 2021	36	Proposed		Jul 2020	14
DSS-63	Mar 2017	13	Approved	5	Jan 2016	14
	June 2018	23	Proposed		Mar 2017	13
	July 2019	31	Proposed		Jun 2018	14
	Oct 2020	42	Proposed		July 2019	14
	Nov 2021	48	Proposed		Oct 2020	14
DSS-65	Nov 2016	46	Approved	4	Dec 2015	11 NIB to Exciter Obsolescence Inst.
	Dec 2017	49	Proposed		Nov 2016	13
	Dec 2018	49	Proposed		Dec 2017	12
	Feb 2020	07	Proposed		Dec 2018	14
	Apr 2021	15	Proposed		Feb 2020	14



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Exciter Obsolescence Install 2016 – 2018

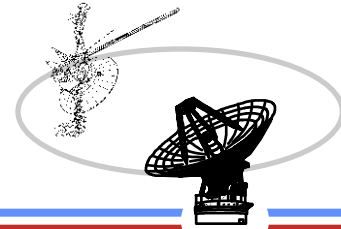
Antenna	Start Date	End Date	Week	Status	Number of Days	Notes
DSS-54	Jul 11, 2016	Jul 15, 2016	28	Approved	5	
DSS-63	Jul 25, 2016	Jul 30, 2016	29	Approved	5	NIB to Epoxy Grout
DSS-15	Aug 8, 2016	Aug 11, 2016	32	Approved	5	Cancelled
DSS-65	Nov 14, 2016	Nov 19, 2016	46	Approved	5	LNA NIB
DSS-55	Dec 12, 2016	Dec 16, 2016	50	Approved	5	LNA NIB
DSS-43	Feb 19, 2017	Feb 25, 2017	08	Proposed	5	NIB to DLM
DSS-24	Mar 13, 2017	Mar 19, 2017	11	Proposed	5	NIB to Ka2 Tune-up
DSS-14	Jun 19, 2017	Jun 24, 2017	25	Proposed	5	NIB to DLM
DSS-26	Sep 4, 2017	Sep 10, 2017	36	Proposed	5	NIB to S-Band Install
DSS-26	Mar 5, 2018	Mar 9, 2018	26	Proposed	5	NIB to S-Band Install
DSS-25	Apr 23, 2018	Apr 28, 2018	17	Proposed	5	NIB to AZ Track Replacement



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- 2016 -

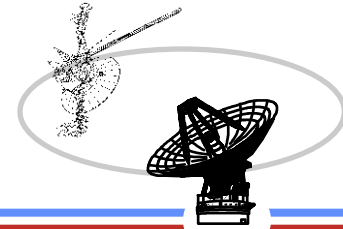
	January				February				March				April				May				June				July				August				September				October				November				December																																																																	
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52																																																										
2016 Key Project Events	PLC Umbra Support										PLC PC1 MNVR										JUNO JOI MERR										ORX MERR										TGO ExoMars Launch										TGO ExoMars EDM/MOI																																																											
	MRO Side Swap/Safe Mode/Reboot Entry/Exit to Nominal										Holy Week										GSSR AST 2003 KO2										GSSR AST 2008 HU4										GSSR AST 2005 GR33										GSSR AST 2004 FG11										GSSR AST 2010 NY65										GSSR AST 2011 DU										GSSR AST 2008 UL90										GSSR AST 2006 XD2										GSSR AST 1997 XR2									
	GSSR AST TORO										GSSR AST 2014 EK24										GSSR AST 1994 UG										GSSR AST 2009 DL46										GSSR AST 2002 KL6										GSSR AST 1999 YR14										GSSR AST 2003 YT1										GSSR AST 1998 XB										GSSR AST 2003 TL4																													
	GSSR AST 1999 JV6										COMET 252P/2000 G1										GSSR AST 2206 UK										GSSR AST 2008 T23										CAS 238 Saturn ATM Rings OCC Exp.										GSSR AST HERACLES										GSSR AST 2003 TL4										GSSR AST 2003 TL4																																							
	GSSR AST 2001 WL15										CAS OTM 444 LME MVR										VGR1 DTR P/B										VGR1 DTR P/B										CAS 237 Saturn ATM Rings OCC Exp.										CAS RSS Proximal Test 1/2										VGR1 DTR P/B										VGR1 DTR P/B																																							
	VGR1 DTR P/B										CAS OTM 438 LME MVR										CAS TITAN Flyby										CAS Enceladus Plume Occultation										CAS Saturn Rings OCC Exp.										CAS RSS Proximal Test 1/2										VGR1 DTR P/B										VGR1 DTR P/B																																							
	CAS OTM 441 LME MVR										CAS OTM 447 LME MVR										CAS OTM 453 LME MVR										CAS TITAN Bistatic Exp										CAS TITAN Bistatic Exp										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby																																							
	CAS Important TITAN Ciris Flyby										CAS TITAN T117 Bistatic Exp										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby																																							
	CAS TITAN T117 Bistatic Exp										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby																													
	CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby										CAS TITAN Flyby																													
Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others ■ TBD ■ Downtimes < 24 hours ■ MERR																																																																																																														
GDSCC	D14 Ant Gain Cal										D25 LNA 3d										D24 Elec & Ground Inspections										D15 LNA 4d										D24,25,26 Apollo Arc Flash - D24 NIB										D24,25,26 Apollo Switch Gear																																																											
	D14 Ant Gain Cal										SEC Scan										D26 LNA 4d - NIB										D26 Elec & Ground Inspections										MSN NET MNT										DSOC B230 Ops																																																											
CDSCC	D43 LNA 5d										NMC 4 - MSPA I&T										D45 LNA 4d										D35 TXR SW										D36 Operational 10/1/2016																																																																					
	SEC Scan										NMC 4 - MSPA I&T										D43 Chiller Install (2) - NIB										SEC Scan										SEC Scan										D36 Operational 10/1/2016																																																											
MDSCC	D65 XHMT LNA										SEC Scan										D54 Met (2) - NIB										MSN NET MNT										D65 Exctr Obs Inst 5d																																																																					
	SEC Scan										SEC Scan										D54 Single Axis LOTO - NIB										SEC Scan										D65 LNA 4d - NIB																																																																					

Revised: May 2, 2016

Downtime May 3, 2016 19

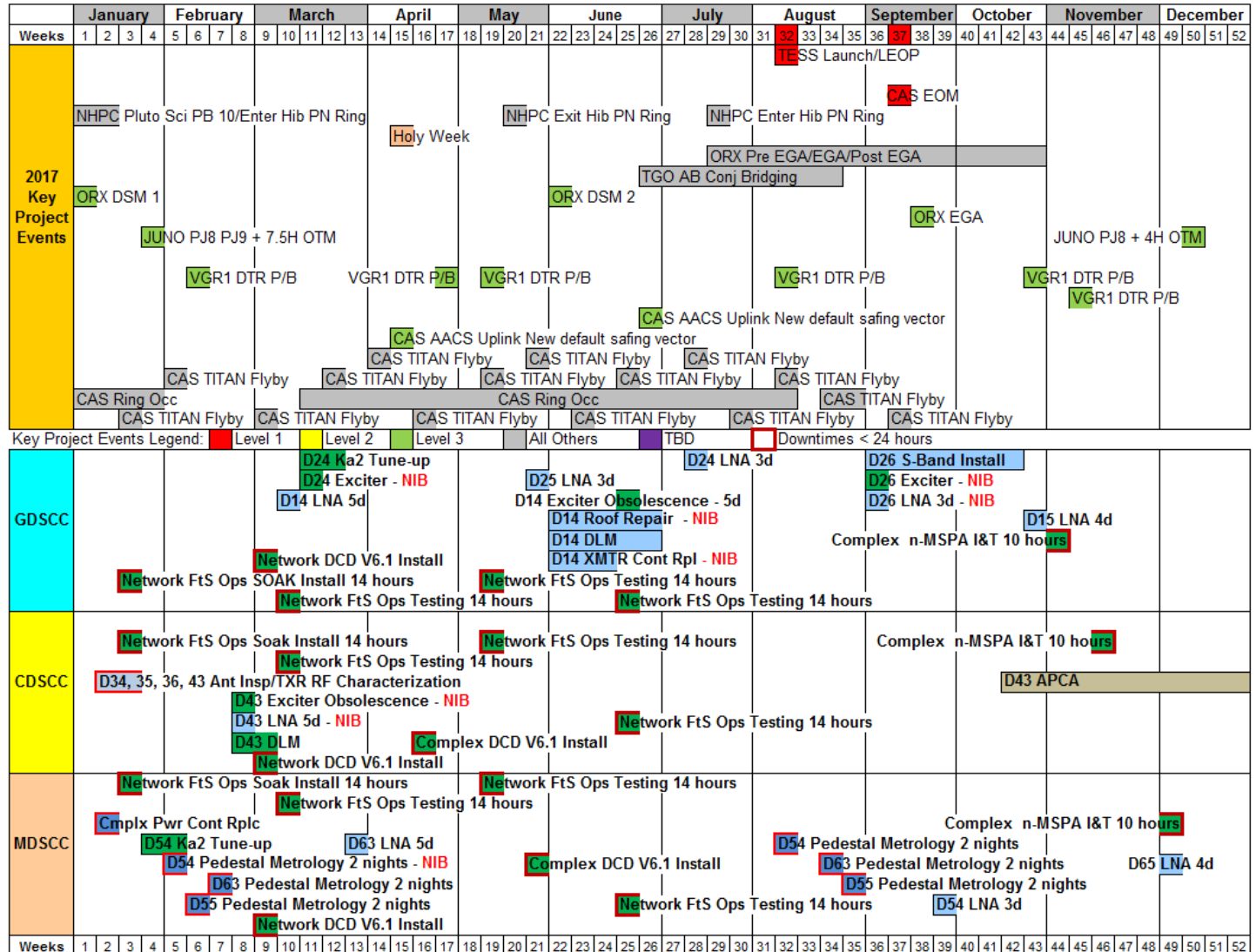


Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service



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- 2017 -

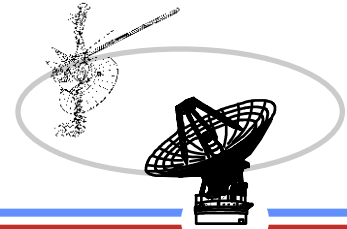


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Downtime May 3, 2016 20

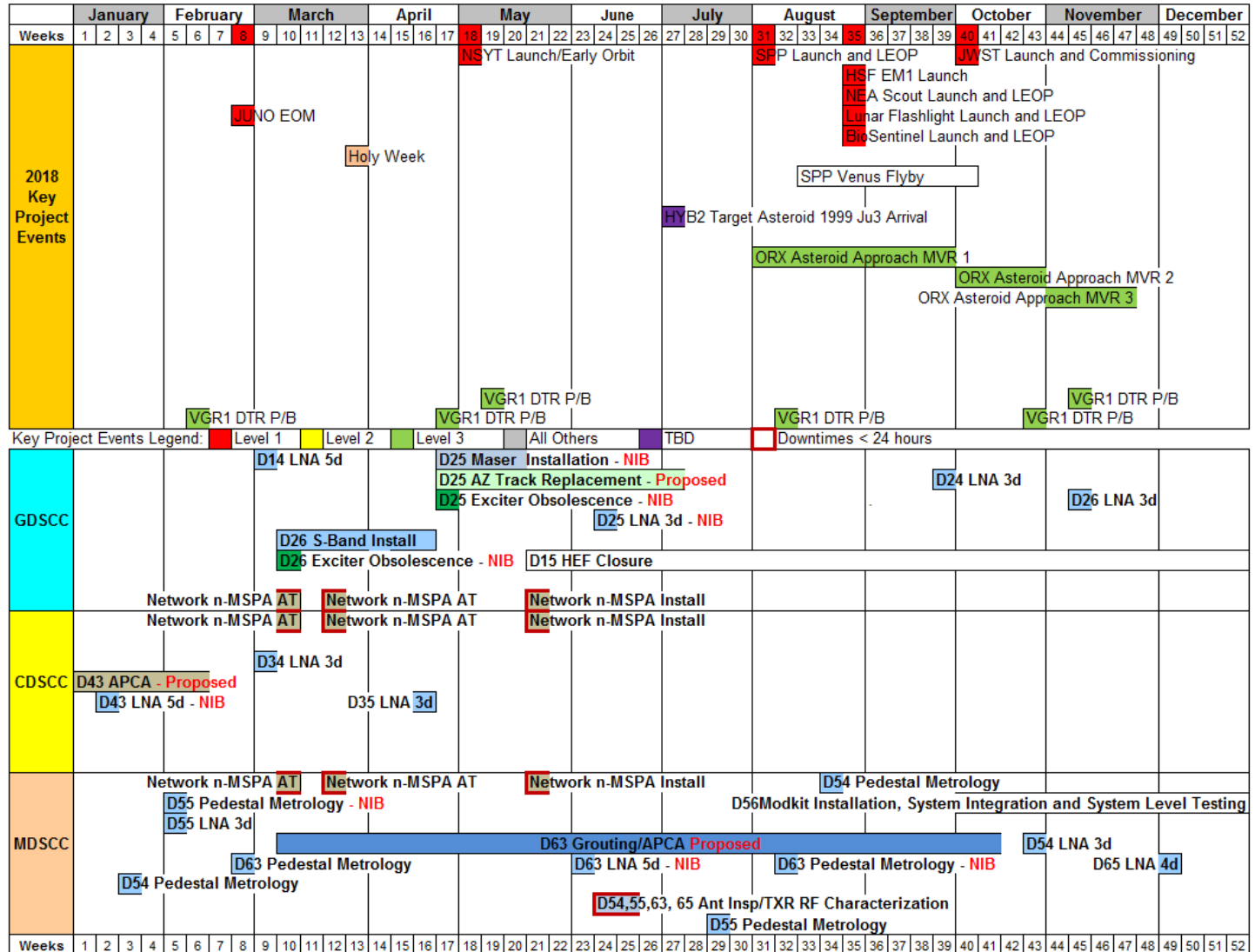


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- 2018 -

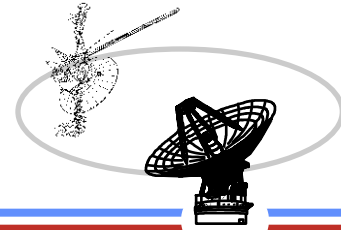


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Downtime May 3, 2016 21



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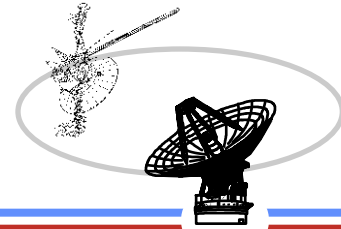


- 2019 -

	January					February					March					April					May					June					July					August					September					October					November					December				
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52								
2019 Key Project Events						SPP Beacon					SPP Solar Enc					ORX Touch & Go (TAG) 1 Reh										ORX TAG 1					SPP Solar Enc										SPP Venus Flyby																			
						VGR1 DTR P/B										Holy Week										VGR1 DTR P/B										HYB2 Target Asteroid 1999 Ju3 Departure										VGR1 DTR P/B					VGR1 DTR P/B									
Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others ■ TBD Downtimes < 24 hours																																																												
GDSCC											D24 Maser Replacement - Proposed										D14 LNA 5d										D25 LNA 3d															D24 LNA 3d														
CDSCC						D43 Roof Repair										D43 LNA 5d - NIB					D34 LNA 3d																																							
MDSCC	D56 Modkit Installation, System Integration and System Level Testing																																																											
	D56 Operational																																																											
	D54 Pedestal Metrology					D63 Pedestal Metrology					D65 LNA 4d										D55 LNA 3d					D63 Roof Repair					D54 Pedestal Metrology					D54 Pedestal Rehab end April 2021 - Proposed					D54 Servo/MTR Replacement - NIB																			
D55 Pedestal Metrology																									D63 LNA 5d					D63 Pedestal Metrology - NIB					D53 Modkit Installation, System Integration and System Level Testing					D55 Pedestal Metrology																				



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- 2020 -

	January					February				March				April				May				June				July				August				September				October				November				December							
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
2020 Key Project Events	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Holy Week (April 15-17)</p> <p>SPP Venus Flyby (May 22-23)</p> <p>VGR1 DTR P/B (June 19-20)</p> <p>VGR1 DTR P/B (July 19-20)</p> <p>VGR1 DTR P/B (August 19-20)</p> <p>VGR1 DTR P/B (November 19-20)</p> </div> <div style="width: 5%;"> <p>Mars 2020 Launch (July 27)</p> <p>SPP Venus Flyby (July 28-29)</p> </div> <div style="width: 45%;"> <p>HYB2 Earth Re-Entry (October 48)</p> <p>MARS 2020 Approach (December 48)</p> </div> </div>																																																				
	Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others ■ TBD Downtimes < 24 hours																																																				
GDSCC	<div style="display: flex; justify-content: space-between;"> <div style="width: 20%;"> <p>D26 LNA 3d (Jan 26)</p> </div> <div style="width: 50%; border: 1px solid green; padding: 2px;"> <p>D14 20 Kw XMTR Replacement - Proposed (Mar 14 - Jun 14)</p> </div> <div style="width: 20%;"> <p>D14 LNA 5d - NIB (Jul 14)</p> <p>D25 LNA 3d (Oct 25)</p> </div> </div>																																																				
CDSCC	<div style="display: flex; justify-content: space-between;"> <div style="width: 30%; border: 1px solid red; padding: 2px;"> <p>D34,35,36,43 Ant Insp/TXR RF Characterization (Jan 34-36)</p> </div> <div style="width: 40%;"> <p>D43 LNA 5d (May 23)</p> <p>D34 LNA 3d (Aug 34)</p> <p>D35 LNA 3d (Sep 35)</p> </div> </div>																																																				
MDSCC	<div style="display: flex; justify-content: space-between;"> <div style="width: 100%; border: 1px solid green; padding: 2px;"> <p>D54 Pedestal Rehab begin November 2019 end April 2021 - Proposed</p> </div> <div style="width: 100%; border: 1px solid green; padding: 2px;"> <p>D54 Servo/XMTR Replacement - NIB</p> </div> <div style="width: 30%;"> <p>D55 LNA 3d (Jul 31)</p> </div> <div style="width: 30%;"> <p>D63 LNA 5d (Oct 31)</p> </div> <div style="width: 30%;"> <p>D53 Modkit Installation, System Integration and System Level Testing (Jul 31 - Oct 31)</p> </div> <div style="width: 30%;"> <p>D53 Operational (Oct 31 - Dec 31)</p> </div> </div>																																																				

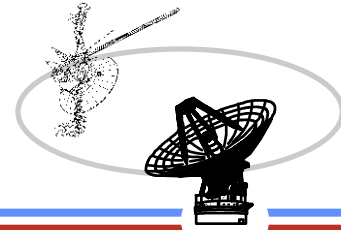
Revised: May 2, 2016

Downtime May 3, 2016 23

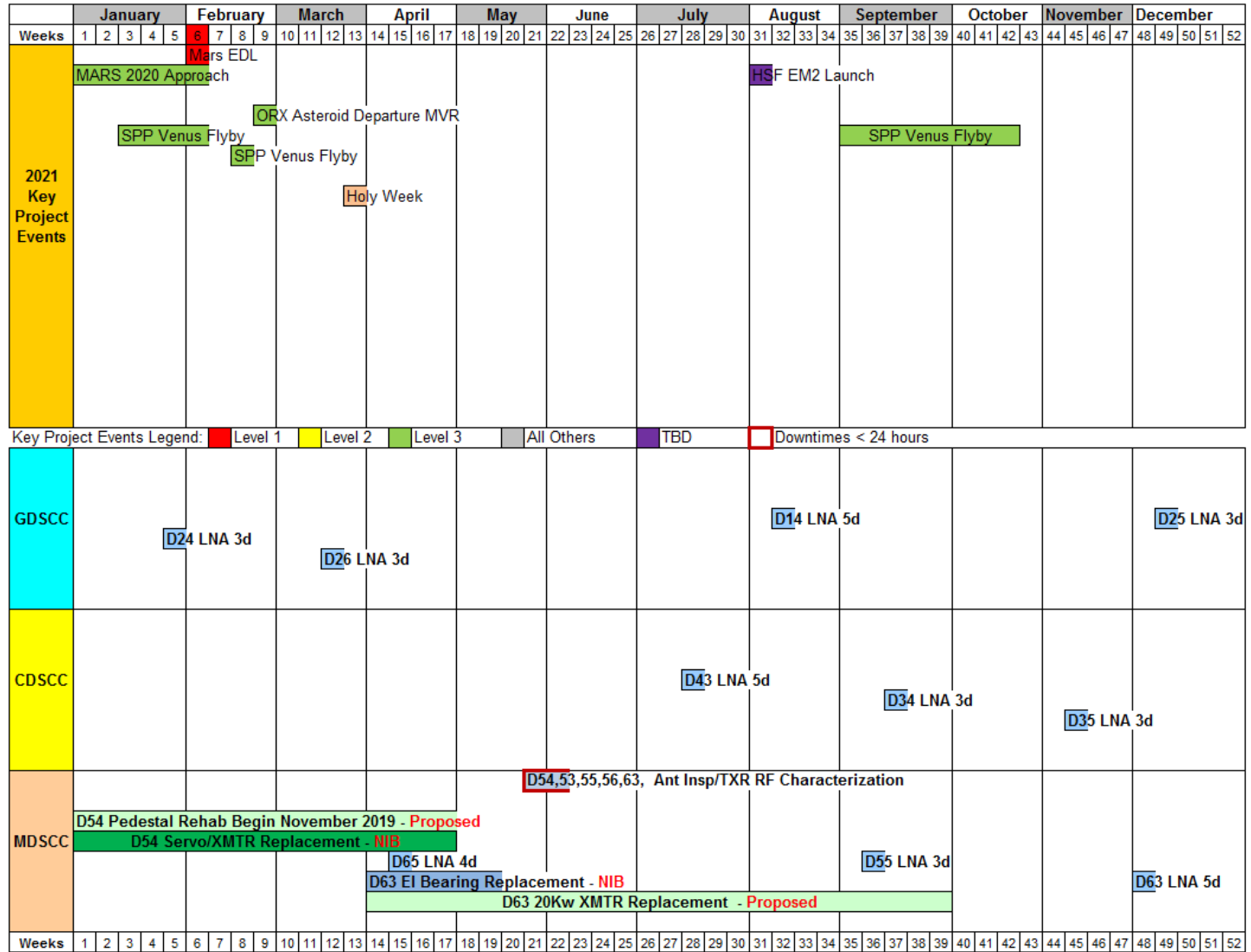


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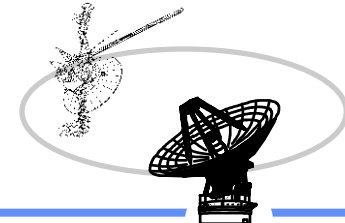
- 2021 -



Revised: May 2, 2016



Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service



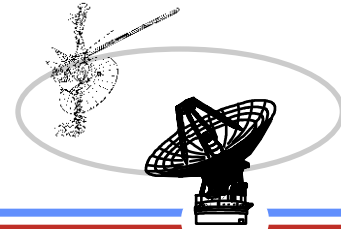
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DSN Downtime 2016

2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 14	APCA	01/25/2016 15:00	05/13/2016 23:00	109	04 - 09	25	134
DSS 45	LNA Maintenance	04/25/2016 00:00	04/29/2016 00:00	4	17 - 17	116	120
DSS 14	Generator Switch Gear Update	05/02/2016 00:00	05/09/2016 00:00	7	18 - 19	123	130
SPC 40	Complex Generators	05/09/2016 22:00	05/10/2016 00:00	0	19 - 19	130	131
DSS 35	Transmitter Upgrade	05/09/2016 22:00	05/12/2016 10:00	2	19 - 19	130	133
SPC 60	Complex NMC 4 - MSPA I&T	05/12/2016 07:00	05/12/2016 15:00	0	19 - 19	133	133
DSS 24	Electrical and Ground Inspection	05/16/2016 00:00	05/20/2016 00:00	4	20 - 20	137	141
DSS 24	LNA Maintenance - NIB	05/16/2016 00:00	05/20/2016 00:00	4	20 - 20	137	141
DSS 63	Shimming	05/16/2016 06:00	05/27/2016 17:00	11	20 - 21	137	148
DSS 34	Mini DLM	05/16/2016 20:00	05/17/2016 08:00	0	20 - 20	137	138
SPC 40	Complex Generators	05/16/2016 21:10	05/16/2016 22:10	0	20 - 20	137	137
DSS 43	Mini DLM	05/17/2016 20:00	05/18/2016 08:00	0	20 - 20	138	139
DSS 24	Apollo Arc Flash	05/18/2016 14:45	05/18/2016 22:45	0	20 - 20	139	139
DSS 25	Apollo Arc Flash	05/18/2016 14:45	05/18/2016 22:45	0	20 - 20	139	139
DSS 26	Apollo Arc Flash	05/18/2016 14:45	05/18/2016 22:45	0	20 - 20	139	139
DSS 45	Mini DLM	05/18/2016 20:00	05/19/2016 08:00	0	20 - 20	139	140
DSS 35	Mini DLM	05/19/2016 20:00	05/20/2016 08:00	0	20 - 20	140	141
DSS 26	Electrical/Ground Inspection	05/23/2016 00:00	05/27/2016 00:00	4	21 - 21	144	148
DSS 26	LNA Maintenance - NIB	05/23/2016 00:00	05/27/2016 00:00	4	21 - 21	144	148
SPC 40	Complex SWUPS Installation	05/23/2016 20:00	05/24/2016 08:00	0	21 - 21	144	145
DSS 43	Mini DLM NIB	05/23/2016 20:00	05/24/2016 08:00	0	21 - 21	144	145
DSS 34	Mini DLM	05/24/2016 20:00	05/25/2016 08:00	0	21 - 21	145	146
SPC 60	Power Plant Controller Replacement	05/25/2016 06:00	05/25/2016 14:00	0	21 - 21	146	146



Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service

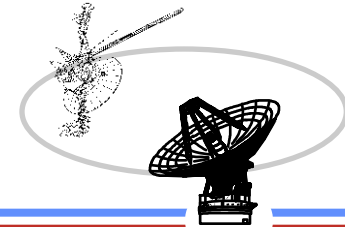


DSN Downtime 2016

2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 45	Mini DLM	05/25/2016 20:00	05/26/2016 08:00	0	21 - 21	146	147
DSS 35	Mini DLM	05/26/2016 20:00	05/27/2016 08:00	0	21 - 21	147	148
DSS 35	Transmitter Upgrade	05/30/2016 20:00	06/02/2016 08:00	2	22 - 22	151	154
DSS 43	Chiller Install - NIB	05/31/2016 20:00	06/01/2016 08:00	0	22 - 22	152	153
SPC 40	Complex SWUPS Installation	05/31/2016 20:00	06/01/2016 08:00	0	22 - 22	152	153
DSS 43	Chiller Install - NIB	06/02/2016 20:00	06/03/2016 08:00	0	22 - 22	154	155
SPC 40	Complex SWUPS Installation	06/02/2016 20:00	06/03/2016 08:00	0	22 - 22	154	155
SPC 60	Complex NMC 4 - MSPA AT	06/08/2016 06:00	06/08/2016 14:00	0	23 - 23	160	160
DSS 54	LNA Maintenance - NIB	07/11/2016 00:00	07/14/2016 00:00	3	28 - 28	193	196
DSS 54	Exciter Obsolescence Install	07/11/2016 06:00	07/15/2016 17:00	4	28 - 28	193	197
DSS 54	Single Axis LOTO - NIB	07/11/2016 06:00	07/15/2016 17:00	4	28 - 28	193	197
DSS 54	Pedestal Metrology - NIB	07/11/2016 22:00	07/12/2016 05:00	0	28 - 28	193	194
DSS 54	Pedestal Metrology - NIB	07/12/2016 22:00	07/13/2016 05:00	0	28 - 28	194	195
DSS 63	Exciter Obsolescence Install - NIB	07/18/2016 06:00	07/22/2016 17:00	4	29 - 29	200	204
DSS 63	Epoxy Grouting	07/18/2016 06:00	08/19/2016 17:00	32	29 - 33	200	232
SPC 10	Complex NMC 4 - MSPA SOAK/Install	07/29/2016 15:00	07/29/2016 23:00	0	30 - 30	211	211
SPC 40	Complex NMC 4 - MSPA SOAK Install	08/02/2016 22:00	08/03/2016 06:00	0	31 - 31	215	216
SPC 60	Power Plant Controller Replacment	08/04/2016 06:00	08/04/2016 18:00	0	31 - 31	217	217
DSS 15	LNA Maintenance - NIB	08/08/2016 00:00	08/12/2016 00:00	4	32 - 32	221	225
DSS 63	Pedestal Metrology - NIB	08/09/2016 22:00	08/10/2016 05:00	0	32 - 32	222	223
DSS 63	Pedestal Metrology - NIB	08/10/2016 22:00	08/11/2016 05:00	0	32 - 32	223	224
DSS 55	Pedestal Metrology	08/22/2016 22:00	08/23/2016 05:00	0	34 - 34	235	236
DSS 55	Pedestal Metrology	08/23/2016 22:45	08/24/2016 05:00	0	34 - 34	236	237



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 Resource Allocation Planning Service



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DSN Downtime 2016

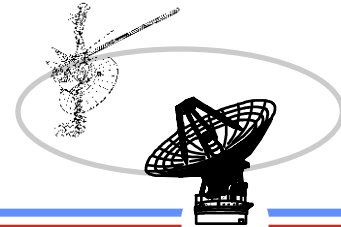
2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	Epoxy Grouting	08/29/2016 00:00	09/28/2016 17:00	31	35 - 39	242	272
SPC 40	Complex NMC 4-MSPA Ops Install	10/25/2016 22:00	10/26/2016 06:00	0	43 - 43	299	300
SPC 60	Complex NMC 4-MSPA Ops Install	10/27/2016 07:00	10/27/2016 15:00	0	43 - 43	301	301
DSS 34	LNA Maintenance - NIB	10/31/2016 00:00	11/03/2016 00:00	3	44 - 44	305	308
DSS 45	Decommissioned	10/31/2016 00:00	01/01/2050 00:00	12115	44 - 52	305	1
DSS 34	Ka2 Tune-up	10/31/2016 21:00	11/11/2016 06:00	10	44 - 45	305	316
DSS 34	S-Band Transmitter Upgrade - NIB	10/31/2016 21:00	11/11/2016 06:00	10	44 - 45	305	316
SPC 40	Complex NMC B230 Ops	11/08/2016 21:00	11/09/2016 05:00	0	45 - 45	313	314
SPC 60	Complex NMC B230 Ops	11/10/2016 06:00	11/10/2016 14:00	0	45 - 45	315	315
DSS 65	LNA Maintenance - NIB	11/14/2016 00:00	11/18/2016 00:00	4	46 - 46	319	323
DSS 65	Exciter Obsolescence Install	11/14/2016 06:00	11/18/2016 17:00	4	46 - 46	319	323
SPC 60	Power Plant Controller Replacment	11/17/2016 06:00	11/17/2016 18:00	0	46 - 46	322	322
SPC 10	Complex NMC B230 Ops	11/18/2016 16:00	11/19/2016 00:00	0	46 - 46	323	324
GCF 20	NMC B230 Ops	11/18/2016 16:00	11/19/2016 00:00	0	46 - 46	323	324
DSS 35	AZ Encoder Cover Replacement	11/20/2016 21:00	12/09/2016 05:00	18	46 - 49	325	344
DSS 24	Apollo Switch Gear	12/01/2016 15:00	12/02/2016 03:00	0	48 - 48	336	337
DSS 25	Apollo Switch Gear	12/01/2016 15:00	12/02/2016 03:00	0	48 - 48	336	337
DSS 26	Apollo Switch Gear	12/01/2016 15:00	12/02/2016 03:00	0	48 - 48	336	337
DSS 35	LNA Maintenance - NIB	12/05/2016 00:00	12/08/2016 00:00	3	49 - 49	340	343
SPC 60	Power Plant Controller Replacment	12/07/2016 06:00	12/07/2016 18:00	0	49 - 49	342	342
DSS 55	LNA Maintenance - NIB	12/12/2016 00:00	12/15/2016 00:00	3	50 - 50	347	350
DSS 55	Exciter Obsolescence Install	12/12/2016 06:00	12/16/2016 17:00	4	50 - 50	347	351



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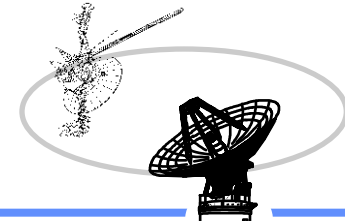


DSN Downtime 2017

2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 43	Ant Insp/TXR RF Characterization	01/09/2017 20:00	01/10/2017 08:00	0	02 - 02	9	10
DSS 34	Ant Insp/TXR RF Characterization	01/10/2017 20:00	01/11/2017 08:00	0	02 - 02	10	11
DSS 36	Ant Insp/TXR RF Characterization	01/11/2017 20:00	01/12/2017 08:00	0	02 - 02	11	12
SPC 60	Power Plant Controller Replacment	01/12/2017 06:00	01/12/2017 18:00	0	02 - 02	12	12
DSS 35	Ant Insp/TXR RF Characterization	01/12/2017 20:00	01/13/2017 08:00	0	02 - 02	12	13
DSS 43	Ant Insp/TXR RF Characterization	01/16/2017 20:00	01/17/2017 08:00	0	03 - 03	16	17
DSS 34	Ant Insp/TXR RF Characterization	01/17/2017 20:00	01/18/2017 08:00	0	03 - 03	17	18
DSS 36	Ant Insp/TXR RF Characterization	01/18/2017 20:00	01/19/2017 08:00	0	03 - 03	18	19
DSS 35	Ant Insp/TXR RF Characterization	01/19/2017 20:00	01/20/2017 08:00	0	03 - 03	19	20
SPC 10	Network Follow the Sun Ops Test	01/21/2017 14:00	01/22/2017 04:00	1	03 - 03	21	22
SPC 40	Network Follow the Sun Ops Test	01/21/2017 14:00	01/22/2017 04:00	1	03 - 03	21	22
SPC 60	Network Follow the Sun Ops Test	01/21/2017 14:00	01/22/2017 04:00	1	03 - 03	21	22
GCF 20	Network Follow the Sun Ops Test	01/21/2017 14:00	01/22/2017 04:00	1	03 - 03	21	22
DSS 54	Ka2 Tune-up	01/23/2017 07:00	02/03/2017 17:00	11	04 - 05	23	34
DSS 54	Pedestal Metrology - NIB	01/30/2017 20:00	01/31/2017 07:00	0	05 - 05	30	31
DSS 54	Pedestal Metrology - NIB	01/31/2017 20:00	02/01/2017 07:00	0	05 - 05	31	32
DSS 55	Pedestal Metrology	02/06/2017 20:00	02/07/2017 07:00	0	06 - 06	37	38
DSS 55	Pedestal Metrology	02/07/2017 20:00	02/08/2017 07:00	0	06 - 06	38	39
DSS 63	Pedestal Metrology	02/13/2017 20:00	02/14/2017 07:00	0	07 - 07	44	45
DSS 63	Pedestal Metrology	02/14/2017 20:00	02/15/2017 07:00	0	07 - 07	45	46
DSS 43	Exciter Obsolescence Install - NIB	02/19/2017 21:00	02/25/2017 05:00	5	07 - 08	50	56
DSS 43	Depot Level Maintenance	02/19/2017 21:00	03/03/2017 05:00	11	07 - 09	50	62
DSS 43	LNA Maintenance - NIB	02/20/2017 00:00	02/25/2017 00:00	5	08 - 08	51	56



Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service



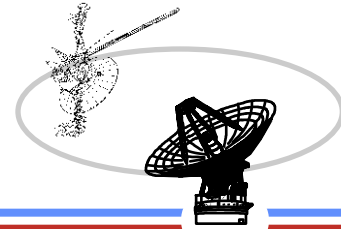
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DSN Downtime 2017

2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 10	Network DCD V 6.1 Install	02/28/2017 16:00	02/28/2017 22:00	0	09 - 09	59	59
GCF 20	Network DCD V 6.1 Install	02/28/2017 16:00	02/28/2017 22:00	0	09 - 09	59	59
SPC 40	Network DCD V 6.1 Install	02/28/2017 16:00	02/28/2017 22:00	0	09 - 09	59	59
SPC 60	Network DCD V 6.1 Install	02/28/2017 16:00	02/28/2017 22:00	0	09 - 09	59	59
DSS 14	LNA Maintenance	03/06/2017 00:00	03/11/2017 00:00	5	10 - 10	65	70
GCF 20	Network Follow the Sun Ops Test	03/09/2017 12:00	03/10/2017 02:00	1	10 - 10	68	69
SPC 10	Network Follow the Sun Ops Test	03/09/2017 12:00	03/10/2017 02:00	1	10 - 10	68	69
SPC 40	Network Follow the Sun Ops Test	03/09/2017 12:00	03/10/2017 02:00	1	10 - 10	68	69
SPC 60	Network Follow the Sun Ops Test	03/09/2017 12:00	03/10/2017 02:00	1	10 - 10	68	69
DSS 24	Exciter Obsolescence Install - NIB	03/13/2017 15:00	03/19/2017 00:00	5	11 - 11	72	78
DSS 24	Ka2 Tune-up	03/13/2017 15:00	03/25/2017 00:00	11	11 - 12	72	84
DSS 63	LNA Maintenance	03/27/2017 00:00	04/01/2017 00:00	5	13 - 13	86	91
SPC 40	Complex DCD V 6.1 Install	04/19/2017 23:00	04/20/2017 05:00	0	16 - 16	109	110
GCF 20	Network Follow the Sun Ops Test	05/13/2017 12:00	05/14/2017 02:00	1	19 - 19	133	134
SPC 10	Network Follow the Sun Ops Test	05/13/2017 12:00	05/14/2017 02:00	1	19 - 19	133	134
SPC 40	Network Follow the Sun Ops Test	05/13/2017 12:00	05/14/2017 02:00	1	19 - 19	133	134
SPC 60	Network Follow the Sun Ops Test	05/13/2017 12:00	05/14/2017 02:00	1	19 - 19	133	134
DSS 25	LNA Maintenance	05/22/2017 00:00	05/25/2017 00:00	3	21 - 21	142	145
SPC 60	Complex DCD V 6.1 Install	05/24/2017 06:00	05/24/2017 12:00	0	21 - 21	144	144
DSS 14	Transmitter Controller Replacement - NIB	05/29/2017 15:00	06/16/2017 23:00	18	22 - 24	149	167
DSS 14	Depot Level Maintenance	05/29/2017 15:00	06/30/2017 23:00	32	22 - 26	149	181
DSS 14	Roof Repair - NIB	05/29/2017 15:00	06/30/2017 23:00	32	22 - 26	149	181
DSS 14	Exciter Obsolescence Install - NIB	06/19/2017 15:00	06/24/2017 23:00	5	25 - 25	170	175



Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service

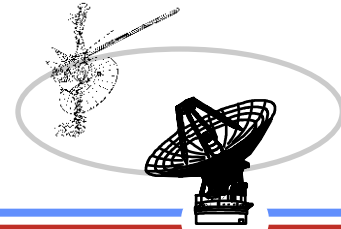


DSN Downtime 2017

2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 10	Network Follow the Sun Ops SOAK Install	06/22/2017 12:00	06/23/2017 02:00	1	25 - 25	173	174
SPC 40	Network Follow the Sun Ops SOAK Install	06/22/2017 12:00	06/23/2017 02:00	1	25 - 25	173	174
SPC 60	Network Follow the Sun Ops SOAK Install	06/22/2017 12:00	06/23/2017 02:00	1	25 - 25	173	174
GCF 20	Network Follow the Sun Ops SOAK Install	06/22/2017 12:00	06/23/2017 02:00	1	25 - 25	173	174
DSS 24	LNA Maintenance	07/10/2017 00:00	07/13/2017 00:00	3	28 - 28	191	194
DSS 54	Pedestal Metrology	08/07/2017 22:00	08/08/2017 05:00	0	32 - 32	219	220
DSS 54	Pedestal Metrology	08/08/2017 22:00	08/09/2017 05:00	0	32 - 32	220	221
DSS 63	Pedestal Metrology	08/21/2017 22:00	08/22/2017 05:00	0	34 - 34	233	234
DSS 63	Pedestal Metrology	08/22/2017 22:00	08/23/2017 05:00	0	34 - 34	234	235
DSS 55	Pedestal Metrology	08/28/2017 22:00	08/29/2017 05:00	0	35 - 35	240	241
DSS 55	Pedestal Metrology	08/29/2017 22:00	08/30/2017 05:00	0	35 - 35	241	242
DSS 26	LNA Maintenance - NIB	09/04/2017 00:00	09/07/2017 00:00	3	36 - 36	247	250
DSS 26	Exciter Obsolescence Install- NIB	09/04/2017 15:00	09/10/2017 02:00	5	36 - 36	247	253
DSS 26	S-Band Install	09/04/2017 15:00	10/21/2017 00:00	46	36 - 42	247	294
DSS 54	LNA Maintenance	09/25/2017 00:00	09/28/2017 00:00	3	39 - 39	268	271
DSS 43	APCA - Proposed	10/16/2017 21:00	02/09/2018 06:00	115	42 - 06	289	40
DSS 15	LNA Maintenance	10/23/2017 00:00	10/27/2017 00:00	4	43 - 43	296	300
SPC 10	Complex n-MSPA I&T	11/01/2017 14:00	11/02/2017 00:00	0	44 - 44	305	306
SPC 40	Complex n-MSPA I&T	11/15/2017 20:00	11/16/2017 06:00	0	46 - 46	319	320
DSS 65	LNA Maintenance	12/04/2017 00:00	12/08/2017 00:00	4	49 - 49	338	342
SPC 60	Complex n-MSPA I&T	12/06/2017 07:00	12/06/2017 15:00	0	49 - 49	340	340



Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service

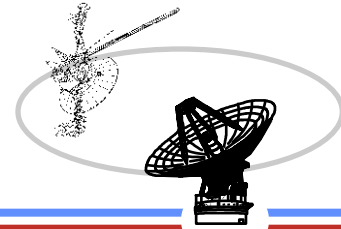


DSN Downtime 2018

2018							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 43	LNA Maintenance	01/08/2018 00:00	01/13/2018 00:00	5	02 - 02	8	13
DSS 54	Pedestal Metrology	01/15/2018 20:00	01/16/2018 07:00	0	03 - 03	15	16
DSS 54	Pedestal Metrology	01/16/2018 20:00	01/17/2018 07:00	0	03 - 03	16	17
DSS 55	LNA Maintenance	01/29/2018 00:00	02/01/2018 00:00	3	05 - 05	29	32
DSS 55	Pedestal Metrology - NIB	01/30/2018 20:00	01/31/2018 07:00	0	05 - 05	30	31
DSS 55	Pedestal Metrology - NIB	01/31/2018 20:00	02/01/2018 07:00	0	05 - 05	31	32
DSS 63	Pedestal Metrology	02/19/2018 20:00	02/20/2018 07:00	0	08 - 08	50	51
DSS 63	Pedestal Metrology	02/20/2018 20:00	02/21/2018 07:00	0	08 - 08	51	52
DSS 34	LNA Maintenance	02/26/2018 00:00	03/01/2018 00:00	3	09 - 09	57	60
DSS 14	LNA Maintenance	02/26/2018 00:00	03/02/2018 23:00	5	09 - 09	57	61
DSS 63	Grouting/APCA	03/05/2018 06:00	10/12/2018 17:00	221	10 - 41	64	285
DSS 26	Exciter Obsolescence Install - NIB	03/05/2018 15:00	03/09/2018 23:00	4	10 - 10	64	68
DSS 26	S-Band Install	03/05/2018 15:00	04/21/2018 23:00	47	10 - 16	64	111
SPC 60	Network n-MSPA AT	03/07/2018 15:00	03/08/2018 05:00	1	10 - 10	66	67
SPC 10	Network n-MSPA AT	03/07/2018 15:00	03/08/2018 05:00	1	10 - 10	66	67
SPC 40	Network n-MSPA AT	03/07/2018 15:00	03/08/2018 05:00	1	10 - 10	66	67
GCF 20	Network n-MSPA AT	03/07/2018 15:00	03/08/2018 05:00	1	10 - 10	66	67
GCF 20	Network n-MSPA AT	03/21/2018 15:00	03/22/2018 05:00	1	12 - 12	80	81
SPC 10	Network n-MSPA AT	03/21/2018 15:00	03/22/2018 05:00	1	12 - 12	80	81
SPC 40	Network n-MSPA AT	03/21/2018 15:00	03/22/2018 05:00	1	12 - 12	80	81
SPC 60	Network n-MSPA AT	03/21/2018 15:00	03/22/2018 05:00	1	12 - 12	80	81
DSS 35	LNA Maintenance	04/16/2018 00:00	04/19/2018 00:00	3	16 - 16	106	109
DSS 25	Exciter Obsolescence Install - NIB	04/23/2018 15:00	04/28/2018 00:00	4	17 - 17	113	118



Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service



DSN Downtime 2018

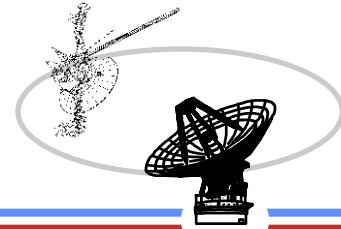
2018							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 25	Maser Installation - NIB	04/23/2018 15:00	05/19/2018 00:00	25	17 - 20	113	139
DSS 25	AZ Track Replacement	04/23/2018 15:00	07/06/2018 00:00	73	17 - 27	113	187
DSS 15	Decommissioned	05/21/2018 00:00	01/01/2050 00:00	11548	21 - 52	141	1
ASF 10	Network n-MSPA SOAK/Install	05/23/2018 15:00	05/24/2018 05:00	1	21 - 21	143	144
SPC 40	Network n-MSPA SOAK/Install	05/23/2018 15:00	05/24/2018 05:00	1	21 - 21	143	144
SPC 60	Network n-MSPA SOAK/Install	05/23/2018 15:00	05/24/2018 05:00	1	21 - 21	143	144
GCF 20	Network n-MSPA SOAK/Install	05/23/2018 15:00	05/24/2018 05:00	1	21 - 21	143	144
DSS 63	LNA Maintenance - NIB	06/04/2018 00:00	06/09/2018 00:00	5	23 - 23	155	160
DSS 25	LNA Maintenance - NIB	06/11/2018 00:00	06/14/2018 00:00	3	24 - 24	162	165
DSS 55	Ant Insp/TXR RF Characterization	06/11/2018 06:00	06/11/2018 18:00	0	24 - 24	162	162
DSS 65	Ant Insp/TXR RF Characterization	06/12/2018 06:00	06/12/2018 18:00	0	24 - 24	163	163
DSS 63	Ant Insp/TXR RF Characterization	06/13/2018 06:00	06/13/2018 18:00	0	24 - 24	164	164
DSS 54	Ant Insp/TXR RF Characterization	06/14/2018 06:00	06/14/2018 18:00	0	24 - 24	165	165
DSS 55	Ant Insp/TXR RF Characterization	06/18/2018 06:00	06/18/2018 18:00	0	25 - 25	169	169
DSS 65	Ant Insp/TXR RF Characterization	06/19/2018 06:00	06/19/2018 18:00	0	25 - 25	170	170
DSS 63	Ant Insp/TXR RF Characterization	06/20/2018 06:00	06/20/2018 18:00	0	25 - 25	171	171
DSS 54	Ant Insp/TXR RF Characterization	06/21/2018 06:00	06/21/2018 18:00	0	25 - 25	172	172
DSS 55	Pedestal Metrology	07/16/2018 22:00	07/17/2018 05:00	0	29 - 29	197	198
DSS 55	Pedestal Metrology	07/17/2018 22:00	07/18/2018 05:00	0	29 - 29	198	199
DSS 63	Pedestal Metrology - NIB	08/06/2018 22:00	08/07/2018 05:00	0	32 - 32	218	219
DSS 63	Pedestal Metrology - NIB	08/07/2018 22:00	08/08/2018 05:00	0	32 - 32	219	220
DSS 54	Pedestal Metrology	08/20/2018 22:00	08/21/2018 05:00	0	34 - 34	232	233
DSS 54	Pedestal Metrology	08/21/2018 22:00	08/22/2018 05:00	0	34 - 34	233	234



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DSN Downtime 2018

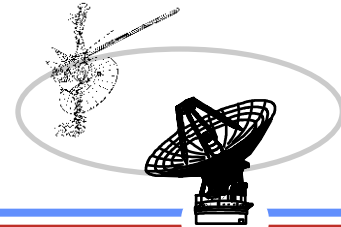
2018							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 24	LNA Maintenance	09/24/2018 00:00	09/27/2018 00:00	3	39 - 39	267	270
DSS 54	LNA Maintenance	10/22/2018 00:00	10/25/2018 00:00	3	43 - 43	295	298
DSS 26	LNA Maintenance	11/05/2018 00:00	11/08/2018 00:00	3	45 - 45	309	312
DSS 65	LNA Maintenance	12/03/2018 00:00	12/06/2018 00:00	3	49 - 49	337	340



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Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service



DSN Downtime 2019

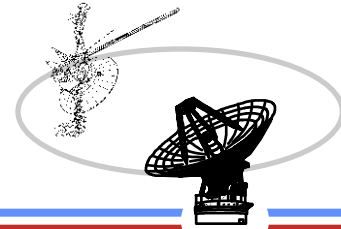
2019							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 54	Pedestal Metrology	01/22/2019 20:00	01/23/2019 07:00	0	04 - 04	22	23
DSS 54	Pedestal Metrology	01/23/2019 20:00	01/24/2019 07:00	0	04 - 04	23	24
DSS 43	Roof Repair	02/03/2019 21:00	03/08/2019 05:00	32	05 - 10	34	67
DSS 63	Pedestal Metrology	02/04/2019 20:00	02/05/2019 07:00	0	06 - 06	35	36
DSS 63	Pedestal Metrology	02/05/2019 20:00	02/06/2019 07:00	0	06 - 06	36	37
DSS 55	Pedestal Metrology	02/18/2019 20:00	02/19/2019 07:00	0	08 - 08	49	50
DSS 55	Pedestal Metrology	02/19/2019 20:00	02/20/2019 07:00	0	08 - 08	50	51
DSS 43	LNA Maintenance - NIB	03/04/2019 00:00	03/09/2019 00:00	5	10 - 10	63	68
DSS 24	Maser Replacement	03/11/2019 15:00	04/06/2019 00:00	25	11 - 14	70	96
DSS 34	LNA Maintenance	04/29/2019 00:00	05/02/2019 00:00	3	18 - 18	119	122
DSS 14	LNA Maintenance	05/06/2019 00:00	05/11/2019 00:00	5	19 - 19	126	131
DSS 55	LNA Maintenance	05/20/2019 00:00	05/23/2019 00:00	3	21 - 21	140	143
DSS 14	Ant Insp/TXR RF Characterization	05/20/2019 15:00	05/21/2019 03:00	0	21 - 21	140	141
DSS 26	Ant Insp/TXR RF Characterization	05/21/2019 15:00	05/22/2019 03:00	0	21 - 21	141	142
DSS 25	Ant Insp/TXR RF Characterization	05/22/2019 15:00	05/23/2019 03:00	0	21 - 21	142	143
DSS 24	Ant Insp/TXR RF Characterization	05/23/2019 15:00	05/24/2019 03:00	0	21 - 21	143	144
DSS 14	Ant Insp/TXR RF Characterization	05/27/2019 15:00	05/28/2019 03:00	0	22 - 22	147	148
DSS 26	Ant Insp/TXR RF Characterization	05/28/2019 15:00	05/29/2019 03:00	0	22 - 22	148	149
DSS 25	Ant Insp/TXR RF Characterization	05/29/2019 15:00	05/30/2019 03:00	0	22 - 22	149	150
DSS 24	Ant Insp/TXR RF Characterization	05/30/2019 15:00	05/31/2019 03:00	0	22 - 22	150	151
DSS 35	LNA Maintenance	06/03/2019 00:00	06/06/2019 00:00	3	23 - 23	154	157
DSS 63	Roof Repair	07/15/2019 06:00	08/16/2019 17:00	32	29 - 33	196	228
DSS 25	LNA Maintenance	07/29/2019 00:00	08/03/2019 00:00	5	31 - 31	210	215



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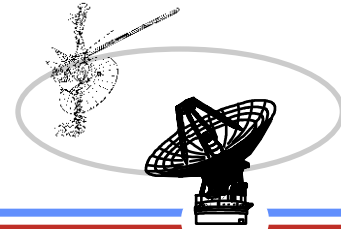


DSN Downtime 2019

2019							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	LNA Maintenance - NIB	07/29/2019 00:00	08/03/2019 00:00	5	31 - 31	210	215
DSS 63	Pedestal Metrology - NIB	07/29/2019 22:00	07/30/2019 05:00	0	31 - 31	210	211
DSS 63	Pedestal Metrology - NIB	07/30/2019 22:00	07/31/2019 05:00	0	31 - 31	211	212
DSS 54	Pedestal Metrology	08/20/2019 22:00	08/21/2019 05:00	0	34 - 34	232	233
DSS 54	Pedestal Metrology	08/21/2019 22:00	08/22/2019 05:00	0	34 - 34	233	234
DSS 55	Pedestal Metrology	08/26/2019 22:00	08/27/2019 05:00	0	35 - 35	238	239
DSS 55	Pedestal Metrology	08/27/2019 22:00	08/28/2019 05:00	0	35 - 35	239	240
DSS 65	Decommissioned	10/01/2019 00:00	01/01/2050 00:00	11050	40 - 52	274	1
DSS 54	Pedestal Rehab	11/04/2019 06:00	04/30/2021 17:00	543	45 - 17	308	120
DSS 54	Servo Replacement - NIB	11/04/2019 06:00	04/30/2021 17:00	543	45 - 17	308	120
DSS 54	Transmitter Replacement - NIB	11/04/2019 06:00	04/30/2021 17:00	543	45 - 17	308	120
DSS 24	LNA Maintenance	12/02/2019 00:00	12/05/2019 00:00	3	49 - 49	336	339



Interplanetary Network Directorate (IND)
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 Resource Allocation Planning Service



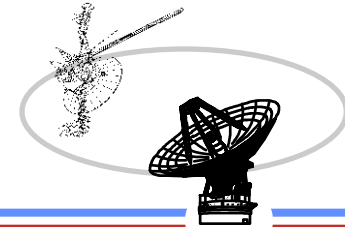
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DSN Downtime 2020

2020							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 26	LNA Maintenance	01/20/2020 00:00	01/23/2020 00:00	3	04 - 04	20	23
DSS 36	Ant Insp/TXR RF Characterization	01/20/2020 20:00	01/21/2020 08:00	0	04 - 04	20	21
DSS 43	Ant Insp/TXR RF Characterization	01/21/2020 20:00	01/22/2020 08:00	0	04 - 04	21	22
DSS 34	Ant Insp/TXR RF Characterization	01/22/2020 20:00	01/23/2020 08:00	0	04 - 04	22	23
DSS 35	Ant Insp/TXR RF Characterization	01/23/2020 20:00	01/24/2020 08:00	0	04 - 04	23	24
DSS 36	Ant Insp/TXR RF Characterization	01/27/2020 20:00	01/28/2020 08:00	0	05 - 05	27	28
DSS 43	Ant Insp/TXR RF Characterization	01/28/2020 20:00	01/29/2020 08:00	0	05 - 05	28	29
DSS 34	Ant Insp/TXR RF Characterization	01/29/2020 20:00	01/30/2020 08:00	0	05 - 05	29	30
DSS 35	Ant Insp/TXR RF Characterization	01/30/2020 20:00	01/31/2020 08:00	0	05 - 05	30	31
DSS 65	LNA Maintenance	02/10/2020 00:00	02/14/2020 00:00	4	07 - 07	41	45
DSS 14	20Kw XMTR Replacement	03/16/2020 16:00	09/12/2020 00:00	179	12 - 37	76	256
DSS 43	LNA Maintenance	05/11/2020 00:00	05/16/2020 00:00	5	20 - 20	132	137
DSS 55	LNA Maintenance	07/13/2020 00:00	07/16/2020 00:00	3	29 - 29	195	198
DSS 14	LNA Maintenance	07/20/2020 00:00	07/25/2020 00:00	5	30 - 30	202	207
DSS 34	LNA Maintenance	08/03/2020 00:00	08/06/2020 00:00	3	32 - 32	216	219
DSS 35	LNA Maintenance	09/07/2020 00:00	09/10/2020 00:00	3	37 - 37	251	254
DSS 25	LNA Maintenance	10/05/2020 00:00	10/08/2020 00:00	3	41 - 41	279	282
DSS 63	LNA Maintenance	10/12/2020 00:00	10/17/2020 00:00	5	42 - 42	286	291



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DSN Downtime 2021

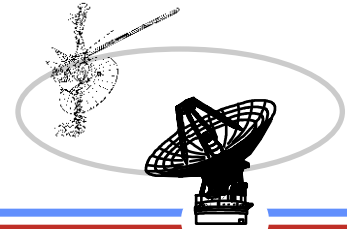
2021							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 24	LNA Maintenance	02/01/2021 00:00	02/04/2021 00:00	3	05 - 05	32	35
DSS 26	LNA Maintenance	03/22/2021 00:00	03/25/2021 00:00	3	12 - 12	81	84
DSS 63	El Bearing Replacement - NIB	04/05/2021 06:00	05/14/2021 17:00	39	14 - 19	95	134
DSS 63	20Kw XMTR Replacment	04/05/2021 06:00	10/01/2021 17:00	179	14 - 39	95	274
DSS 65	LNA Maintenance	04/12/2021 00:00	04/16/2021 00:00	4	15 - 15	102	106
DSS 55	Ant Insp/TXR RF Characterization	05/25/2021 06:00	05/25/2021 18:00	0	21 - 21	145	145
DSS 63	Ant Insp/TXR RF Characterization	05/26/2021 06:00	05/26/2021 18:00	0	21 - 21	146	146
DSS 56	Ant Insp/TXR RF Characterization	05/27/2021 06:00	05/27/2021 18:00	0	21 - 21	147	147
DSS 54	Ant Insp/TXR RF Characterization	05/28/2021 06:00	05/28/2021 18:00	0	21 - 21	148	148
DSS 55	Ant Insp/TXR RF Characterization	06/01/2021 06:00	06/01/2021 18:00	0	22 - 22	152	152
DSS 63	Ant Insp/TXR RF Characterization	06/02/2021 06:00	06/02/2021 18:00	0	22 - 22	153	153
DSS 56	Ant Insp/TXR RF Characterization	06/03/2021 06:00	06/03/2021 18:00	0	22 - 22	154	154
DSS 54	Ant Insp/TXR RF Characterization	06/04/2021 06:00	06/04/2021 18:00	0	22 - 22	155	155
DSS 43	LNA Maintenance	07/12/2021 00:00	07/17/2021 00:00	5	28 - 28	193	198
DSS 14	LNA Maintenance	08/09/2021 00:00	08/14/2021 00:00	5	32 - 32	221	226
DSS 55	LNA Maintenance	09/06/2021 00:00	09/09/2021 00:00	3	36 - 36	249	252
DSS 34	LNA Maintenance	09/13/2021 00:00	09/16/2021 00:00	3	37 - 37	256	259
DSS 35	LNA Maintenance	11/08/2021 00:00	11/11/2021 00:00	3	45 - 45	312	315
DSS 63	LNA Maintenance	11/29/2021 00:00	12/04/2021 00:00	5	48 - 48	333	338
DSS 25	LNA Maintenance	12/06/2021 00:00	12/09/2021 00:00	3	49 - 49	340	343



JPL

Jet Propulsion Laboratory
California Institute of Technology

Interplanetary Network Directorate (IND)
Deep Space Network (DSN)
Resource Allocation Planning Service

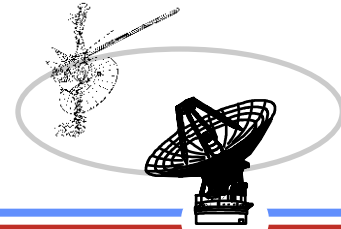


Future assets new/upgrades

- ❑ DSS-36 Installation and Operational 2016
 - ❑ Modkit inventory/install/checkout November 23, 2015 – March 21, 2016 Weeks 48 – 12
 - ❑ Acceptance testing March 22, 2016 – May 13, 2016 weeks 12 – 19
 - ❑ System Integration Testing March 29, 2014 June 30, 2016 Weeks 13 – 26
 - ❑ Operations System Performance Testing June 30, 2016 – August 29, 2016 weeks 26 – 35
 - ❑ Operational date October 1, 2016



Resource Allocation Planning Service



Antenna Downtime Status and Forecast

DSN Resource Implementation Planning Matrix by Complex

Complex	Station	Subnet	S-Band		X-Band		Ka-Band		Ka Phase 2	X-Band ACQ	80KW
			Down	Up	Down	Up	Down	Up			
10	DSS-23*	34B2	N/A	N/A	10/01/24	10/01/24	10/01/24	10/01/24	N/A	N/A	10/01/24
10	DSS-24	34B1	✓	✓	✓	✓	N/A	N/A	✓	✓	N/A
10	DSS-25	34B2	N/A	N/A	✓	✓	✓	✓	N/A	N/A	N/A
10	DSS-26	34B2	09/01/17	09/01/17	✓	✓	✓	N/A	N/A	N/A	✓
10	DSS-15	34HEF	✓	✓	✓	✓	N/A	N/A	N/A	N/A	N/A
10	DSS-14	70M	✓	✓	✓	✓	N/A	N/A	N/A	N/A	N/A
40	DSS-33*	34B2	N/A	N/A	10/01/22	10/01/22	10/01/22	N/A	N/A	N/A	10/01/22
40	DSS-34	34B1	✓	✓	✓	✓	✓	N/A	✓	✓	N/A
40	DSS-35	34B2	N/A	N/A	✓	✓	✓	N/A	N/A	N/A	N/A
40	DSS-36*	34B1	10/01/16	10/01/16	10/01/16	10/01/16	10/01/16	N/A	N/A	N/A	N/A
40	DSS-45	34HEF	✓	✓	✓	✓	N/A	N/A	N/A	N/A	N/A
40	DSS-43	70M	✓	✓	✓	✓	N/A	N/A	N/A	N/A	N/A
60	DSS-53*	34B2	N/A	N/A	10/01/20	10/01/20	10/01/20	N/A	N/A	N/A	10/01/20
60	DSS-54	34B1	✓	✓	✓	✓	✓	N/A	✓	✓	N/A
60	DSS-55	34B2	N/A	N/A	✓	✓	✓	N/A	N/A	N/A	N/A
60	DSS-56*	34B1	10/01/19	10/01/19	10/01/19	10/01/19	10/01/19	N/A	10/01/19	10/01/19	N/A
60	DSS-65	34HEF	✓	✓	✓	✓	N/A	N/A	N/A	N/A	N/A
60	DSS-63	70M	✓	✓	✓	✓	N/A	N/A	N/A	N/A	N/A

N/A = Not Applicable or Capability Not Planned

xx/xx/xx = Capability Date Recently Changed

As of: 10/5/2015

✓ ✓ ✓ = Capability Recently Exists

✓ = Capability Exists

* = To Be Commissioned