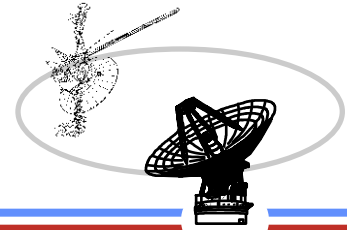




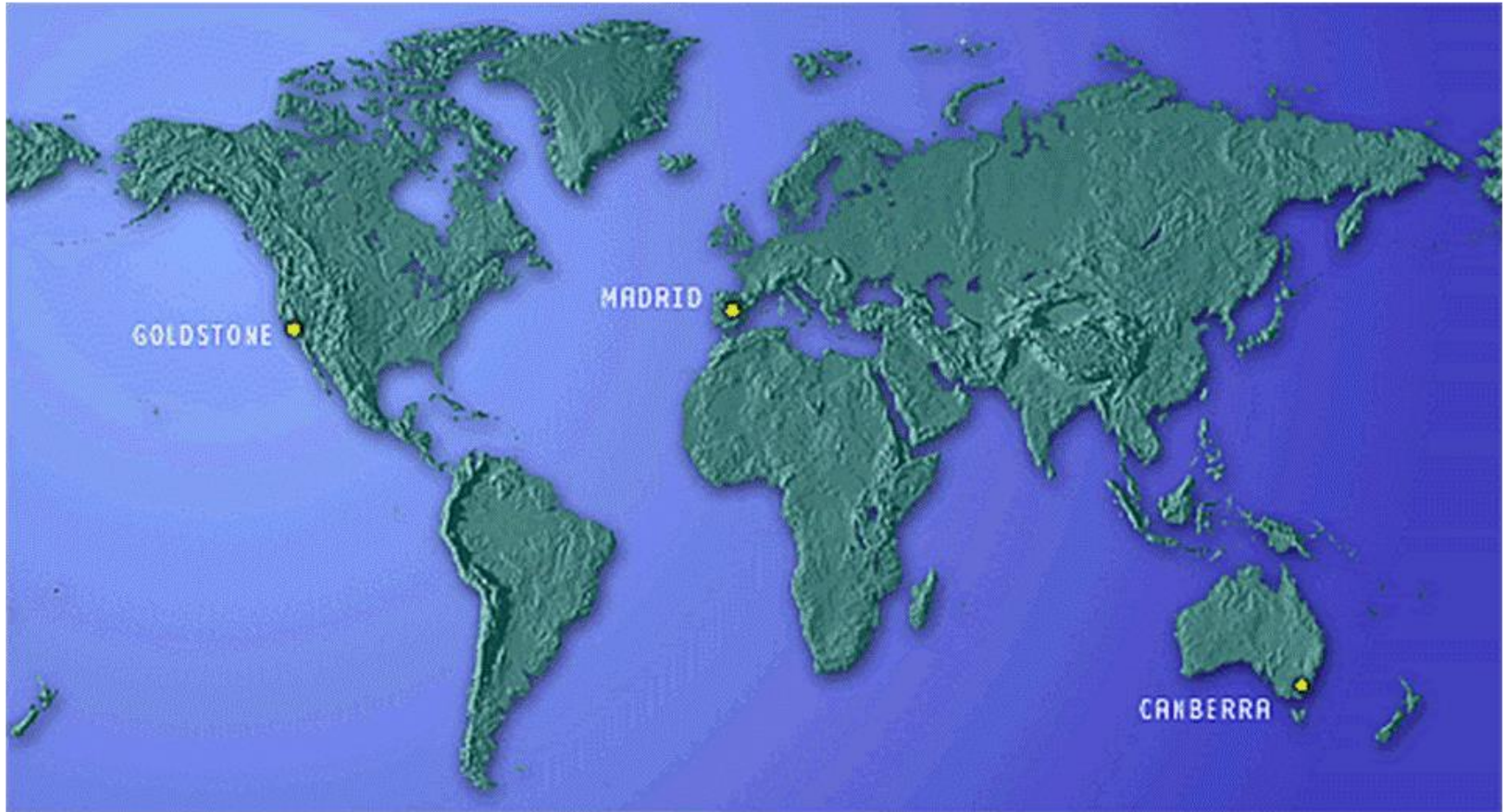
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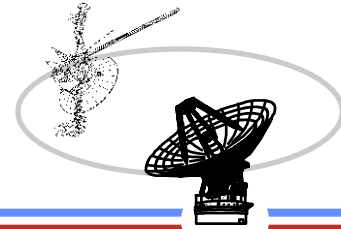
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DSN Antenna Downtime Status and Forecast





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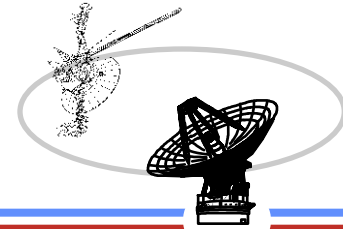


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Quad Leg Work	DSS-14	May 2014	Dec 2014	19, 29, 50	David Allen, Erik Holmgr en	Quad Leg Work downtime requires a total of 12 prime shift days with tracking available off shift. Week 50 has two days, Tues and Thurs. Dropped material through reflector panel, additional days were added in December downtime to make repairs and replace reflector panel. Work will be NIB to 70M Tune-up/Calibration.
NMC SPS Install	GDSCC	April 2015	April 2015	16	Jim Buckley Shirley Cizmar, Dave Taylor	NMC SPS downtime was requested at the July downtime meeting scheduled for April 2015 timeframe
	CDSCC			17		
	MDSCC			18		
NMC D3.2 I&T, AT	MDSCC	Dec 2014	Feb 2015	50		Requested four 4-6hour downtimes for NMC D3.2 I&T and AT from Nov 2014 – Feb 2015. Will start in December after Rosetta Landing and HYB2 Launch
	GDSCC			51		
NMC D3.3 I&T AT, and SOAK	GDSCC	May 2015	Dec 2015	19, 30, 40		Requested three 6hour downtimes for D3.3 I&T, AT, and SOAK from mid 2015 to late 2015. The last downtime will be NMC D3.3 SOAK requested to begin Oct. 2015.
	CDSCC			20, 31, 45		
	MDSCC			21,32, 50		

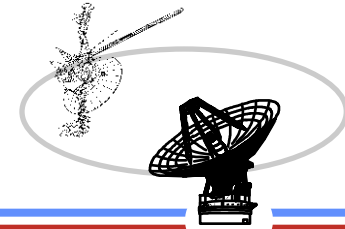


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Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Power Transfer	DSS-24, 25, 26 (Apollo)	Feb 2015	Feb 2015	09	TBD	This 16-hour Power Transfer downtime was requested by OE. It scheduled at Apollo Valley during off-shift hours.
		Oct 2015	Oct 2015	42		Additional 16-hour Phase 3 downtime requested for late 2015
Grouting	DSS-63	Oct 2014	Nov 2014	43 – 48	Dave Taylor, David Munoz Mochon, Bernardo Lopez, Asim Sehic	An additional week (43) was added to first grouting in 2014 in preparation for the DSN 50 th anniversary. Nov. 2014, S-Band Maser Replacement is NIB
		May 2015	May 2015	20 & 21		May 2015, 70m Tune-up and calibration is NIB
		Aug 2015	Aug 2015	32 & 33		May 2015 grouting. Groutings are only 2 weeks to allow support of NHPC
		Feb 2016	Mar 2016	05 – 09		May need to delay Grouting task in Feb by approximately 26 hours and July's Grouting by approximately 50 hours due to Cas. Activities. Five weeks is scheduled but may need additional time.
		Jul 2016	Aug 2016	30 – 34		Per mission requirements in 2017 have reduced time to 10 weeks and will place APCA downtime as stand alone in 2018. The SHMT will be worked on 11/3, Engineer will be there in early November.
		Feb 2017	Apr 2017	08 – 17		More information will be available after the Oct/Nov grouting to determine the Feb & Jul 2016 grouting's status in relation to actual time needed.



Antenna Downtime Status and Forecast

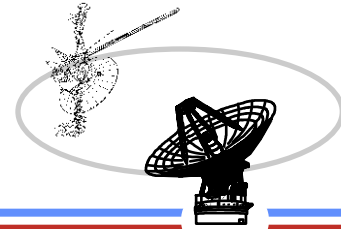
Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
80kW Installation	DSS-26	Oct 2014	June 2015	44 – 24	Erik Holmgren Pam Rothman, Daniel Olson	Downtime will start in week 44 of 2014 and end week 24 of 2015. Downtime will end in preparation the NHPC Pluto encounter in mid July. AZ Track will be NIB to the 80kW facility prep. Unknown if 80kW is ready. Could be a personnel availability problem.
70M Tune-up and calibration	DSS-14	Dec 1, 2014	Dec 19, 2014	49 – 51	Jose Perez Dave Taylor David Allen John Phillips	The Tune-up Calibrations are In preparation for NHPC Pluto Encounter Extended two extra days to install the new L-Band feed horn, and additional time. Subreflector, quad leg tasks and Fabrication replacement will be NIB Additional time added to replace time lost in 2014 during HBA John and Dave will compare tasks for DSS-14 & DSS-43. DSS-43 Tune-up was moved from week 8 & 9 to weeks 34 & 35 due to Dawn's safing event This is scheduled NIB to May Grouting Tasks for these downtimes should be similar for each complex.
	DSS-43	Mar 18, 2015	April 3, 2015	12 – 14		
	DSS-43	Aug 18, 2015	Aug 28, 2015	34 – 35		
	DSS-63	May 2015	May 2015	20 & 21		
Ka U/L Engineering Test	DSS-25	Jan 2015	Jan 2015	4	Andre Jongeling	The Engineers are requesting 4 daylight days T-F 8 hours each to complete this task. Monday is a holiday. Times slightly reduced at request due to missions requirements.



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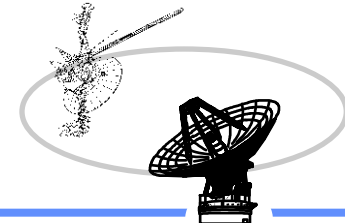


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex downtime for Power House Commission	CDSCC	Apr 2015	Apr 2015	15	John Phillips, Craig Phillips, Dave Taylor	Moved from Mar to April 2015 (Apr 9 & 10). Begins after Cassini pass
		Dec 2015	Dec 2015	49 & 52		Moved from August to December. This is a placeholder until the complex confirms. Possible PLC VOI Conflict The complex submitted a list of six new downtimes they would like in 2015/2016. RAP/Sched is currently looking at options There is a possible issue with DSCO & MMS launches in early 2015.
Antenna Inspections/ TXR RF Characterization	GDSCC	Apr 2015	Apr 2015	17 & 18	Dave Taylor	2015 Antenna Inspections moved from weeks 13 & 14.
	GDSCC	Apr 2018	Apr 2018	15 & 16	Andrew Brooks	
	CDSCC	Jan 2016	Jan 2016	03 & 04	Harout Matossian	Moved from week 1 & 2 due to CDSCC Holiday schedule. Unknown status at this time.
	MDSCC	Apr 2017	Apr 2017	17 & 18		Moved from weeks 16 & 17 due to Easter. 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 to TXR for the last 6 hours.at each complex.

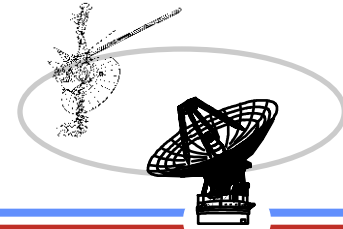


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Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
DCD v.5.1 software installation	GDSCC/ DSOC	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 nd and 3 rd install. Back-up has been placed in week 41
	MDSCC	Sep 2015	Sep 2015	37, 41		
	CDSCC	Sep 2015	Sep 2015	39		
AZ Track Replacement	DSS-55	Aug 2015	Oct 2015	34 – 44	Pam Rothman Asim Sehic	Downtime will begin one day late on DOY 230 vice 229 due to Cassini activities. This is still a go.
	DSS-25	Feb 2018	Apr 2018	05 - 14		This is NIB to XX/Ka Installation
Depot Level Maintenance	DSS-34	Nov 2015	Dec 2015	49 & 50	John Phillips	DSS-34 moved to December time frame with CDSCC concurrence
APCA	DSS-14	Mar 7, 2016	Jun 10, 2016	10 – 23	Anna Fan, Barzia Tehrani	DSS-14 extended an additional 2 weeks Antenna Painting added for 4 weeks during downtime. Painting may be delayed to complete APCA prior to JNO JOI. Suggest doing a demo with JNO prior to RTS.
	DSS-43	Oct 30, 2017	Jan 19, 2018	44 – 03		DSS-43 extended to 12 weeks
	DSS-63	Apr 30, 2018	Jul 20, 2018	18 – 29		DSS-63 APCA is now stand alone and moved to 2018 at this time.

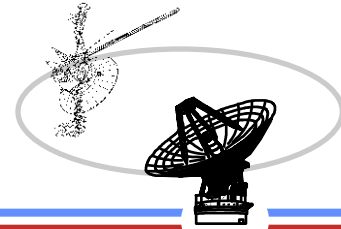


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
SWUPS Installation	CDSCC	May 19 2016	May 19 2016	20	Anna Fan, Pete Hames	<p>Must be done in daylight, Downtimes moved from 1 12-hour block in weeks 14, 16, and 18 to 12-hour block in week 20 and 2 blocks in week 21 There is a connection to the power house.</p> <p>Two blocks in a 3 week period. Need to avoid InSight activities. There may be a Fire Detection issues.</p> <p>This might be combined with Powerhouse Commission into 1 task. A vendor has to be selected and has agreed to the dates.</p>
		May 24 2016	May 24 2016	21		
		May 26 2016	May 26 2016			
Ka2 Tune-up	DSS-54	Jan 23, 2017	Feb 3, 2017	04 & 05	Wendy Hodgkin	<p>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</p> <p>There is a task to build 4th Ka2/S-Band capabilities.</p>
	DSS-24	Mar 13, 2017	Mar 24, 2017	11 & 12		
	DSS-34	May 14, 2017	May 26, 2017	20 & 21		
XX/Ka Installation	DSS-25	Jan 2018	April 2018	01 – 14	Wendy Hodgkin	<p>XX/Ka requires 14 weeks - AZ Track will be NIB in weeks 05-14</p> <p>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.</p>
	DSS-24	Apr 30, 2018	Jul 9, 2018	18 – 27		



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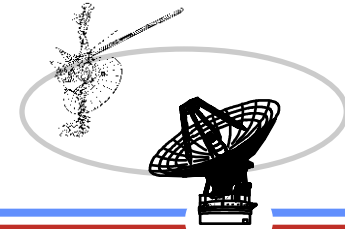
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Antenna Downtime Status and Forecast

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
El Bearing Replacement	DSS-63	April 20, 2020	July 10, 2020	17 - 28	Asim Sehic	This downtimes were request on 11/14/2014



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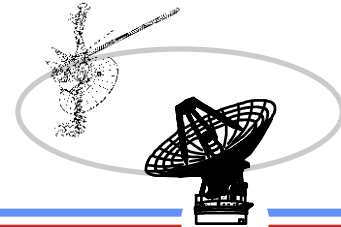


70m Major Downtimes 2014 - 2018

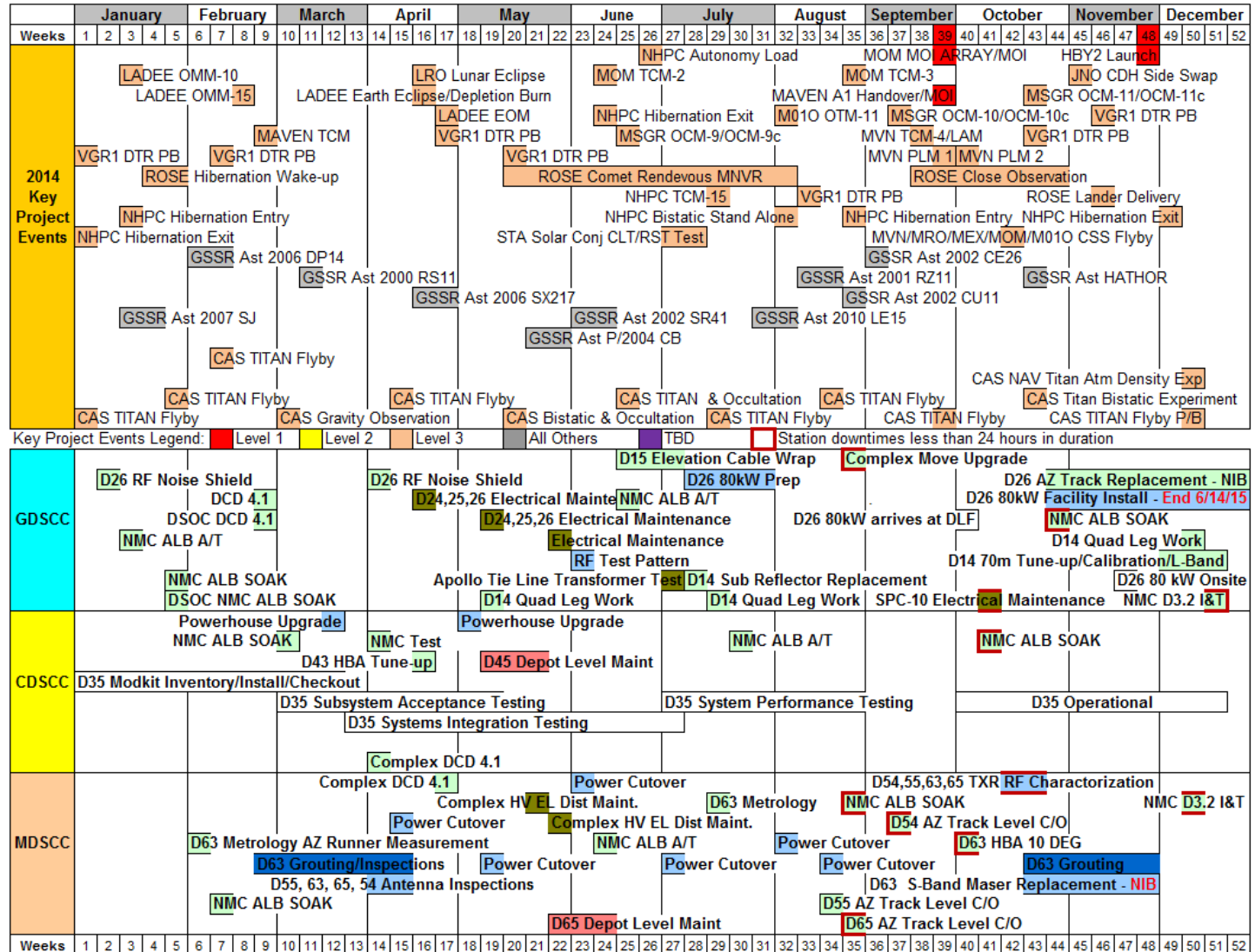
Downtime	Ant	Start Date	End Date	Weeks	Status	# of Days	Notes and next downtime date
70m Tune-up Calibration	DSS-14	Dec 1, 2014	Dec 19, 2014	49 – 51	Approved	18	Extended for additional tasks Next downtime March of 2016
APCA	DSS-14	Mar 7, 2016	Jun 10, 2016	10 – 23	Proposed	95	
70m Tune-up Calibration	DSS-43	Mar 16, 2015	Apr 3, 2015	12 – 14	Approved	18	Next downtime is August of 2017
70m Tune-up Calibration	DSS-43	Aug 18, 2015	Aug 28, 2015	34 – 35	Approved	10	Moved from week 8&9 due to Dawn safing event Next downtime is October of 2017
APCA	DSS-43	Oct 30, 2017	Jan 19, 2018	44 – 03	Proposed	80	
Grouting S-Band Maser Replacement	DSS-63	Oct 20, 2014	Nov 28, 2014	43 – 48	Approved NIB to Grouting	39	Next downtime is May of 2015
Grouting 70m Tune-up Calibration	DSS-63	May 11, 2015	May 24, 2015	20 – 21	Approved NIB to grouting	13	Next down time is August of 2015
Grouting	DSS-63	Aug 3, 2015	Aug 16, 2015	32 – 33	Approved	14	Next downtime is February of 2016
Grouting	DSS-63	Feb 1, 2016	Mar 3, 2016	05 – 09	Proposed	32	Next downtime is July of 2016. May shift due to CAS activities
Grouting	DSS-63	Jul 25, 2016	Aug 26, 2016	30 – 34	Proposed	32	Next downtime is February of 2017. May shift due to CAS activities
Grouting	DSS-63	Feb 20, 2017	Apr 28, 2017	08 – 17	Proposed	67	Next downtime is April of 2018
APCA	DSS-63	Apr 30, 2018	Jul 20, 2018	18 – 29	Proposed	80	Next downtime is April of 2020
EI Bearing Replacement	DSS-63	Apr 20, 2020	Jul 10, 2020	17 – 27	Proposed	446	



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- 2014 -

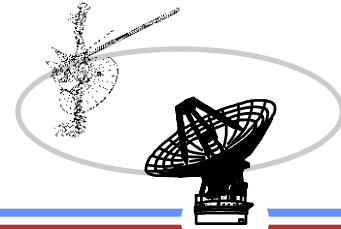




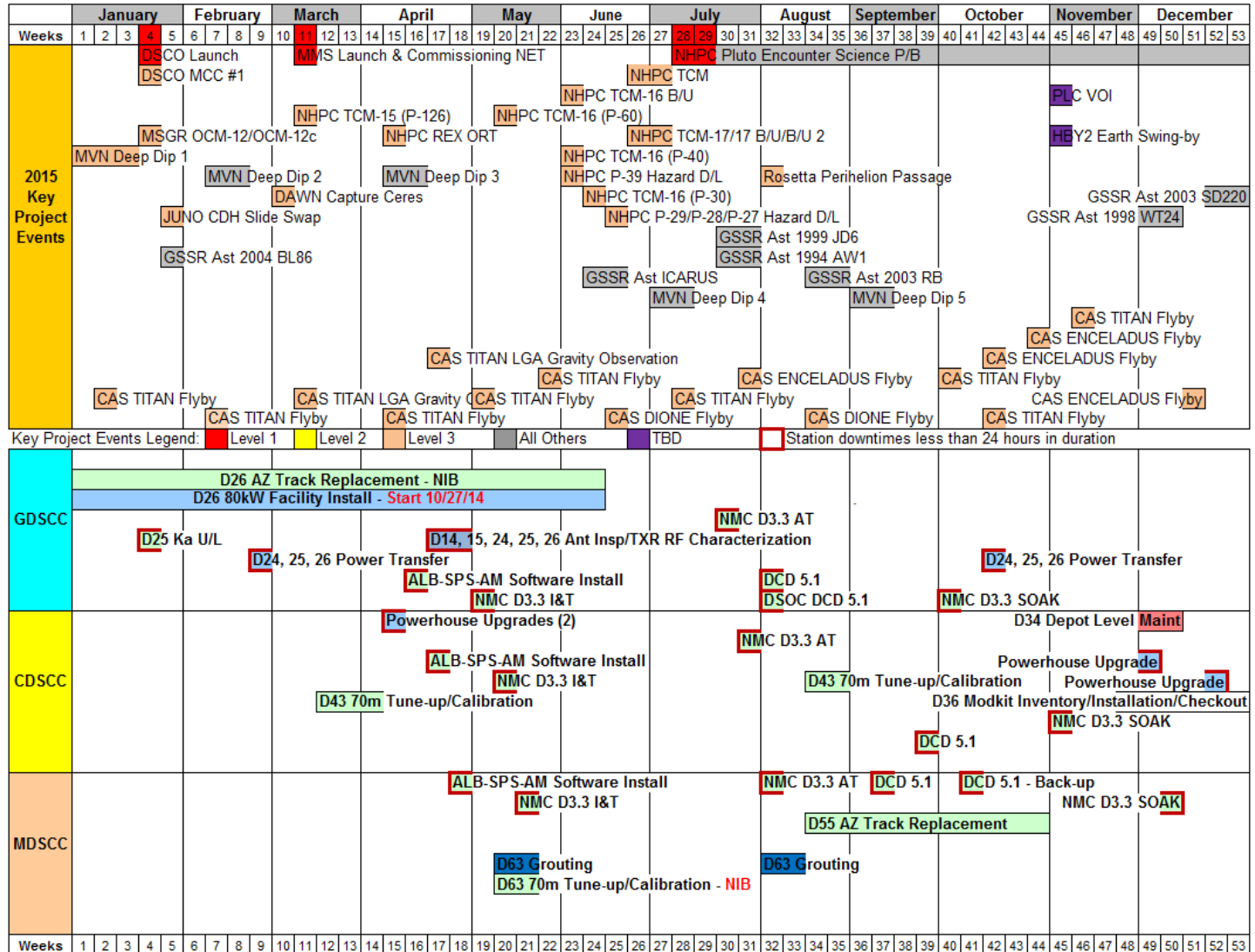
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- 2015 -

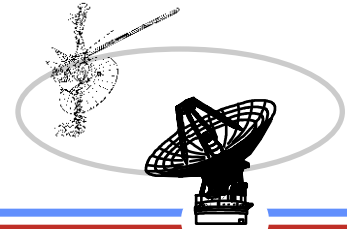


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Downtime December 2, 2014 11



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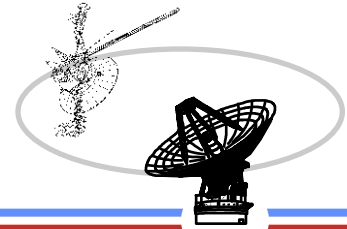
- 2017 -

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CDSCC																																																															D34 Ka2 Tune-up - Proposed																																			D43 APCA																																						
MDSCC																																D54 Ka2 Tune-up - Proposed																																			D63 Grouting - Proposed																																			D54,55,63, 65 Ant Insp/TXR RF Characterization - Proposed																																		
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																																																																																				

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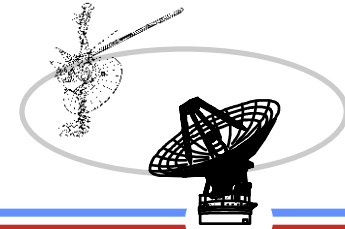
- 2018 -

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2018 Key Project Events	Mars 2018 Launch and LEOP														HYB2 Target Asteroid 1999 Ju3 Arrival														SEP Launch and LEOP				JWST Launch and Commissioning																															
Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others ■ TBD Station downtimes less than 24 hours in duration																																																																
GDSCC	D25 XX/Ka Installation - Proposed														D25 AZ Track Replacement - NIB														D24 XX/Ka Installation														D14, 15, 25, 26, 24, 15 Ant Insp/TXR RF Characterization - Proposed																					
CDSCC	D43 APCA - Proposed																																																															
MDSCC															D63 APCA - Proposed														D56 Modkit Installation, System Integration and System Level Testing																		D65 HEF Closure																	
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												

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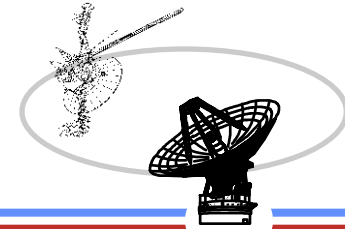
- 2019 -

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2019 Key Project Events						SPP Beacon				SPP Solar Enc								ORX Tag 1 Reh				Tag 1				SPP Solar Enc								SPP Venus Flyby																		
																																					HYB2 Target Asteroid 1999 Ju3 Departure															
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CDSCC																																																				
MDSCC	D56 Modkit Installation, System Integration and System Level Testing																																				D56 Operational															
																																					D54 Pedestal Rehab end April 2021 - Proposed															
																																					D54 Servo/MTR Replacement - N/A															
																																					D53 Modkit Installation, System Integration and System Level Testing															
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

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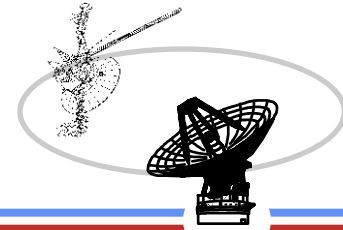
- 2020 -

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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

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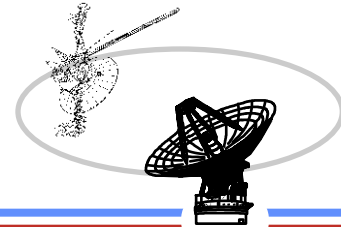
- 2021 -

	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		
2021 Key Project Events																																																						
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GDSCC																																																						
CDSCC																																																						
MDSCC	D54 Pedestal Rehab Begin November 2019 - 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		

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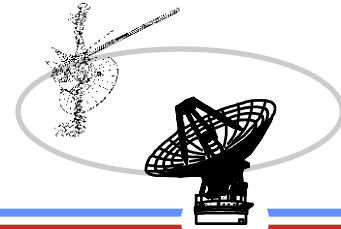
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DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	Grouting	10/20/2014 06:00	11/28/2014 17:00	39	43 - 48	293	332
DSS 63	S-Band Maser Replacement - NIB	10/20/2014 06:00	11/28/2014 17:00	39	43 - 48	293	332
DSS 26	80kW Install	10/27/2014 15:00	06/13/2015 00:00	228	44 - 24	300	164
DSS 26	AZ Track Replacement - NIB	10/27/2014 15:00	06/13/2015 00:00	228	44 - 24	300	164
DSS 14	70M Tune-up/Calibration	12/01/2014 15:00	12/19/2014 13:00	18	49 - 51	335	353
DSS 14	Quad Leg Work	12/09/2014 14:00	12/11/2014 23:00	2	50 - 50	343	345
SPC 60	NMC D3.2 I & T	12/10/2014 21:40	12/11/2014 02:05	0	50 - 50	344	345
SPC 10	NMC D3.2 I & T	12/16/2014 07:20	12/16/2014 11:45	0	51 - 51	350	350
SPC 10	NMC D3.2 I & T	12/19/2014 05:15	12/19/2014 10:45	0	51 - 51	353	353



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

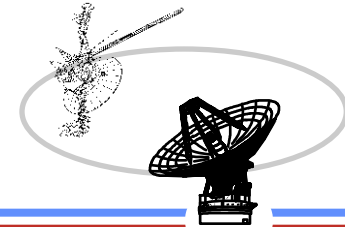


DSN Downtime 2015

2015							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 25	Ka U/L	01/20/2015 15:00	01/20/2015 23:00	0	04 - 04	20	20
DSS 25	Ka U/L	01/21/2015 15:00	01/21/2015 23:00	0	04 - 04	21	21
DSS 25	Ka U/L	01/22/2015 15:00	01/22/2015 23:00	0	04 - 04	22	22
DSS 25	Ka U/L	01/23/2015 15:00	01/23/2015 23:00	0	04 - 04	23	23
DSS 24	Power Transfer	02/25/2015 23:00	02/26/2015 15:00	1	09 - 09	56	57
DSS 25	Power Transfer	02/25/2015 23:00	02/26/2015 15:00	1	09 - 09	56	57
DSS 26	Power Transfer	02/25/2015 23:00	02/26/2015 15:00	1	09 - 09	56	57
DSS 43	70m Tune-up/Calibration	03/18/2015 01:00	04/03/2015 06:00	16	12 - 14	77	93
SPC 40	Complex Powerhouse Upgrade	04/09/2015 21:00	04/10/2015 03:00	0	15 - 15	99	100
SPC 40	Complex Powerhouse Upgrade	04/10/2015 21:00	04/11/2015 03:00	0	15 - 15	100	101
SPC 10	ALB-SPS Software install	04/15/2015 06:00	04/15/2015 12:00	0	16 - 16	105	105
DSS 14	Antenna Inspection/TXR RF Characterization	04/20/2015 15:00	04/21/2015 03:00	0	17 - 17	110	111
DSS 26	Antenna Inspection/TXR RF Characterization	04/21/2015 15:00	04/22/2015 03:00	0	17 - 17	111	112
DSS 24	Antenna Inspection/TXR RF Characterization	04/22/2015 15:00	04/23/2015 03:00	0	17 - 17	112	113
DSS 25	Antenna Inspection/TXR RF Characterization	04/22/2015 15:00	04/23/2015 03:00	0	17 - 17	112	113
SPC 40	ALB-SPS Software install	04/23/2015 13:00	04/23/2015 19:00	0	17 - 17	113	113
DSS 14	Antenna Inspection/TXR RF Characterization	04/20/2015 15:00	04/21/2015 03:00	0	17 - 17	110	111
DSS 26	Antenna Inspection/TXR RF Characterization	04/21/2015 15:00	04/22/2015 03:00	0	17 - 17	111	112
DSS 24	Antenna Inspection/TXR RF Characterization	04/22/2015 15:00	04/23/2015 03:00	0	17 - 17	112	113
DSS 25	Antenna Inspection/TXR RF Characterization	04/22/2015 15:00	04/23/2015 03:00	0	17 - 17	112	113
DSS 24	Antenna Inspection/TXR RF Characterization	04/29/2015 15:00	04/30/2015 03:00	0	18 - 18	119	120
SPC 60	ALB-SPS Software install	04/29/2015 22:00	04/30/2015 04:00	0	18 - 18	119	120
DSS 15	Antenna Inspection/TXR RF Characterization	04/30/2015 15:00	05/01/2015 03:00	0	18 - 18	120	121



Interplanetary Network Directorate (IND)
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 Resource Allocation Planning Service



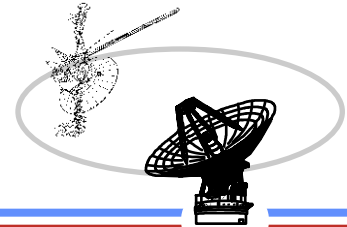
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DSN Downtime 2015

2015 cont.							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 10	NMC D3.3 I & T	05/10/2015 00:00	05/10/2015 06:00	0	19 - 19	130	130
DSS 63	70m Tune-up/Calibration - NIB	05/11/2015 06:00	05/24/2015 17:00	13	20 - 21	131	144
DSS 63	Grouting	05/11/2015 06:00	05/24/2015 17:00	13	20 - 21	131	144
SPC 40	NMC D3.3 I & T	05/17/2015 00:00	05/17/2015 06:00	0	20 - 20	137	137
SPC 60	NMC D3.3 I & T	05/24/2015 00:00	05/24/2015 06:00	0	21 - 21	144	144
SPC 10	NMC D3.3 AT	07/26/2015 00:00	07/26/2015 06:00	0	30 - 30	207	207
SPC 40	NMC D3.3 AT	08/02/2015 00:00	08/02/2015 06:00	0	31 - 31	214	214
DSS 63	Grouting	08/03/2015 05:00	08/16/2015 17:00	14	32 - 33	215	228
SPC 10	DCD V5.1	08/05/2015 17:00	08/05/2015 23:00	0	32 - 32	217	217
GCF 20	DSOC DCD V5.1	08/05/2015 17:00	08/05/2015 23:00	0	32 - 32	217	217
SPC 60	NMC D3.3 AT	08/09/2015 00:00	08/09/2015 06:00	0	32 - 32	221	221
DSS 43	70m Tune-up/Calibration	08/17/2015 21:00	08/28/2015 06:00	10	34 - 35	229	240
DSS 55	AZ Track Replacement	08/18/2015 06:00	10/30/2015 17:00	73	34 - 44	230	303
SPC 60	DCD V5.1	09/09/2015 07:00	09/09/2015 13:00	0	37 - 37	252	252
SPC 40	DCD V5.1	09/24/2015 22:00	09/25/2015 04:00	0	39 - 39	267	268
SPC 10	NMC D3.3 SOAK	10/03/2015 00:00	10/03/2015 06:00	0	40 - 40	276	276
SPC 60	DCD V5.1 - Proposed backup for week 37	10/08/2015 07:00	10/08/2015 13:00	0	41 - 41	281	281
DSS 24	Power Transfer	10/15/2015 16:00	10/16/2015 08:00	1	42 - 42	288	289
DSS 25	Power Transfer	10/15/2015 16:00	10/16/2015 08:00	1	42 - 42	288	289
DSS 26	Power Transfer	10/15/2015 16:00	10/16/2015 08:00	1	42 - 42	288	289
SPC 40	NMC D3.3 SOAK	11/07/2015 00:00	11/07/2015 06:00	0	45 - 45	311	311
DSS 34	Depot Level Maintenance	11/30/2015 21:00	12/11/2015 05:00	10	49 - 50	334	345
SPC 40	Complex Powerhouse Upgrade	12/04/2015 21:00	12/05/2015 09:00	0	49 - 49	338	339



Interplanetary Network Directorate (IND)
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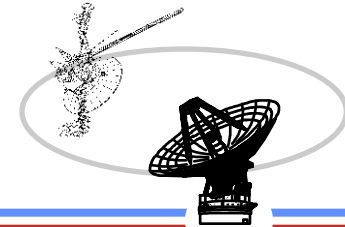
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DSN Downtime 2015

2015 cont.							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 60	NMC D3.3 SOAK	12/12/2015 00:00	12/12/2015 06:00	0	50 - 50	346	346
SPC 40	Complex Powerhouse Upgrade	12/21/2015 21:00	12/22/2015 03:00	0	52 - 52	355	356



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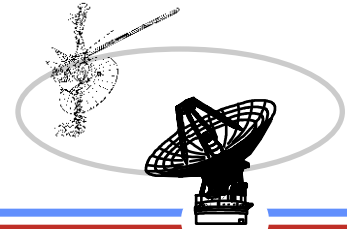
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DSN Downtime 2016

2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 43	Ant Insp/TXR RF Characterization - Proposed	01/19/2016 22:00	01/20/2016 14:00	1	03 - 03	19	20
DSS 34	Ant Insp/TXR RF Characterization - Proposed	01/20/2016 22:00	01/21/2016 14:00	1	03 - 03	20	21
DSS 35	Ant Insp/TXR RF Characterization - Proposed	01/21/2016 22:00	01/22/2016 14:00	1	03 - 03	21	22
DSS 45	Ant Insp/TXR RF Characterization - Proposed	01/21/2016 22:00	01/22/2016 14:00	1	03 - 03	21	22
DSS 43	Ant Insp/TXR RF Characterization - Proposed	01/26/2016 22:00	01/27/2016 06:00	0	04 - 04	26	27
DSS 34	Ant Insp/TXR RF Characterization - Proposed	01/27/2016 22:00	01/28/2016 06:00	0	04 - 04	27	28
DSS 45	Ant Insp/TXR RF Characterization - Proposed	01/28/2016 22:00	01/29/2016 06:00	0	04 - 04	28	29
DSS 63	Grouting - Proposed	02/01/2016 06:00	03/04/2016 17:00	32	05 - 09	32	64
DSS 14	Antenna Painting 4wks NIB	03/07/2016 15:00	06/11/2016 00:00	95	10 - 23	67	163
DSS 14	APCA - Proposed	03/07/2016 15:00	06/11/2016 00:00	95	10 - 23	67	163
SPC 40	SWUPS Installation - Proposed	05/19/2016 21:00	05/20/2016 09:00	0	20 - 20	140	141
SPC 40	SWUPS Installation - Proposed	05/24/2016 21:00	05/25/2016 09:00	0	21 - 21	145	146
SPC 40	SWUPS Installation - Proposed	05/26/2016 21:00	05/27/2016 09:00	0	21 - 21	147	148
DSS 63	Grouting - Proposed	07/25/2016 06:00	08/26/2016 17:00	32	30 - 34	207	239



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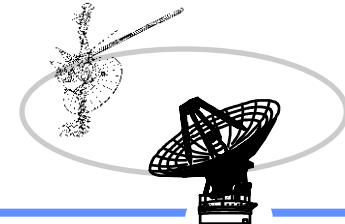
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DSN Downtime 2017

2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 54	Ka2 Tune-up - Proposed	01/23/2017 07:00	02/03/2017 17:00	11	04 - 05	23	34
DSS 63	Grouting	02/20/2017 06:00	04/28/2017 17:00	67	08 - 17	51	118
DSS 24	Ka2 Tune-up - Proposed	03/13/2017 15:00	03/25/2017 00:00	11	11 - 12	72	84
DSS 55	Ant Insp/TXR RF Characterization - Proposed	04/24/2017 07:00	04/24/2017 23:00	1	17 - 17	114	114
DSS 65	Ant Insp/TXR RF Characterization - Proposed	04/25/2017 07:00	04/25/2017 23:00	1	17 - 17	115	115
DSS 63	Ant Insp/TXR RF Characterization - Proposed	04/26/2017 07:00	04/26/2017 23:00	1	17 - 17	116	116
DSS 54	Ant Insp/TXR RF Characterization - Proposed	04/27/2017 07:00	04/27/2017 23:00	1	17 - 17	117	117
DSS 55	Ant Insp/TXR RF Characterization - Proposed	05/01/2017 07:00	05/01/2017 15:00	0	18 - 18	121	121
DSS 65	Ant Insp/TXR RF Characterization - Proposed	05/02/2017 07:00	05/02/2017 15:00	0	18 - 18	122	122
DSS 54	Ant Insp/TXR RF Characterization - Proposed	05/05/2017 07:00	05/05/2017 15:00	0	18 - 18	125	125
DSS 34	Ka2 Tune-up - Proposed	05/14/2017 21:00	05/26/2017 06:00	11	19 - 21	134	146
DSS 43	APCA - Proposed	10/30/2017 21:00	01/19/2018 06:00	80	44 - 03	303	19



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DSN Downtime 2018

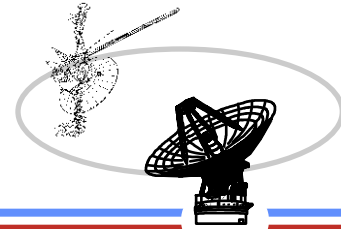
2018							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 25	XX/Ka Installation	01/04/2018 15:00	04/07/2018 00:00	92	01 - 14	4	97
DSS 25	AZ Track Replacement - NIB	01/29/2018 15:00	04/07/2018 00:00	67	05 - 14	29	97
DSS 14	Ant Insp/TXR RF Characterization - Proposed	04/09/2018 15:00	04/10/2018 06:00	1	15 - 15	99	100
DSS 26	Ant Insp/TXR RF Characterization - Proposed	04/10/2018 15:00	04/11/2018 06:00	1	15 - 15	100	101
DSS 25	Ant Insp/TXR RF Characterization - Proposed	04/11/2018 15:00	04/12/2018 06:00	1	15 - 15	101	102
DSS 15	Ant Insp/TXR RF Characterization - Proposed	04/12/2018 15:00	04/13/2018 06:00	1	15 - 15	102	103
DSS 14	Ant Insp/TXR RF Characterization - Proposed	04/16/2018 15:00	04/17/2018 00:00	0	16 - 16	106	107
DSS 26	Ant Insp/TXR RF Characterization - Proposed	04/17/2018 15:00	04/18/2018 00:00	0	16 - 16	107	108
DSS 24	Ant Insp/TXR RF Characterization - Proposed	04/18/2018 15:00	04/19/2018 06:00	1	16 - 16	108	109
DSS 24	XX/Ka Installation	04/30/2018 15:00	07/07/2018 00:00	67	18 - 27	120	188
DSS 63	APCA	04/30/2018 21:00	07/20/2018 06:00	80	18 - 29	120	201



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DSN Downtime 2019

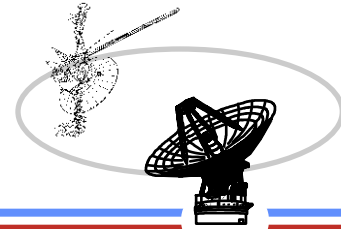
2019							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 54	Pedestal Rehab	11/04/2019 06:00	04/30/2021 17:00	543	45 - 17	308	120
DSS 54	Servo Replacement - NIB	11/04/2019 06:00	04/30/2021 17:00	543	45 - 17	308	120
DSS 54	Transmitter Replacement - NIB	11/04/2019 06:00	04/30/2021 17:00	543	45 - 17	308	120



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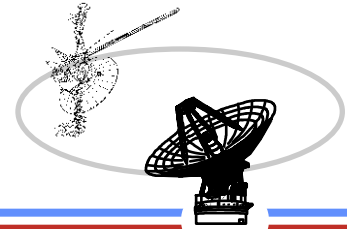


DSN Downtime 2020

2020							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	El Bearing Replacement - Proposed	04/20/2020 07:00	07/10/2021 17:00	446	17 - 27	111	191



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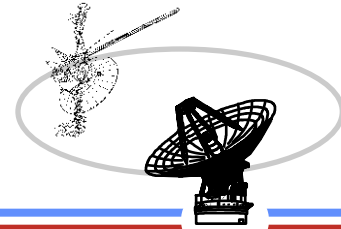
Future assets new/upgrades

- ❑ DSS-26 80kW Installation 2014 – 2015
 - ❑ 80kW arrive at DLF **January 26, 2015. week 05 @ CDSCC**
 - ❑ **DSRR June 9, 2015, week 24**

- ❑ 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 AID	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	N/A
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	N/A	N/A	✓	✓	✓	N/A	N/A	N/A	10/01/15
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	N/A
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*	34B2	N/A	N/A	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	N/A
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*	34B2	N/A	N/A	10/01/19	10/01/19	10/01/19	N/A	N/A	N/A	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: 10/1/2014

✓ ✓ ✓ = Capability Recently Exists

✓ = Capability Exists

* = To Be Commissioned