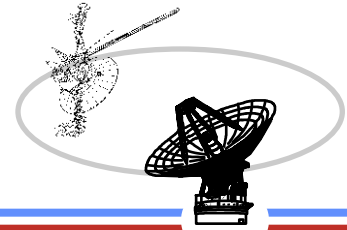




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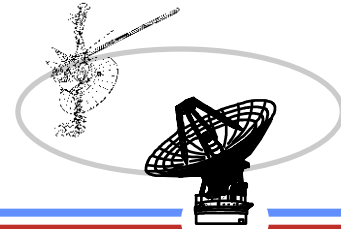
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## DSN Antenna Downtime Status and Forecast





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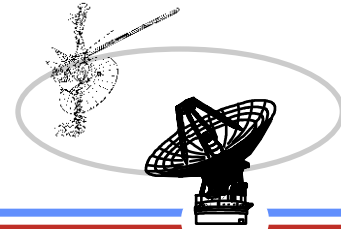


## Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
NMC D3.2 SPS 1.4 I&T, AT Install/SOAK And D3.3 Install/SOAK	CDSCC	Feb 2015	Dec 2015	23, 24, 31, 49	Jim Buckley Shirley Cizmar, Dave Taylor	All NMC task in 2015 have been completed except for weeks 49 & 50. May need an additional block of time in 2016 for testing of the H/W. This is to test operational readiness. Prefer GDSCC. Time frame is not known at this time.
	GDSCC	April 2015	Dec 2015	16, 19, 30, 41		
	MDSCC	May 2015	Dec 2015	22, 32, 50		
NMC 4-MSPA I&T, AT SOAK Install, Ops Install	GDSCC	Feb 2016	Aug 2016	6, 15, 30		Requesting 8 hour downtimes in 2016 for NMC 4-MSPA tasks. Week 13 task at CDSCC moved to week 11.
	CDSCC	May 2016	Aug 2016	11 & 31		
	MDSCC	May 2016	June 2016	19 & 23		
Pedestal Metrology	DSS-54/55	Jun 2015	Sept 2015	26, 30, 36	David Munoz Muchon Bernardo Lopez	Will measure pedestal stability twice a year in Summer and Winter, through Summer 2019. All measurements have been completed. Engineers will let us know when DSS-55 is ready for an additional metrology.
		Feb 2016	July 2016	4 & 33		
	DSS-63	Feb 2017	Aug 2017	7 & 34		



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## Antenna Downtime Status and Forecast

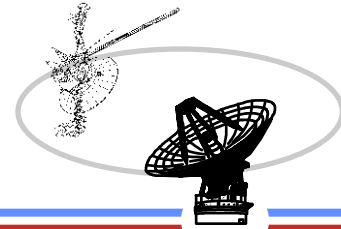
Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex downtime for Power House Commission	CDSCC	Aug 2015	Aug 2015	33	John Phillips, Cameron Lyon Dave Taylor	Requires at least 4 6-hour downtime between Aug 2015 and April 2016, <b>prefer daylight hours no weekends</b> . Downtime for week 33 was completed.  <b>Additional downtime requested for Feb/March timeframe</b>
		Oct 2015	Oct 2015	41		
		Dec 2015	Dec 2015	50		
		March 2016	April 2016	12 & 14		
Depot Level Maintenance	DSS-43	Aug 18, 2015	Sep 9, 2015	34 – 36	Paul Richter Bernardo	DSS-43 Tune-up/Calibration changed to DLM and extended 1 extra week to 36. In progress
	DSS-34	Nov 2015	Dec 2015	49 – 51	Lopez, John Phillips	DSS-34 moved to December time frame and extended 2 weekdays into week 51 Exciter Obsolescence will be NIB to DLM. <b>Need to perform 70m DLM. Cannot be done during APCA. Suggest 2017 for DSS-14 &amp; DSS-43 during LNA and 63 in 2018 prior to APCA.</b>
DCD v.5.1 software installation	GDSCC	Aug, 2015	Aug 2015	32	Anna Fan, Sheila Garrett	All complexes require installation of DCD 5.1. with a minimum of 6 hours. Beginning with Goldstone, with 30 day separation from the MDSCC install, lastly the CDSCC install. Requires a 2 week separation from the 2 <sup>nd</sup> and 3 <sup>rd</sup> install. GDSCC was completed.
	MDSCC	Sep 2015	Sep 2015	37		
	CDSCC	Oct 2015	Oct 2015	40		
Network DCD Switchover	DSOC	Oct 2015	Oct 2015	44		Network wide DCD equipment switchover to operations from the Data Center. <b>Remaining software installs is DCD switchover in week 44. Future task require dayshift hours, no weekends.</b>



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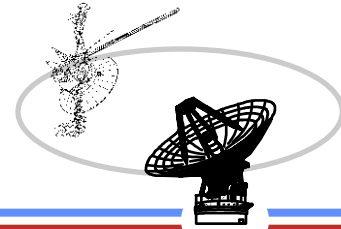


## Antenna Downtime Status and Forecast

Downtime`	Antenna	Start Date	End Date	Weeks	POC	Notes
AZ Track Replacement	DSS-55	Aug 2015	Nov 2015	34 – 49	Pam Rothman	On schedule with new extension.
	DSS-25	Apr 2018	Jun 2018	14 – 23	Daniel Olson	This is NIB to XX/Ka Installation.
XKR Feed Cone Ladder	DSS-14	Sept 2015	Sept 2015	39	David Allen	Requires 3 days to install the XKR Feed Cone Ladder. This will include the hoist mount install. <b>Completed</b>
Power Transfer	DSS-25	Oct 2015	Oct 2015	43	Richard Fleig	This 16-hour Power Transfer downtime was requested by OE.. Each antenna will be scheduled in separate weeks Prefer dayshift but can work night, no weekends. <b>Additional time was added during maintenance times for UPS Bypass work prior to the Power Transfers.</b>
	DSS-24			44		
G86 Power Work	GDSCC	Dec 2015	Dec 2015	51	David Lloyd	Require an annual 16 hour downtime for G86 Power Work. <b>Dichroic mirror removal NIB at DSS-25</b>
Comm & PPC Integration	DSS-26	Oct 2015	Oct 2015	44	Tom Grey	Requires 8 hours. Could co-exist with G86 Power work in week 51. Confirm with POC.
UWV Feed Update	DSS-35	Nov 2015	Nov 2015	45– 46	Chris Link	Install UWV Feed Update components from DSS-13 at DSS-35 and test.
Power Plant Controller Replacement	MDSCC	Nov 2015	Jan 2016	47, 02 & 05	Javier Lopez-Perea	Require a minimum of 15 days separation between downtimes. Cannot start prior to the end of October, <b>weeks 02 and 05 replaced earlier weeks in 2015.</b>



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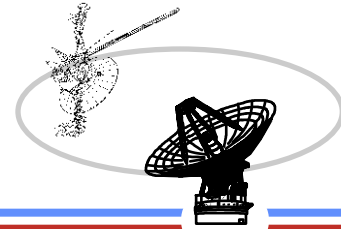


## Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
APCA	DSS-14	Jan 2016	May 2016	04 – 19	Anna Fan, Barzia Tehrani	Moved to weeks 04-19 to finish early in preparation for JNO JOI. Suggest doing a demo with JNO prior to RTS. DSS-43 extended an additional 3 weeks on the back end. DSS-63 will be in conjunction to the HBA Grouting and is extended to 35 weeks.
	DSS-43	Oct 30, 2017	Feb 9, 2018	44 – 06		
	DSS-63	Mar 2018	Nov 2018	11 – 45		
Antenna Inspections/ TXR RF Characterization	CDSCC	May 2016	May 2016	20 & 21	Dave Taylor Daniel Olson Harout Matossian	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	Apr 2017	Apr 2017	17 & 18		
	GDSCC	Mar 2018	Mar 2018	09 & 10		
SWUPS Installation	CDSCC	May 19 2016	May 19 2016	20	Dave Taylor Hal Ahlstrom	Must be done in daylight, There is a connection to the power house. Need to avoid InSight/Inspire/MCO activities. There may be a Fire Detection issues. Antenna Inspections and TXR RF Characterization will be scheduled NIB <b>May not be done prior to JNO JOI. Will use diesel power instead. May move to week 32 or 44, unsure at this time.</b>
		May 24 2016	May 24 2016	21		
		May 26 2016	May 26 2016	21		



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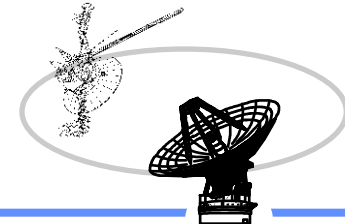


## Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Shimming	DSS-63	Jul 2016	Aug 2016	30 – 31	Dave Taylor, David Munoz Mochon, Bernardo Lopez, Asim Sehic	Bad weather could cause a slip of the task and could require an additional week for demos during DSS-14 APCA downtime. July is shortened due to Cas. Grouting has been changed to <b>Shimming 2</b> <b>additional sections may need regrouting requiring an additional 2 weeks. Will look at the end of November 2016 weeks 46 &amp; 47.</b>
Grouting		Mar 2018	Nov 2018	11 – 45		2017 grouting, has moved to 2018 and extended to 35 weeks in conjunction with the APCA. This will be the first attempt for the 120 degree regrout. There will be discussions about using weekends however, it is not currently in the budget. Grout and APCA will be combined as 1 activity with the weeks divided between the activities.
Follow the Sun Ops Test	Network wide, SPC-10, 40, 60	Jan 2017	Jan 2017	03	Shirley Cizmar	Require 14 hour complex downtime for testing the Follow the sun (FtS) remote Ops. All 3 complexes concurrent.
	Network wide, SPC-10, 40, 60	March 2017	March 2017	10		Require 14 hour complex downtime for testing the Follow the sun (FtS) remote Ops. All 3 complexes concurrent.
	Network wide, SPC-10, 40, 60	May 2017	May 2017	19		Require 14 hour complex downtime for testing the Follow the sun (FtS) remote Ops. All 3 complexes concurrent.



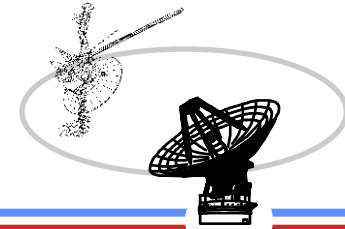
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Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Ka2 Tune-up	DSS-54	Jan 23, 2017	Feb 3, 2017	04 & 05	Wendy Hodgkin	These downtimes are being moved to 2017 with DSS-54 being the first Tune-up. All Tune-ups will be standalone. These need to be completed prior to the end of June 2017. This is budget/resource driven. There is a task to build 4 <sup>th</sup> Ka2/S-Band capabilities. This needs to be done 6 months prior to TESS Launch.
	DSS-24	Mar 13, 2017	Mar 24, 2017	11 & 12		
	DSS-34	May 14, 2017	May 26, 2017	20 & 21		
L-Band Install	DSS-14	Jun 2017	Jun 2017	25 & 26	Carleen Ward	Install the L-Band TXR. Exciter Obsolescence install will be NIB. Information about the L-Band schedule for 2016 was submitted. <b>Possibility of installing during maintenance days.</b>
S-Band Install	DSS-26	Sept 2017	Oct 2017	36-42	Wendy Hodgkin	<b>GDSCC cannot support the downtime as planned in weeks 14-19, so the downtime has moved to weeks 36-42</b>
XX/Ka Installation	DSS-25	Mar 2018	Jun 2018	10 – 23	Wendy Hodgkin	XX/Ka requires 14 weeks - AZ Track will be NIB in weeks 14 – 23. Needs to happen as soon after JNO end of mission as possible. DSS-24 is not funded at this time, but still in the plan to proceed with downtime. Moving to early 2019 for 12 weeks.
	DSS-24	Feb 2019	Apr 2019	06 – 17		



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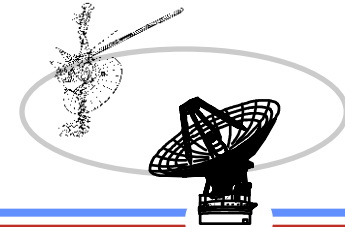
## Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Pedestal Rehab	DSS-54	Nov 4, 2019	Apr 30, 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. Servo and Transmitter Replacements will be NIB
EI Bearing Replacement	DSS-63	Apr 20, 2020	Jul 10, 2020	17 – 28	Asim Sehic	This downtime was request on 11/14/2014. There are about 5-6 years of bearing life left based on last inspection.





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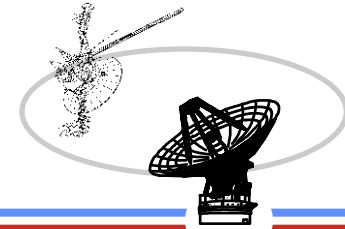
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## 70m Major Downtimes 2015 - 2020

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
Depot Level Maintenance	DSS-43	Aug 17, 2015	Sep 4, 2015	34 – 36	Approved	17	<b>Completed</b> Renamed to Depot Level Maintenance - Next downtime is October of 2017
APCA	DSS-43	Oct 30, 2017	Feb 9, 2018	44 – 06	Proposed	101	LNA is scheduled NIB in week 02 of 2018
Depot Level Maintenance	DSS-63	Aug 3, 2015	Aug 14, 2015	32 – 33	Approved	12	<b>Completed</b> -Next downtime is July of 2016
Shimming	DSS-63	Jul 25, 2016	Aug 5, 2016	30 – 31	Approved	11	Next downtime is March of 2018.
Grouting/APCA	DSS-63	Mar 12, 2018	Nov 9, 2018	11 – 45	Proposed	243	Next downtime is April of 2020
El Bearing Replacement	DSS-63	Apr 20, 2020	Jul 10, 2020	17 – 27	Proposed	446	



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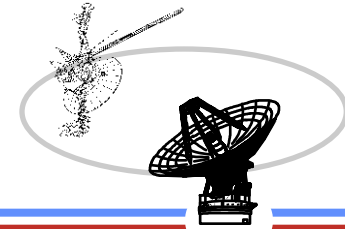
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## Proposed LNA Maintenance Scheduled for 2016

Antenna	Start Date	End Date	Week	STATUS	Number of Days	2015 LNAs	Number of months since last LNA
DSS-43	Jan	Jan	01	Approved	5	Mar, Jun, Oct, Nov, Dec of 2015	10 months
DSS-63	Jan	Jan	03	Approved	5	Jan, Nov of 2015 During grouting	13 months
DSS-14	Jan	Jan	04	Approved	5	Dec of 2014 During APCA	13 months
DSS-25	Apr	Apr	14	Approved	3	Feb, Jul, Oct of 2015	14 months
DSS-45	Apr	Apr	17	Approved	4	Feb, Apr, Jul of 2015	14 months
DSS-24	May	May	19	Approved	3	Apr, Aug of 2015 After DSS-14 APCA	13 months
DSS-26	June	June	25	Approved	3	May 2015	13 months
DSS-54	Jul	Jul	29	Approved	3	Jun 2015	13 months
DSS-15	Aug	Aug	32	Approved	3	Mar of 2015	17 months
DSS-34	Nov	Nov	44	Approved	3	Sep, Nov 2015	14 months
DSS-65	Nov	Nov	45	Approved	4	Jul, Dec 2015	16 months
DSS-35	Dec	Dec	49	Approved	50 hours	Oct 2015	14 months
DSS-55	Dec	Dec	50	Approved	3	Aug 2015	16 months



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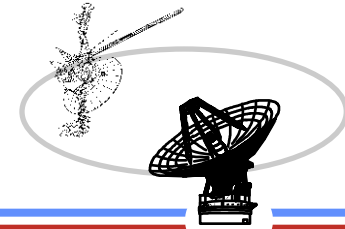
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## Proposed LNA Maintenance Scheduled for 2017

Antenna	Start Date	End Date	Week	STATUS	Number of Days	Notes for 2017 LNAs	Number of months since last LNA
DSS-43	Mar	Mar	08/09	Proposed	5	NIB to Exciter Obsolescence	14 months
DSS-14	Mar	Mar	13	Proposed	5	Stand Alone	14 months
DSS-63	May	May	19	Proposed	5	Stand Alone	16 months
DSS-25	June	June	22	Proposed	3	Stand Alone	14 months
DSS-24	July	July	27	Proposed	3	Stand Alone	10 months
DSS-54	Oct	Oct	41	Proposed	3	Stand Alone	15 months



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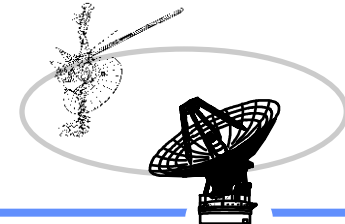
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## Proposed LNA Maintenance Scheduled for 2018

Antenna	Start Date	End Date	Week	STATUS	Number of Days	Notes for 2018 LNAs	Number of months since last LNA
DSS-43	Jan	Jan	02	Proposed	5	NIB to APCA	10 months
DSS-55	Feb	Feb	05	Proposed	3	Stand Alone	13 months
DSS-14	Jan	Jan	06	Proposed	5	Stand Alone	13 months
DSS-34	Mar	Mar	09	Proposed	3	Stand Alone	14 months
DSS-35	Apr	Apr	16	Proposed	50 hours	Stand Alone	14 months
DSS-63	June	June	23	Proposed	5	NIB to APCA/Grouting	13 months
DSS-24	Sept	Sept	39	Proposed	3	Stand Alone	14 months
DSS-54	Nov	Nov	47	Proposed	3	Stand Alone	13 months



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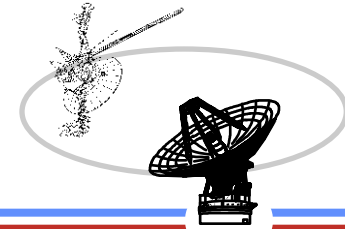
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## Proposed LNA Maintenance Scheduled for 2019

Antenna	Start Date	End Date	Week	STATUS	Number of Days	Notes for 2019 LNAs	Number of months since last LNA
DSS-43	Mar	Mar	10	Proposed	5	Stand Alone	14 months
DSS-34	May	May	18	Proposed	3	Stand Alone	14 months
DSS-14	May	May	19	Proposed	5	Stand Alone	15 months
DSS-55	May	May	21	Proposed	3	Stand Alone	14 months
DSS-35	June	June	23	Proposed	50 hours	Stand Alone	14 months
DSS-25	June	June	24	Proposed	3	Stand Alone	13 months
DSS-63	Aug	Aug	31	Proposed	5	Stand Alone	14 months
DSS-24	Dec	Dec	49	Proposed	3	Stand Alone	13 months



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## Exciter Obsolescence Install 2016

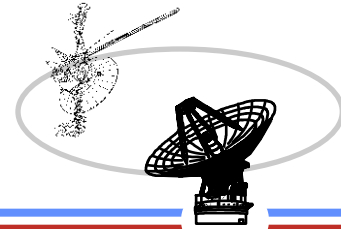
Antenna	Start Date	End Date	Week	Status	# of Days	Notes
DSS-34	Nov 30, 2015	Dec 15, 2015	49	Approved	12	NIB to DLM
DSS-24	May 9, 2016	May 13, 2016	19	Approved	5	DSS-24 LNA NIB
DSS-54	Jul 18, 2016	Jul 22, 2016	29	Approved	5	DSS-54 LNA/Single Axis LOTO NIB
DSS-15	Aug 8, 2016	Aug 11, 2016	32	Approved	5	DSS-15 LNA NIB
DSS-63	Jul 25, 2016	Jul 30, 2016	30	Approved	5	NIB to Shimming
DSS-65	Nov 7, 2016	Nov 11, 2016	45	Approved	5	DSS-65 LNA NIB
DSS-55	Dec 12, 2016	Dec 16, 2016	50	Approved	5	DSS-55 LNA NIB
DSS-43	Feb 27, 2017	Mar 3, 2017	9	Proposed	5	NIB to L-Band
DSS-14	Jun 19, 2017	Jun 24, 2017	25	Proposed	5	NIB to L-Band Install
DSS-25	Apr 2, 2018	Apr 7, 2018	14	Proposed	5	NIB to AZ Track Replacement XX/Ka Install



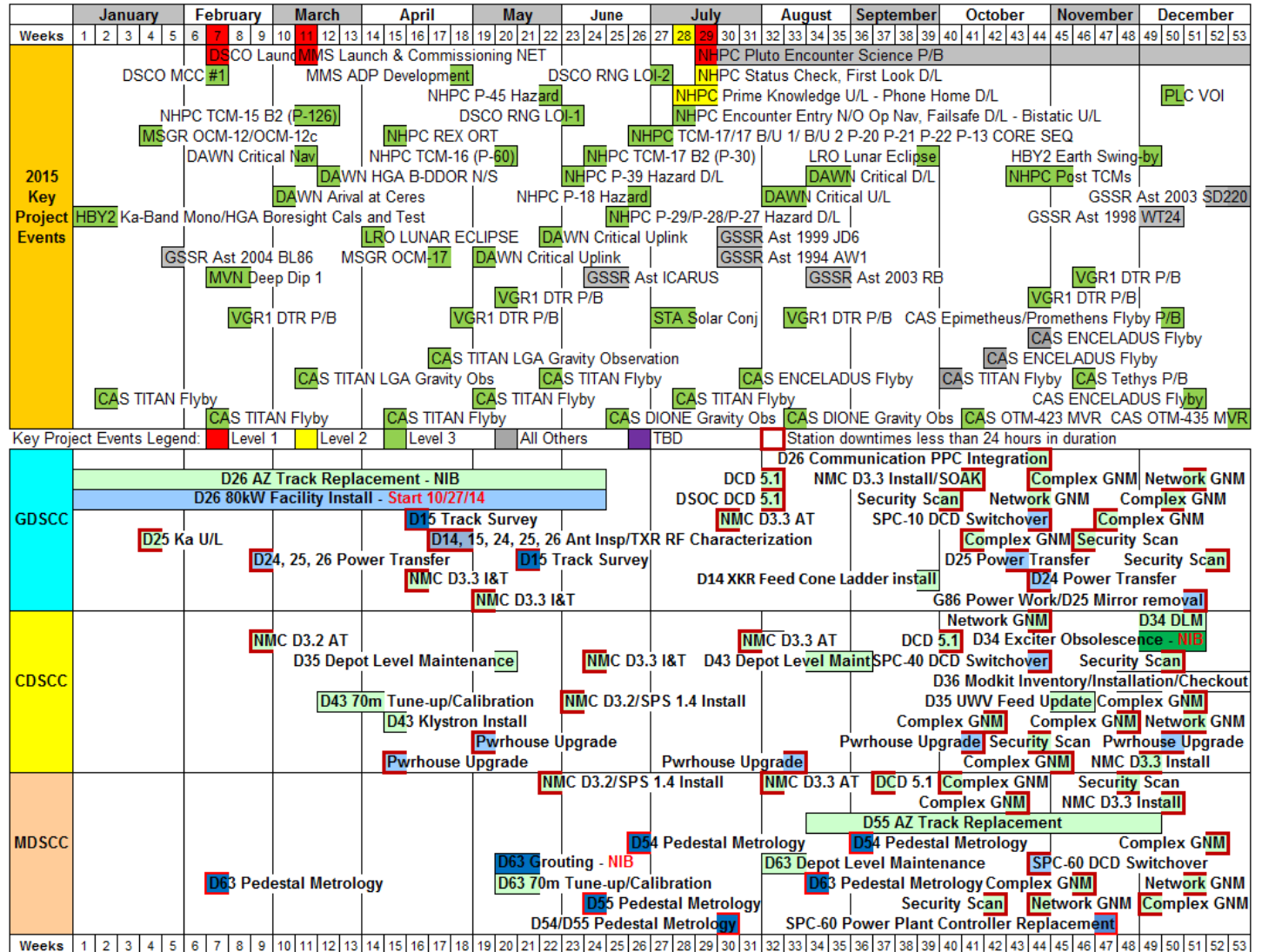
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- 2015 -



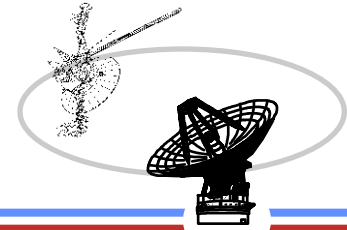
Revised: October 8, 2015

Downtime October 14, 2015 15

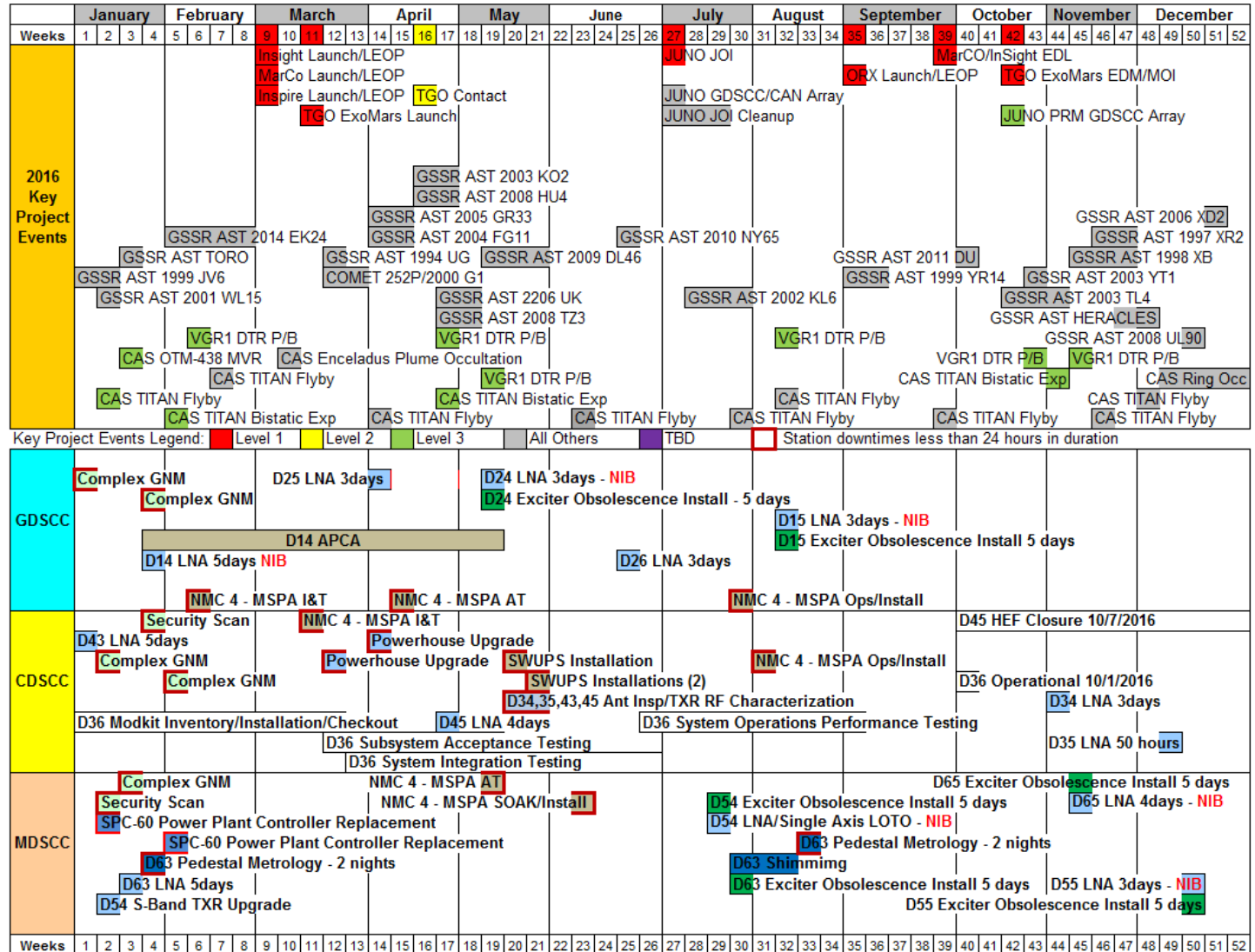


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- 2016 -



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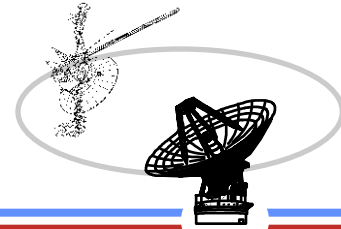
Downtime October 14, 2015 16





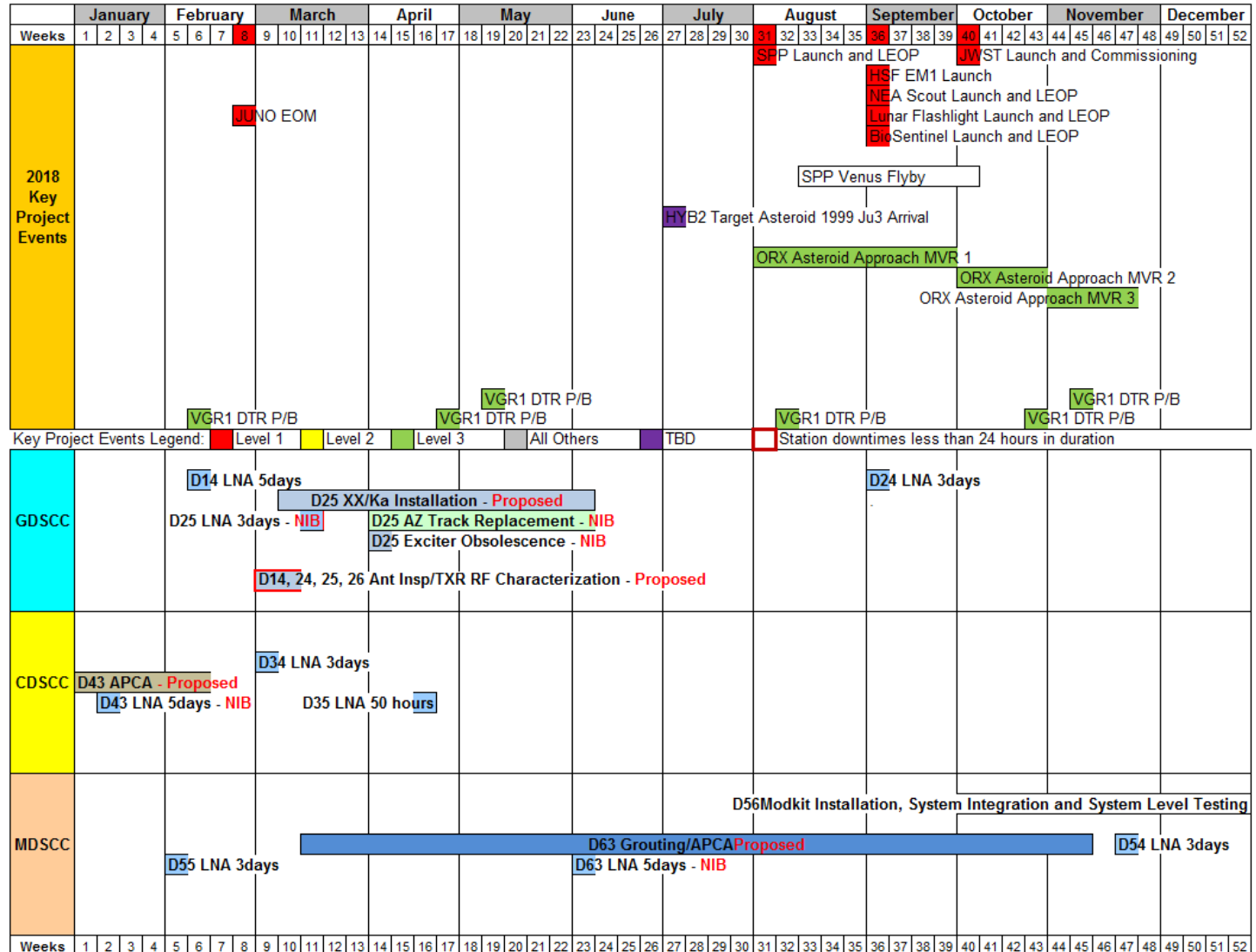


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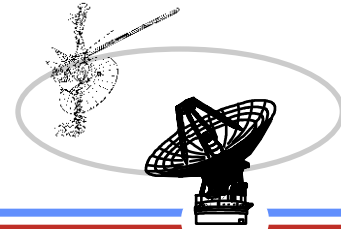
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**- 2019 -**

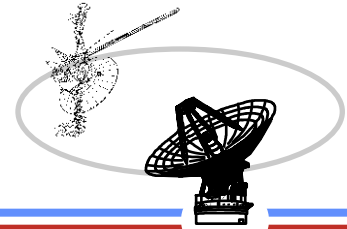
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Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52																			
2019 Key Project Events						SPP Beacon					SPP Solar Enc					ORX Touch & Go (TAG) 1 Reh										TAG 1					SPP Solar Enc										SPP Venus Flyby																														
						VGR1 DTR P/B										VGR1 DTR P/B															VGR1 DTR P/B					HYB2 Target Asteroid 1999 Ju3 Departure					VGR1 DTR P/B					VGR1 DTR P/B																									
Key Project Events Legend: <span style="color: red;">■</span> Level 1 <span style="color: yellow;">■</span> Level 2 <span style="color: green;">■</span> Level 3 <span style="color: grey;">■</span> All Others <span style="color: purple;">■</span> TBD <span style="border: 1px solid red; padding: 0 2px;"> </span> Station downtimes less than 24 hours in duration																																																																							
GDSCC						D24 XX/Ka Installation - Proposed										D14 LNA 5days										D25 LNA 3days															D24 LNA 3days																														
CDSCC						D43 LNA 5days										D34 LNA 3days					D35 LNA 50 hours																																																		
MDSCC	D56 Modkit Installation, System Integration and System Level Testing																																																																						
																																								D56 Operational																															
	D55 LNA 3days																		D53 Modkit Installation, System Integration and System Level Testing																		D54 Pedestal Rehab end April 2021 - Proposed																																		
																																							D63 LNA 5days															D54 Servo/MTR Replacement - N/A																	

Revised: October 8, 2015

Downtime October 14, 2015 19



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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	Mars 2020 Launch																										HYB2 Earth Re-Entry																										
	SPP Venus Flyby																		SPP Venus Flyby								MARS 2020 Approach																										
VGR1 DTR P/B										VGR1 DTR P/B										VGR1 DTR P/B										VGR1 DTR P/B																							
Key Project Events Legend: <span style="color: red;">■</span> Level 1 <span style="color: yellow;">■</span> Level 2 <span style="color: green;">■</span> Level 3 <span style="color: grey;">■</span> All Others <span style="color: purple;">■</span> TBD <span style="border: 1px solid red; padding: 0 2px;"> </span> Station downtimes less than 24 hours in duration																																																					
GDSCC																																																					
CDSCC																																																					
MDSCC	D63 EI Bearing Replacement - Proposed																																																				
	D54 Pedestal Rehab end April 2021 - Proposed																																																				
	D54 Servo/XMTR Replacement - NIB																																																				
	D53 Modkit Installation, System Integration and System Level Testing																																							D53 Operational													
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

Revised: October 8, 2015

Downtime October 14, 2015 20

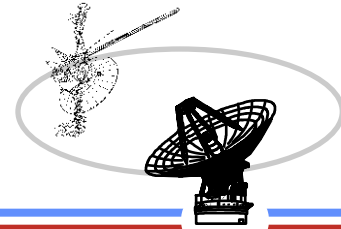




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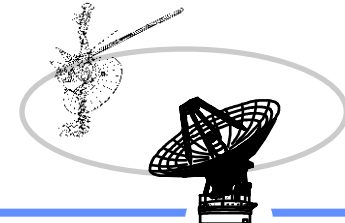


## DSN Downtime 2015

2015							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 25	Power Transfer	10/21/2015 15:00	10/22/2015 07:00	1	43 - 43	294	295
SPC 10	DCD Equipment Switchover	10/26/2015 14:00	10/26/2015 18:00	0	44 - 44	299	299
SPC 40	DCD Equipment Switchover	10/26/2015 14:00	10/26/2015 18:00	0	44 - 44	299	299
SPC 60	DCD Equipment Switchover	10/26/2015 14:00	10/26/2015 18:00	0	44 - 44	299	299
GCF 20	DCD Equipment Switchover	10/26/2015 14:00	10/26/2015 18:00	0	44 - 44	299	299
DSS 26	Communication PPC Integration	10/26/2015 18:00	10/27/2015 02:00	0	44 - 44	299	300
DSS 24	Power Transfer	10/28/2015 15:00	10/29/2015 07:00	1	44 - 44	301	302
DSS 35	UWV Feed Update	11/02/2015 00:00	11/13/2015 05:00	11	45 - 46	306	317
SPC 60	Power Plant Controller Replacement	11/18/2015 06:00	11/18/2015 14:00	0	47 - 47	322	322
SPC 40	NMC D3.3 Install	11/30/2015 21:00	12/01/2015 05:00	0	49 - 49	334	335
DSS 34	Depot Level Maintenance	11/30/2015 21:00	12/15/2015 05:00	14	49 - 51	334	349
DSS 34	Exciter Obsolescence Install-NIB	11/30/2015 21:00	12/15/2015 05:00	14	49 - 51	334	349
SPC 60	NMC D3.3 Install	12/11/2015 18:20	12/12/2015 02:20	0	50 - 50	345	346
SPC 40	Complex Powerhouse Upgrade	12/11/2015 21:00	12/12/2015 03:00	0	50 - 50	345	346
SPC 10	G86 Power Work/D25 Dichroic Mirror Removal	12/17/2015 14:00	12/18/2015 06:00	1	51 - 51	351	352



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



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## DSN Downtime 2015

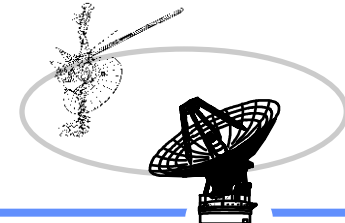
2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 43	LNA Maintenance	01/04/2016 00:00	01/09/2016 00:00	5	01 - 01	4	9
DSS 54	S-Band TXR Upgrade	01/13/2016 06:00	01/15/2016 15:00	2	02 - 02	13	15
SPC 60	Power Plant Controller Replacement	01/14/2016 06:00	01/14/2016 14:00	0	02 - 02	14	14
DSS 63	LNA Maintenance	01/18/2016 00:00	01/23/2016 00:00	5	03 - 03	18	23
DSS 14	LNA Maintenance - NIB	01/25/2016 00:00	01/29/2016 23:00	5	04 - 04	25	29
DSS 14	APCA	01/25/2016 15:00	05/13/2016 23:00	109	04 - 19	25	134
DSS 63	Pedestal Metrology	01/25/2016 20:00	01/26/2016 07:00	0	04 - 04	25	26
DSS 63	Pedestal Metrology	01/26/2016 20:00	01/27/2016 07:00	0	04 - 04	26	27
SPC 60	Power Plant Controller Replacement	02/03/2016 06:00	02/03/2016 14:00	0	05 - 05	34	34
SPC 10	NMC 4 - MSPA I&T	02/13/2016 06:00	02/14/2016 00:00	1	06 - 06	44	45
SPC 40	NMC 4 - MSPA I&T	03/18/2016 21:00	03/19/2016 05:00	0	11 - 11	78	79
SPC 40	Complex Powerhouse Upgrade	03/23/2016 21:00	03/24/2016 05:00	0	12 - 12	83	84
DSS 25	LNA Maintenance	04/04/2016 00:00	04/07/2016 00:00	3	14 - 14	95	98
SPC 40	Complex Powerhouse Upgrade	04/06/2016 21:00	04/07/2016 05:00	0	14 - 14	97	98
SPC 10	NMC 4 - MSPA AT	04/15/2016 15:00	04/15/2016 23:00	0	15 - 15	106	106
DSS 45	LNA Maintenance	04/25/2016 00:00	04/29/2016 00:00	4	17 - 17	116	120
DSS 24	LNA Maintenance - NIB	05/09/2016 00:00	05/12/2016 00:00	3	19 - 19	130	133
DSS 24	Exciter Obsolescence Install	05/09/2016 15:00	05/14/2016 00:00	4	19 - 19	130	135
SPC 60	NMC 4 - MSPA AT	05/14/2016 06:00	05/14/2016 15:00	0	19 - 19	135	135
DSS 43	Ant Insp/TXR RF Characterization	05/16/2016 22:00	05/17/2016 10:00	0	20 - 20	137	138
DSS 34	Ant Insp/TXR RF Characterization	05/17/2016 22:00	05/18/2016 10:00	0	20 - 20	138	139
DSS 45	Ant Insp/TXR RF Characterization	05/18/2016 22:00	05/19/2016 10:00	0	20 - 20	139	140
SPC 40	SWUPS Installation	05/19/2016 21:00	05/20/2016 09:00	0	20 - 20	140	141



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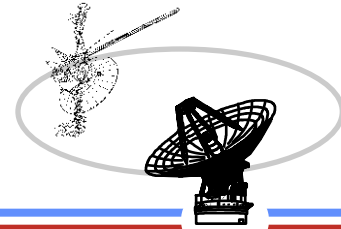
## DSN Downtime 2016

2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 35	Ant Insp/TXR RF Characterization	05/19/2016 22:00	05/20/2016 10:00	0	20 - 20	140	141
SPC 40	SWUPS Installation	05/24/2016 21:00	05/25/2016 09:00	0	21 - 21	145	146
DSS 43	Ant Insp/TXR RF Characterization	05/24/2016 22:00	05/25/2016 10:00	0	21 - 21	145	146
DSS 34	Ant Insp/TXR RF Characterization	05/25/2016 22:00	05/26/2016 10:00	0	21 - 21	146	147
SPC 40	SWUPS Installation	05/26/2016 21:00	05/27/2016 09:00	0	21 - 21	147	148
DSS 45	Ant Insp/TXR RF Characterization	05/26/2016 22:00	05/27/2016 10:00	0	21 - 21	147	148
DSS 35	Ant Insp/TXR RF Characterization	05/27/2016 22:00	05/28/2016 10:00	0	21 - 21	148	149
SPC 60	NMC 4 - MSPA SOAK/Install	06/10/2016 06:00	06/10/2016 14:00	0	23 - 23	162	162
DSS 26	LNA Maintenance	06/20/2016 00:00	06/23/2016 00:00	3	25 - 25	172	175
DSS 54	Single Axis LOTO - NIB	07/18/2016 00:00	07/23/2016 00:00	5	29 - 29	200	205
DSS 54	Exciter Obsolescence Install	07/18/2016 06:00	07/23/2016 17:00	5	29 - 29	200	205
DSS 63	Exciter Obsolescence Install-NIB	07/25/2016 06:00	07/30/2016 17:00	5	30 - 30	207	212
DSS 63	Shimming	07/25/2016 06:00	08/12/2016 17:00	18	30 - 32	207	225
SPC 10	NMC 4 -MSPA Ops Install	07/30/2016 15:00	07/30/2016 23:00	0	30 - 30	212	212
SPC 40	NMC 4 - MSPA OPs Install	08/02/2016 22:00	08/03/2016 06:00	0	31 - 31	215	216
DSS 15	LNA Maintenance - NIB	08/08/2016 00:00	08/11/2016 00:00	3	32 - 32	221	224
DSS 15	Exciter Obsolescence Install	08/08/2016 15:00	08/13/2016 00:00	4	32 - 32	221	226
DSS 63	Pedestal Metrology	08/15/2016 22:00	08/16/2016 05:00	0	33 - 33	228	229
DSS 63	Pedestal Metrology	08/16/2016 22:00	08/17/2016 05:00	0	33 - 33	229	230
DSS 45	Decommissioned	10/07/2016 00:00	01/01/2050 00:00	12139	40 - 52	281	1
DSS 34	LNA Maintenance	10/31/2016 00:00	11/03/2016 00:00	3	44 - 44	305	308
DSS 65	LNA Maintenance - NIB	11/07/2016 00:00	11/11/2016 00:00	4	45 - 45	312	316
DSS 65	Exciter Obselescence Install	11/07/2016 06:00	11/12/2016 17:00	5	45 - 45	312	317





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## DSN Downtime 2016

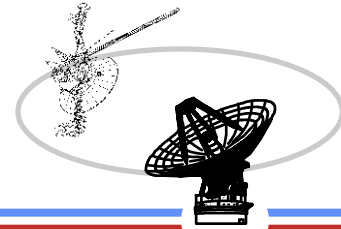
2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 35	LNA Maintenance	12/05/2016 00:00	12/08/2016 00:00	3	49 - 49	340	343
DSS 55	LNA Maintenance - NIB	12/12/2016 00:00	12/16/2016 00:00	4	50 - 50	347	351
DSS 55	Exciter Obsolescence Install	12/12/2016 06:00	12/17/2016 17:00	5	50 - 50	347	352



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## DSN Downtime 2017

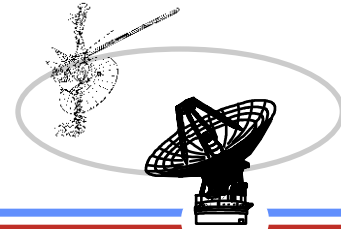
2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 60	Follow the Sun Ops Testing	01/21/2017 14:00	01/22/2017 02:00	0	03 - 03	21	22
SPC 40	Follow the Sun Ops Testing	01/21/2017 14:00	01/22/2017 02:00	0	03 - 03	21	22
SPC 10	Follow the Sun Ops Testing	01/21/2017 14:00	01/22/2017 02:00	0	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 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	DLM & Exciter Obsolescence Install	02/19/2017 21:00	03/03/2017 21:00	12	07 - 09	50	62
DSS 43	LNA - NIB	02/26/2017 21:00	03/03/2017 21:00	5	08 - 09	57	62
SPC 10	Follow the Sun Ops Testing	03/09/2017 12:00	03/10/2017 00:00	0	10 - 10	68	69
SPC 40	Follow the Sun Ops Testing	03/09/2017 12:00	03/10/2017 00:00	0	10 - 10	68	69
SPC 60	Follow the Sun Ops Testing	03/09/2017 12:00	03/10/2017 00:00	0	10 - 10	68	69
DSS 24	Ka2 Tune-up - Proposed	03/13/2017 15:00	03/25/2017 00:00	11	11 - 12	72	84
DSS 14	DLM & LNA Maintenance	03/27/2017 00:00	04/07/2017 23:00	12	13 - 14	86	97
DSS 55	Ant Insp/TXR RF Characterization	04/24/2017 07:00	04/24/2017 19:00	0	17 - 17	114	114
DSS 65	Ant Insp/TXR RF Characterization	04/25/2017 07:00	04/25/2017 19:00	0	17 - 17	115	115
DSS 63	Ant Insp/TXR RF Characterization	04/26/2017 07:00	04/26/2017 19:00	0	17 - 17	116	116
DSS 54	Ant Insp/TXR RF Characterization	04/27/2017 07:00	04/27/2017 19:00	0	17 - 17	117	117
DSS 55	Ant Insp/TXR RF Characterization	05/01/2017 07:00	05/01/2017 19:00	0	18 - 18	121	121
DSS 65	Ant Insp/TXR RF Characterization	05/02/2017 07:00	05/02/2017 19:00	0	18 - 18	122	122
DSS 63	Ant Insp/TXR RF Characterization	05/03/2017 07:00	05/03/2017 19:00	0	18 - 18	123	123
DSS 54	Ant Insp/TXR RF Characterization	05/04/2017 07:00	05/04/2017 19:00	0	18 - 18	124	124
DSS 63	LNA Maintenance	05/08/2017 00:00	05/13/2017 00:00	5	19 - 19	128	133
SPC 10	Follow the Sun Ops SOAK	05/13/2017 12:00	05/14/2017 02:00	1	19 - 19	133	134



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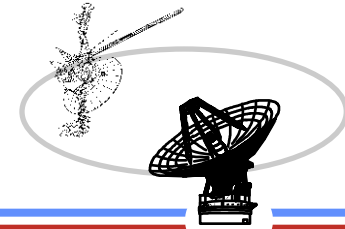


## DSN Downtime 2017

2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 60	Follow the Sun Ops SOAK	05/13/2017 12:00	05/14/2017 02:00	1	19 - 19	133	134
SPC 40	Follow the Sun Ops SOAK	05/13/2017 12:00	05/14/2017 02:00	1	19 - 19	133	134
DSS 34	Ka2 Tune-up - Proposed	05/15/2017 21:00	05/26/2017 06:00	10	20 - 21	135	146
DSS 25	LNA Maintenance	05/30/2017 00:00	06/02/2017 00:00	3	22 - 22	150	153
DSS 14	Exciter Obsolescence - NIB	06/19/2017 15:00	06/24/2017 23:00	5	25 - 25	170	175
DSS 14	L-Band Replacement	06/19/2017 15:00	06/30/2017 23:00	11	25 - 26	170	181
DSS 24	LNA Maintenance	07/03/2017 00:00	07/06/2017 00:00	3	27 - 27	184	187
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 26	S-Band Install	09/04/2017 15:00	10/20/2017 02:00	45	36 - 42	247	293
DSS 15	Decommissioned	10/01/2017 00:00	01/01/2050 00:00	11780	39 - 52	274	1
DSS 54	LNA Maintenance	10/09/2017 00:00	10/12/2017 00:00	3	41 - 41	282	285
DSS 43	APCA - Proposed	10/30/2017 21:00	02/09/2018 06:00	101	44 - 06	303	40



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## DSN Downtime 2018

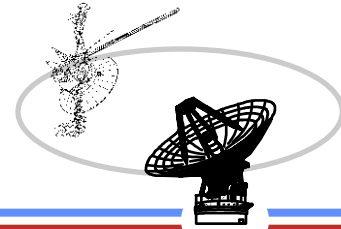
2018							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 43	LNA Maintenance	01/08/2018 21:00	01/13/2018 21:00	5	02 - 02	8	13
DSS 55	LNA Maintenance	01/29/2018 00:00	02/03/2018 00:00	5	05 - 05	29	34
DSS 14	LNA Maintenance	02/05/2018 00:00	02/09/2018 23:00	5	06 - 06	36	40
DSS 14	Ant Insp/TXR RF Characterization - Proposed	02/26/2018 15:00	02/27/2018 03:00	0	09 - 09	57	58
DSS 34	LNA Maintenance	02/26/2018 21:00	03/01/2018 21:00	3	09 - 09	57	60
DSS 26	Ant Insp/TXR RF Characterization - Proposed	02/27/2018 15:00	02/28/2018 03:00	0	09 - 09	58	59
DSS 25	Ant Insp/TXR RF Characterization - Proposed	02/28/2018 15:00	03/01/2018 03:00	0	09 - 09	59	60
DSS 24	Ant Insp/TXR RF Characterization - Proposed	03/01/2018 15:00	03/02/2018 03:00	0	09 - 09	60	61
DSS 14	Ant Insp/TXR RF Characterization - Proposed	03/05/2018 15:00	03/06/2018 03:00	0	10 - 10	64	65
DSS 26	Ant Insp/TXR RF Characterization - Proposed	03/06/2018 15:00	03/07/2018 03:00	0	10 - 10	65	66
DSS 25	XX/Ka Installation	03/06/2018 15:00	06/08/2018 00:00	93	10 - 23	65	159
DSS 24	Ant Insp/TXR RF Characterization - Proposed	03/07/2018 15:00	03/08/2018 03:00	0	10 - 10	66	67
DSS 25	Ant Insp/TXR RF Characterization - Proposed	03/09/2018 15:00	03/10/2018 03:00	0	10 - 10	68	69
DSS 63	Grouting/APCA	03/12/2018 06:00	11/09/2018 17:00	242	11 - 45	71	313
DSS 25	Exciter Obsolescence Install-NIB	04/02/2018 15:00	04/07/2018 00:00	4	14 - 14	92	97
DSS 25	AZ Track Replacement - NIB	04/02/2018 15:00	06/08/2018 00:00	66	14 - 23	92	159
DSS 35	LNA Maintenance	04/16/2018 21:00	04/19/2018 21:00	3	16 - 16	106	109
DSS 63	LNA Maintenance	06/04/2018 00:00	06/09/2018 00:00	5	23 - 23	155	160
DSS 24	LNA Maintenance	09/24/2018 00:00	09/27/2018 00:00	3	39 - 39	267	270
DSS 54	LNA Maintenance	11/19/2018 00:00	11/22/2018 00:00	3	47 - 47	323	326



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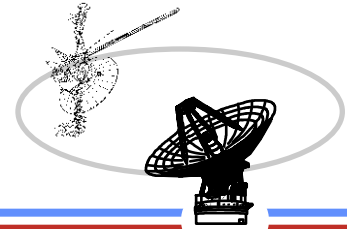


## DSN Downtime 2019

2019							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 24	XX/Ka Installation - Proposed	02/04/2019 15:00	04/26/2019 00:00	80	06 - 17	35	116
DSS 43	LNA Maintenance	03/04/2019 21:00	03/09/2019 21:00	5	10 - 10	63	68
DSS 34	LNA Maintenance	04/29/2019 21:00	05/02/2019 21:00	3	18 - 18	119	122
DSS 14	LNA Maintenance	05/06/2019 00:00	05/10/2019 23:00	5	19 - 19	126	130
DSS 55	LNA Maintenance	05/20/2019 00:00	05/23/2019 00:00	3	21 - 21	140	143
DSS 35	LNA Maintenance	06/03/2019 21:00	06/06/2019 21:00	3	23 - 23	154	157
DSS 25	LNA Maintenance	06/10/2019 00:00	06/13/2019 00:00	3	24 - 24	161	164
DSS 63	LNA Maintenance	07/29/2019 00:00	08/03/2019 00:00	5	31 - 31	210	215
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



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## DSN Downtime 2019

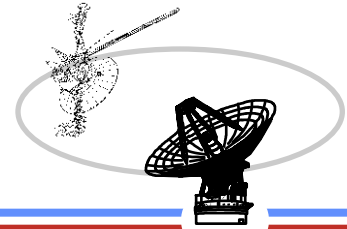
2020							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	El Bearing Replacement	04/20/2020 07:00	07/10/2020 17:00	81	17 - 28	111	192



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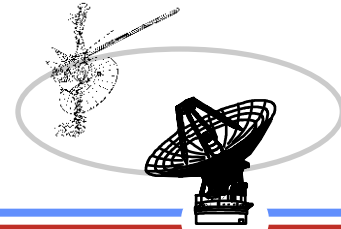


## Future assets new/upgrades

- ❑ 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



Interplanetary Network Directorate (IND)  
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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