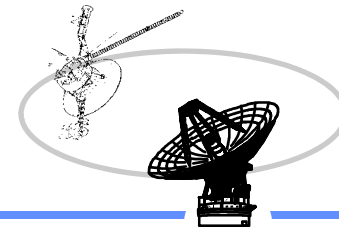


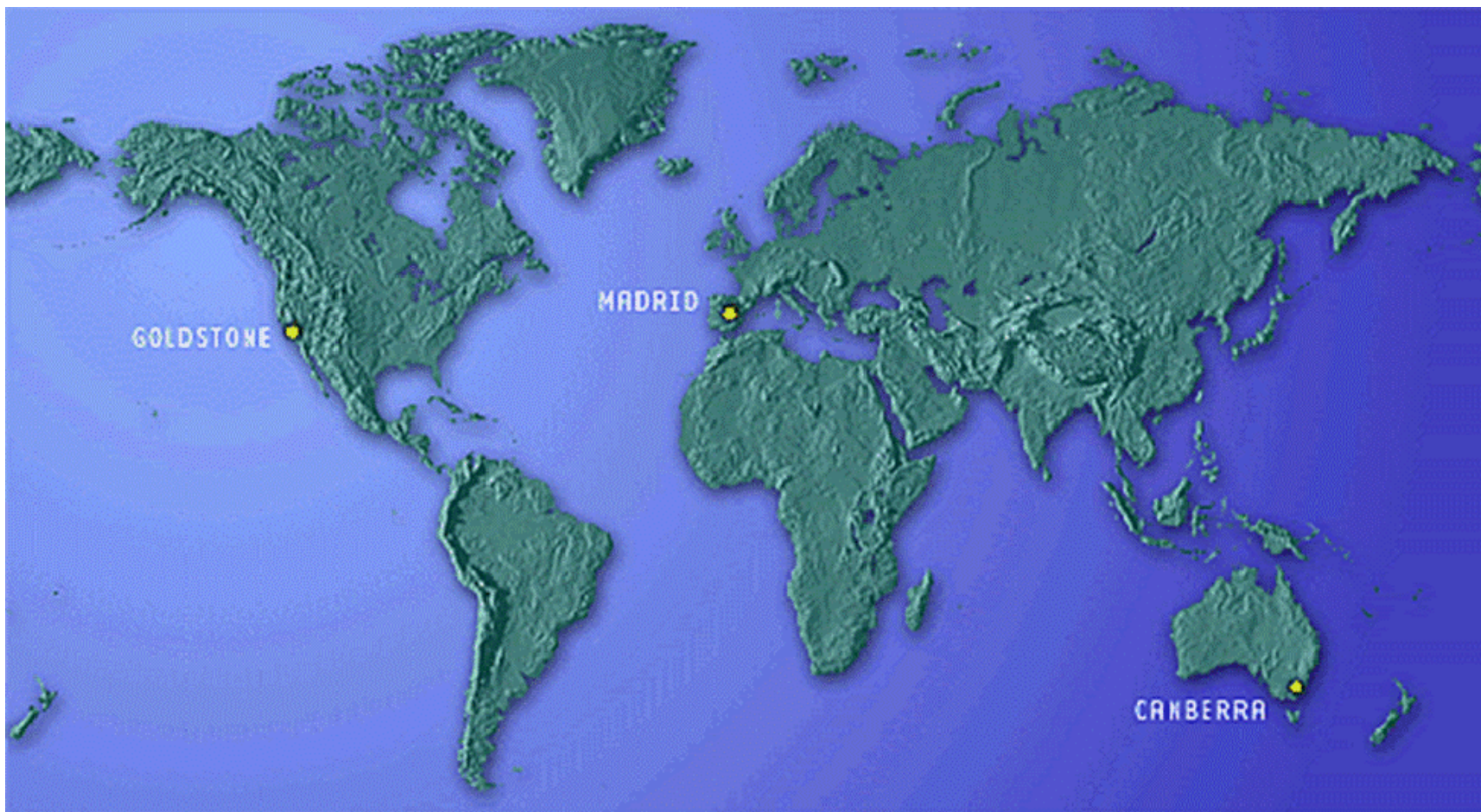


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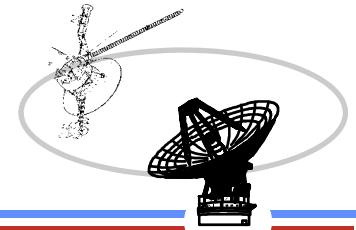
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DSN Antenna Downtime Status and Forecast





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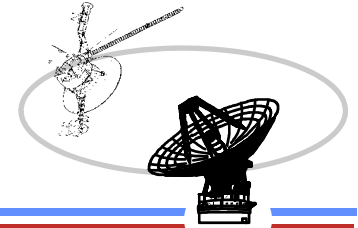
Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex downtime for NMC Automated Link Build (ALB) and Acceptance testing	GDSCC	Mar 2013	Oct 2013	10, 12, 17, 24, 32, 38, 43,49	Jim Buckley, Dave Taylor, Shirley Cizmar	Request 6 – 8 hours each block – days/times flexible. Moved week 42 NMC ALB task to week 43 due to LADEE contention and viewperiod. An additional request for NMC ALB A/T was added in week 49. Week 38 has been completed. Weeks 43, and 49 remain to be completed.
	CDSCC	July 2013	July 2013	30		
HBI Calibrations	DSS-63	Nov 2013	Nov 2013	45/46	Bernardo Lopez, Asim Sehic	Request 2 night time 10 – 12 hour blocks for calibration of the current “10 degree bar” and “3.33 degree bar”. This work is very critical in establishing where in the 360 degrees of azimuth travel before we start the epoxy regROUT in March. Moved to Nov 2013 time frame
Complex downtime for NMC Automated Link Build and (ALB) SOAK	MDSCC	Feb 2014	Feb 2014	07	Jim Buckley, Shirley Cizmar, Dave Taylor	Request 6 – 8 hours per block at each complex Due to Rosetta Level 2 activities, week 3 has been moved to week 8 for DSOC and GDSCC. DSOC needs to be completed prior to NMC ALB and Is not network wide downtime – JPL only
	DSOC	Feb 2014	Feb 2014	08		
	GDSCC	Feb 2014	Feb 2014	08		
	CDSCC	Mar 2014	Mar 2014	10		
Complex downtime for Power House Commission	CDSCC	March 2014	Oct 2014	10, 12, 15, 25, 41	John Phillips, Rob Mehrkish, Dave Taylor	Prime shift hours are preferred. Week 10 downtime requires 12 hours. Downtimes in weeks 12, 15, 25, and 41 require 6 hours. Week 10 downtime requires 12 hours, week 12 downtime requires 6 hours.
		March 2015	March 2015	10,12		



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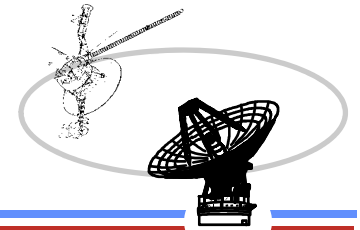


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
AZ Track Replacement	DSS-26	Mar 10, 2014	Aug 31, 2014	11 – 35	Pam Rothman, Asim Sehic	80kW Facility prep, RF Reconfig Prep and DLM are NIB. DSS-26 downtime has been extended through week 35 XX/Ka Installation is scheduled NIB during DSS-25 downtime is proposed – Needs to be 14 weeks
	DSS-55	Mar 9, 2015	Jun 26, 2015	11 – 21	Hal Ahlstrom	
	DSS-25	Jan 29, 2018	Apr 9, 2018	05 – 14	Asim Sehic	
Gain Select Installation	DSS-54	Sep 2013	Oct 2013	39 – 41	Chris Link, Juan Ocampo, Harout Matossian	Demo pass is scheduled for next week on 10/7
HBA Prep Metrology – AZ Runner Measurement	DSS-63	Feb 4 2014	Feb7 2014	06	Tim Sink	Requested 4 additional nights 12 hours each Jan/Feb 2014 timeframe



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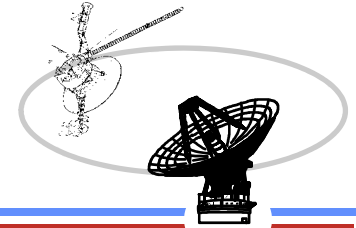


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Grouting	DSS-63	2014	2014	10 – 15	Pam Rothman, Dave Taylor, David Munoz Mochon, Bernardo Lopez, Asim Sehic	An additional 2 weeks added to first grouting in 2014. Nov 2014, S-Band Maser Replacement NIB May 2015, 70m Tune-up and calibration NIB 2015 groutings are only 2 weeks to allow support of NHPC Have the option of two 5 weeks downtimes in 2017, could removed HBA Upgrade or take a single 10 weeks downtime in 2017. Need at least 8 weeks in 2017 if the APCA is NIB to downtime
		2014	2014	44 – 48		
		2015	2015	19 & 20		
		2015	2015	32 & 33		
		2016	2016	14 – 17		
		2016	2016	40 – 43		
Heat Exchanger Update Install	DSS-26	Sep 2013	Sep 2013	37	Harout Matossian	Requested 32 hours for heat exchanger swap at DSS-26 between September 10 and October 4. Supports can be scheduled D/L during swap Task completed
HEF Maser Replacement	DSS-15	Sep 9, 2013	Dec 21, 2013	37 – 51	Anna Fan, Chris Link	Replacing Maser LNA with HEMT LNA, 250W S-Band & Depot Level Maintenance NIB Added Gain Select Installation NIB (BEB) Extended an additional 2 weeks through week 51. Demo tracks planned for week 48 because of project activities for Comet ISON Observing Campaign.



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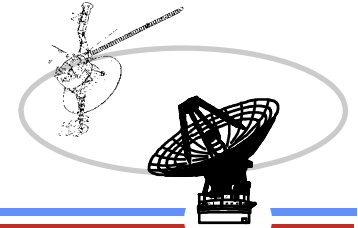


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex downtime for SPC-60 Power Cutover	MDSCC	Dec 2013	May 2014	07, 11, 15, 19, 23, 27 2014	Anna Fan, Rob Mehrkish, Javier Lopez-Perea	Request 12 hours blocks of prime shift hours, but hours are negotiable. Week 50 of 2013 and weeks 03 of 2014 were rescheduled for weeks 23 and 27 of 2014 . Weeks 07, 11, 15, and 19 of 2014 remain scheduled as planned
HBA Digital Cam Survey	DSS-63	Jan 2014	Jan 2014	05	Bernardo Lopez, Asim Sehic	Request 2 night time 10 – 12 hour blocks for calibration of the current “10 degree bar” and “3.33 degree bar” data prior to 2014 Grouting
DSOC & DCD 4.1 software installation	GDSCC	Feb 2014	Feb 2014	09	Anna Fan, Sheila Garrett	Due to Rosetta Level 2 activities week 3 has been moved to week 9 for DSOC and GDSCC. Data at CDSCC and MDSCC will be spooled at the complex and delivered after the downtime is complete. CDSCC/MDSCC will be scheduled 30 days after GDSCC S/W installation
	DSOC	Apr 2014	Apr 2014	14		
	CDSCC	Apr 2014	Apr 2014	16		
Depot Level Maintenance	DSS-35	Jan, 2014	Mar, 2014	01 – 11	John Phillips for CDSCC	DSS-35 Modkit installation during Jan – Mar time frame
	DSS-45	Feb 2014	Feb 2014	07 – 09		DSS-43 and DSS-45 DLM were swapped due to CDSCC Powerhouse Complex
	DSS-43	April 2014	May 2014	16 – 18	David Munoz	DSS-43 changed to HBA Shimming and 2400 Vac Alternate Bus Installation will be NIB
	DSS-65	May 2014	May 2014	20 – 22	Mochon for MDSCC	DSS-65 re-scheduled to occur after DSS-63 grouting
	DSS-34	Jan 2015	Feb 2015	05 – 08		



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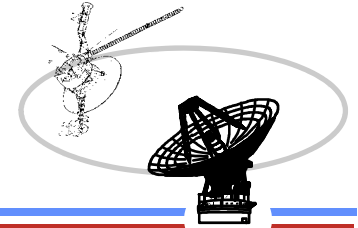


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Lead Abatement Replace Sub Reflector Cable	DSS-14	Feb 2014	Feb 2014	07	Erik Holmgren	Request 5 days to perform lead abatement on handrails and to replace a sub reflector cable. Tracking available during night hours after the first 2 nights.
Antenna Inspections	MDSCC	Mar 2014 Aug 2017	Mar 2014 Aug 2017	12 & 13 35 & 36	Anna Fan, Neil Bucknam	These are proposed dates at this time
Elevation Cable Wrap	DSS-15	July 2014	Aug 2014	29 - 31	Marwah Buck	Three weeks of downtime was requested during August Downtime meeting
X/X/K/A Install	DSS-25	Nov 2014	Nov 2014	46	Andre Jongeling	This downtime was requested after the August downtime meeting
70M Tune-up and calibration	DSS-14 DSS-43	Dec 1, 2014 Mar 9, 2015	Dec 15, 2014 Mar 21, 2015	49 & 50 11 & 12	David Allen John Phillips	These are proposed dates at this time and are In preparation for NHPC Pluto Encounter
Antenna Inspections	GDSCC	Mar 2015 Apr, 2018	Apr 2015 Apr, 2018	13 & 14 15 & 16	Anna Fan, Neil Bucknam, Daniel Olson	2015 Antenna Inspections moved to March - April timeframe,



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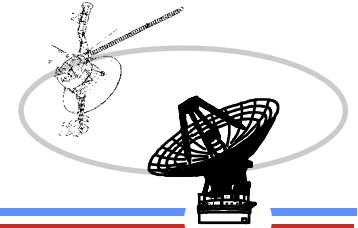


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Antenna Inspections	CDSCC	Jan 2016	Jan 2016	1 & 2	Anna Fan, Dave Taylor, Neil Bucknam, Daniel Olson	2016 – During DSS-45 Maser Replacement
X/X/Ka Install	DSS-25	Jan, 2016	April, 2016	01 – 13	Wendy Hodgin	Downtime requested at July downtime meeting. (With Az track replacement in 2018)
APCA	DSS-14 DSS-43	Nov, 2016 Sept, 2017	Jan, 2017 Nov, 2017	44 – 04 37 - 48	Anna Fan, Barzia Tehrani	Downtime requested at July downtime meeting These could move based on DSS-63 HBA downtime changes. DSS-14 needs to be scheduled first, DSS-43 second
SWUPS Installation	CDSCC	Nov, 2016 Nov 2016 Nov, 2016	Nov, 2016 Nov 2016 Nov, 2016	44 46 48	Pete Hames	These blocks are proposed at this time 12 hour blocks for each downtime Must be done in daylight. There is a connection to the power house. Would like to move 9 months earlier if possible
HBA Upgrade and Life Extension	DSS-63	Jan 30, 2017	Sep 8, 2017	05 – 36	Dave Taylor, Bernardo Lopez	This is proposed at this time APCA and Maser Replacement are NIB Tentative date, may move to 2018 This is pending a decision of the extension of the grouting blocks to 5 weeks. APCA could be scheduled standalone, but will require at least 6 weeks.



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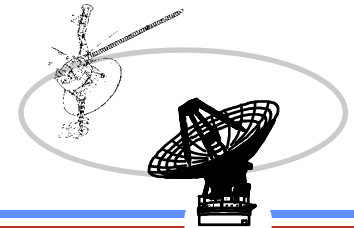


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Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Pedestal Rehab	DSS-54	Jan 8, 2018	Sep 28, 2018	02 – 39	Ben Saldua	This is proposed at this time This date may change based on need Ka2 Tune-up is NIB weeks 36 & 37 and scheduled prior to JWST launch in 2018
XX/Ka Installation	DSS-24	Apr 30, 2018	Jul 9, 2018	18 - 27	Wendy Hodgkin	Needs to be 14 weeks
Ka2 Tune-up	DSS-24	May 1, 2018	May 13, 2018	18 & 19	Wendy Hodgkin	Both Ka2 Tune-ups must be scheduled prior to JWST launch in October 2018, If JWST launch slips, tune-ups may be slipped also. Budget/resource driven
Ka2 Tune-up	DSS-34	May 28, 2018	Jun 4, 2018	22 & 23		

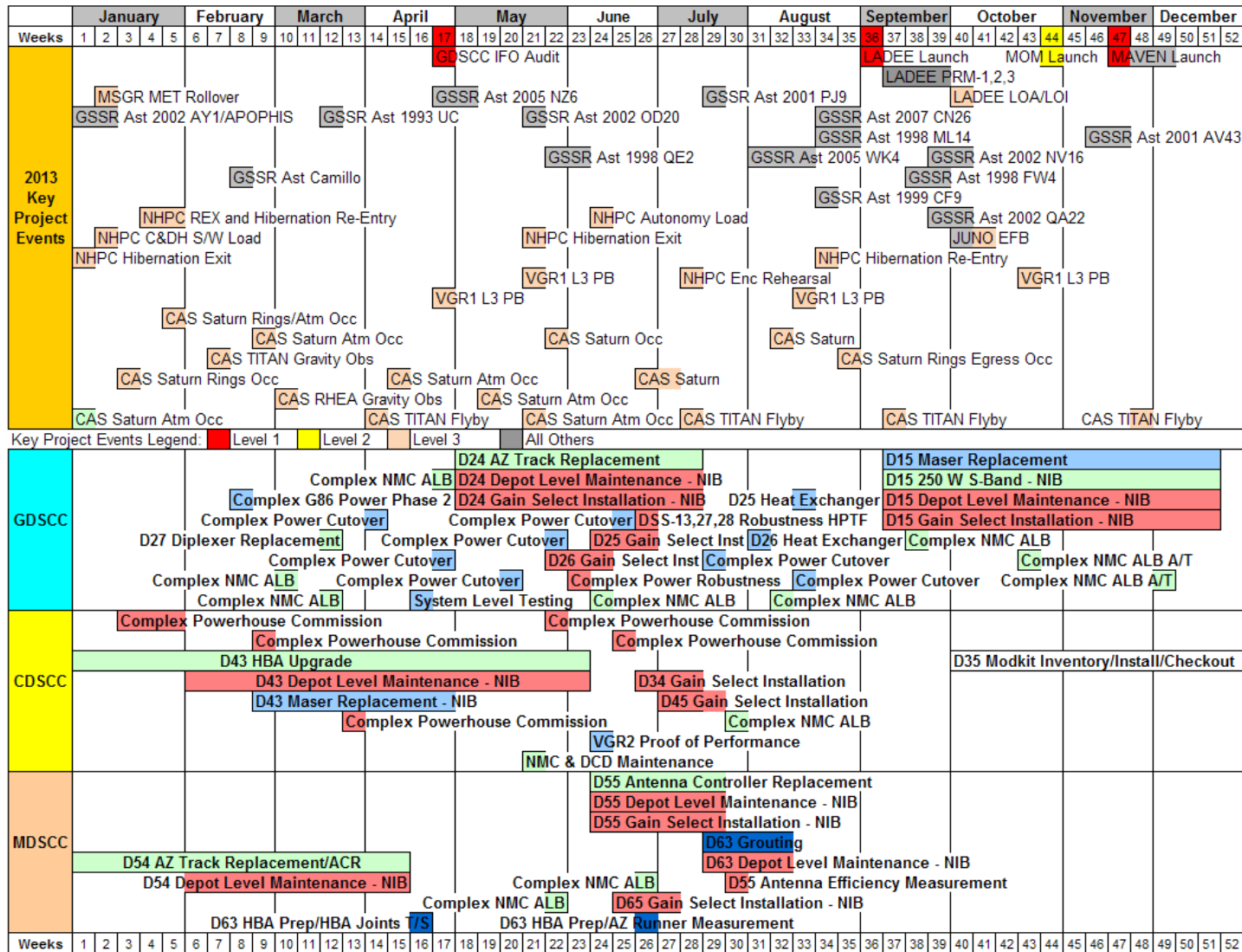


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- 2013 -

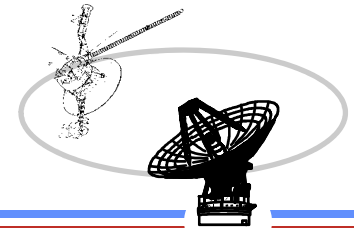


Revised: September 26, 2013

Downtime October 1, 2013 9

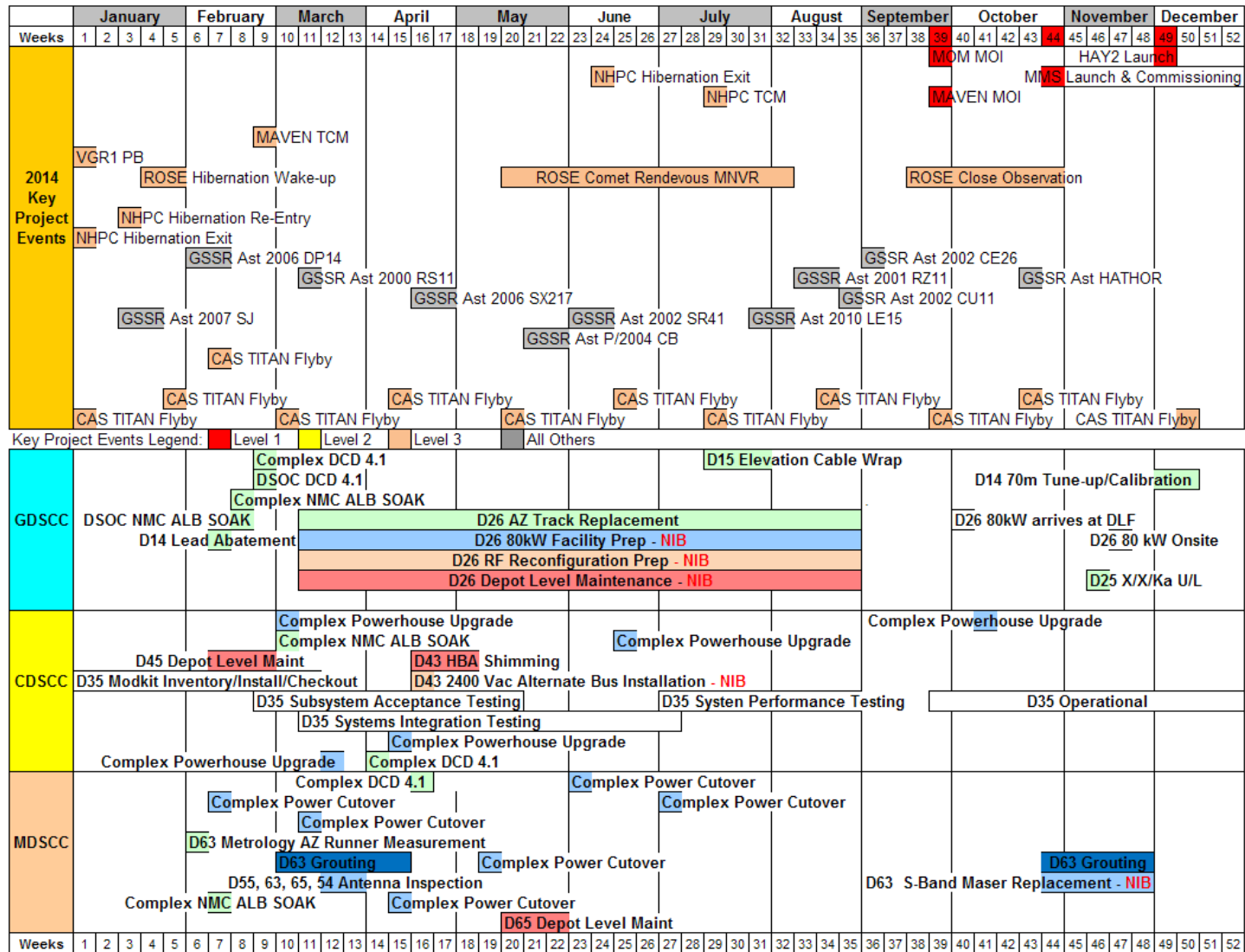


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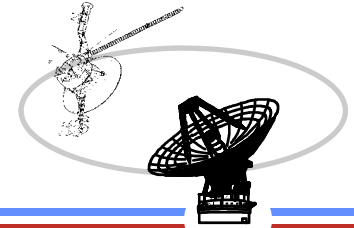
- 2014 -





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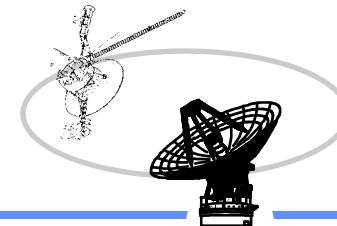
- 2016 -

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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					
2016 Key Project Events	ExoMars Launch								InSight Launch												JUNO JOI								InSight EDL																												
																					JUNO GDSCC/CAN Array supports				JUNO GDSCC Array supports																																
																					JUNO JOI Cleanup																																				
																					JUNO Capture Orbit																																				
									CAS TITAN Flyby																CAS TITAN Flyby																																
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Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others																																																									
GDSCC	D25 X/Ka Ka U/L Installation - Proposed																																																					D14 APCA - Proposed			
CDSCC	D34,35,43,45 Antenna Inspection - Proposed																																																					SWUPS Installation - Proposed			
																																																						SWUPS Installation - Proposed			
	D36 Modkit Inventory/Installation/Checkout																																																					SWUPS Installation - Proposed			
	D36 Subsystem Acceptance Testing																																																					D36 Operational			
MDSCC																																																						D36 System Performance Testing			
MDSCC																																																						D63 Grouting - Proposed			
																																																						D63 Grouting - Proposed			
D36 Systems Integration Testing																																																									

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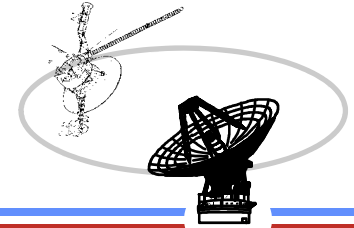
- 2017 -

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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
2017 Key Project Events																																																				
CAS TITAN Flyby																																																				
Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others																																																				
GDSCC	D14 APCA - Proposed																																																			
CDSCC	D43 APCA - Proposed																																																			
MDSCC	D63 HBA Upgrades & Life Extension - Proposed																																																			
D63 APCA - NIB																																																				
D54,55,63, 65 Antenna Inspection - 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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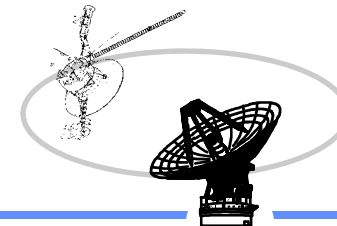
- 2018 -

	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																				
2018 Key Project Events															Mars 2018 Launch and LEOP														SEP Launch and LEOP														JWST Launch and Commissioning																													
Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others																																																																								
GDSCC															D25 AZ Track Replacement - Proposed				D25 XX/Ka Installation - NIB								D24 XX/Ka Installation - Proposed				D24 Ka2 Tune-up NIB																																									
CDSCC																							D14, 15, 25, 26, 24, 15, 27 Antenna Inspection - Proposed																																																	
MDSCC																																											D54 Pedestal Rehab - 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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- 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 Tag 1 Reh				Tag 1				SPP Solar Enc								SPP Venus Flyby																		
Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others																																																				
GDSCC																																																				
CDSCC																																																				
MDSCC																																																				
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

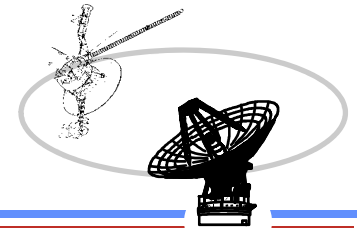
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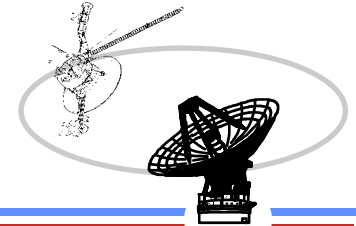
DSN Downtime 2013

2013							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 15	250W S-Band - NIB	09/09/2013 15:00	12/21/2013 00:00	102	37 - 51	252	355
DSS 15	Depot Level Maintenance - NIB	09/09/2013 15:00	12/21/2013 00:00	102	37 - 51	252	355
DSS 15	Gain Select Installation - NIB	09/09/2013 15:00	12/21/2013 00:00	102	37 - 51	252	355
DSS 15	Maser Replacement	09/09/2013 15:00	12/21/2013 00:00	102	37 - 51	252	355
DSS 54	Gain Select Installation - NIB	10/04/2013 06:00	10/04/2013 14:30	0	40 - 40	277	277
DSS 54	Gain Select Installation - NIB	10/11/2013 06:15	10/11/2013 14:15	0	41 - 41	284	284
SPC 10	NMC Automated Link Build - Acceptance testing	10/25/2013 00:00	10/25/2013 08:00	0	43 - 43	298	298
SPC 10	NMC Automated Link Build - Acceptance testing	12/03/2013 00:00	12/03/2013 08:00	0	49 - 49	337	337



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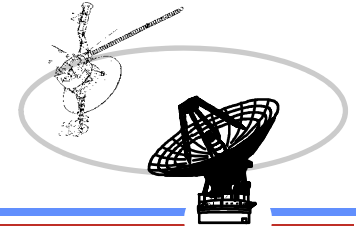
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	HBI Calibration	01/29/2014 18:00	01/30/2014 06:00	0	05 - 05	29	30
DSS 63	HBI Calibration	01/30/2014 18:00	01/31/2014 06:00	0	05 - 05	30	31
DSS 63	Metrology AZ Runner Measurement	02/03/2014 19:00	02/04/2014 07:00	0	06 - 06	34	35
DSS 63	Metrology AZ Runner Measurement	02/04/2014 19:00	02/05/2014 07:00	0	06 - 06	35	36
DSS 63	Metrology AZ Runner Measurement	02/05/2014 19:00	02/06/2014 07:00	0	06 - 06	36	37
DSS 63	Metrology AZ Runner Measurement	02/06/2014 19:00	02/07/2014 07:00	0	06 - 06	37	38
DSS 14	Lead Abatement	02/10/2014 14:00	02/15/2014 02:00	4	07 - 07	41	46
DSS 45	Depot Level Maintenance	02/10/2014 21:00	02/28/2014 06:00	17	07 - 09	41	59
SPC 60	Complex Power Cutover	02/14/2014 05:00	02/14/2014 17:00	0	07 - 07	45	45
SPC 60	NMC Automated Link Build - SOAK	02/16/2014 18:00	02/16/2014 14:00	0	07 - 07	47	47
GCF 20	DSOC NMC ALB SOAK	02/17/2014 00:00	02/17/2014 08:00	0	08 - 08	48	48
SPC 10	NMC Automated Link Build SOAK	02/18/2014 00:00	02/18/2014 08:00	0	08 - 08	49	49
SPC 10	DCD 4.1	02/26/2014 00:00	02/26/2014 06:00	0	09 - 09	57	57
GCF 20	DSOC DCD 4.1	02/26/2014 00:00	02/26/2014 06:00	0	09 - 09	57	57
DSS 63	Grouting	03/03/2014 06:00	04/11/2014 17:00	39	10 - 15	62	101
SPC 40	NMC Automated Link Build - SOAK	03/05/2014 21:00	03/06/2014 05:00	0	10 - 10	64	65
SPC 40	Complex Powerhouse Upgrade	03/06/2014 19:00	03/07/2014 07:00	0	10 - 10	65	66
SPC 60	Complex Power Cutover	03/10/2014 05:00	03/10/2014 17:00	0	11 - 11	69	69
DSS 26	80 kW Facility Prep - NIB	03/10/2014 15:00	09/01/2014 00:00	174	11 - 36	69	244
DSS 26	AZ Track Replacement	03/10/2014 15:00	09/01/2014 00:00	174	11 - 36	69	244
DSS 26	Depot Level Maintenance - NIB	03/10/2014 15:00	09/01/2014 00:00	174	11 - 36	69	244
DSS 26	RF Reconfiguration Prep - NIB	03/10/2014 15:00	09/01/2014 00:00	174	11 - 36	69	244
DSS 55	Antenna Inspection	03/17/2014 07:00	03/17/2014 23:00	1	12 - 12	76	76
DSS 65	Antenna Inspection	03/18/2014 07:00	03/18/2014 23:00	1	12 - 12	77	77



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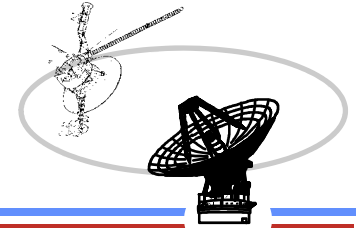
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	Antenna Inspection	03/19/2014 07:00	03/19/2014 23:00	1	12 - 12	78	78
DSS 54	Antenna Inspection	03/20/2014 07:00	03/20/2014 23:00	1	12 - 12	79	79
SPC 40	Complex Powerhouse Upgrade	03/21/2014 21:00	03/22/2014 03:00	0	12 - 12	80	81
DSS 55	Antenna Inspection	03/24/2014 07:00	03/24/2014 15:00	0	13 - 13	83	83
DSS 65	Antenna Inspection	03/25/2014 07:00	03/25/2014 15:00	0	13 - 13	84	84
DSS 54	Antenna Inspection	03/26/2014 07:00	03/26/2014 15:00	0	13 - 13	85	85
SPC 40	DCD 4.1	04/02/2014 23:00	04/03/2014 05:00	0	14 - 14	92	93
SPC 60	Complex Power Cutover	04/08/2014 05:00	04/08/2014 17:00	0	15 - 15	98	98
SPC 40	Complex Powerhouse Upgrade	04/11/2014 22:00	04/12/2014 04:00	0	15 - 15	101	102
DSS 43	HBA Shimming	04/14/2014 21:00	05/02/2014 05:00	17	16 - 18	104	122
DSS 43	2400 Vac Alternate Bus Installatation - NIB	04/15/2014 14:00	04/16/2014 02:00	0	16 - 16	105	106
SPC 60	DCD 4.1	04/16/2014 07:00	04/16/2014 13:00	0	16 - 16	106	106
SPC 60	Complex Power Cutover	05/09/2014 05:00	05/09/2014 17:00	0	19 - 19	129	129
DSS 65	Depot Level Maintenance	05/12/2014 07:00	05/30/2014 16:00	18	20 - 22	132	150
SPC 60	Complex Power Cutover	06/04/2014 05:00	06/04/2014 17:00	0	23 - 23	155	155
SPC 40	Complex Powerhouse Upgrade	06/18/2014 22:00	06/19/2014 04:00	0	25 - 25	169	170
SPC 60	Complex Power Cutover	07/03/2014 05:00	07/03/2014 17:00	0	27 - 27	184	184
DSS 15	Elevation Cable Wrap	07/14/2014 15:00	08/01/2014 00:00	17	29 - 31	195	213
SPC 40	Complex Powerhouse Upgrade	10/07/2014 21:00	10/08/2014 03:00	0	41 - 41	280	281
SPC 40	Complex Powerhouse Upgrade	10/08/2014 21:00	10/09/2014 03:00	0	41 - 41	281	282
DSS 63	Grouting	10/27/2014 06:00	11/28/2014 17:00	32	44 - 48	300	332
DSS 63	S-Band Maser Replacement - NIB	11/03/2014 06:00	11/28/2014 17:00	25	45 - 48	307	332
DSS 25	XX/Ka uplink	11/10/2014 14:00	11/17/2014 00:00	6	46 - 47	314	321
DSS 14	70M Tune-up/Calibration	12/01/2014 15:00	12/15/2014 00:00	13	49 - 51	335	349



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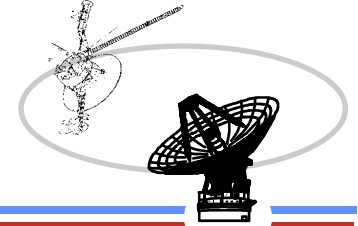
DSN Downtime 2015

2015							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 34	Depot Level Maintenance	01/26/2015 21:00	02/20/2015 05:00	24	05 - 08	26	51
SPC 40	Complex Powerhouse Upgrade - Proposed	03/04/2015 19:00	03/05/2015 07:00	0	10 - 10	63	64
DSS 55	AZ Track Replacement - Proposed	03/09/2015 06:00	05/22/2015 17:00	74	11 - 21	68	142
DSS 43	70m Tune-up/Callibration - Proposed	03/09/2015 21:00	03/21/2015 06:00	11	11 - 12	68	80
SPC 40	Complex Powerhouse Upgrade - Proposed	03/19/2015 21:00	03/20/2015 03:00	0	12 - 12	78	79
DSS 14	Antenna Inspection - Proposed	03/23/2015 15:00	03/24/2015 03:00	0	13 - 13	82	83
DSS 26	Antenna Inspection - Proposed	03/24/2015 15:00	03/25/2015 03:00	0	13 - 13	83	84
DSS 24	Antenna Inspection - Proposed	03/25/2015 15:00	03/26/2015 03:00	0	13 - 13	84	85
DSS 25	Antenna Inspection - Proposed	03/25/2015 15:00	03/26/2015 03:00	0	13 - 13	84	85
DSS 15	Antenna Inspection - Proposed	03/26/2015 15:00	03/27/2015 03:00	0	13 - 13	85	86
DSS 14	Antenna Inspection - Proposed	03/27/2015 15:00	03/28/2015 03:00	0	13 - 13	86	87
DSS 27	Antenna Inspection - Proposed	03/27/2015 15:00	03/28/2015 03:00	0	13 - 13	86	87
DSS 26	Antenna Inspection - Proposed	03/31/2015 15:00	04/01/2015 03:00	0	14 - 14	90	91
DSS 25	Antenna Inspection - Proposed	04/01/2015 15:00	04/02/2015 03:00	0	14 - 14	91	92
DSS 24	Antenna Inspection - Proposed	04/01/2015 15:00	04/02/2015 03:00	0	14 - 14	91	92
DSS 15	Antenna Inspection - Proposed	04/02/2015 15:00	04/03/2015 03:00	0	14 - 14	92	93
DSS 27	Antenna Inspection - Proposed	04/03/2015 15:00	04/04/2015 03:00	0	14 - 14	93	94
DSS 63	70m Tune-up/Calibration - NIB	05/04/2015 06:00	05/17/2015 17:00	13	19 - 20	124	137
DSS 63	Grouting - Proposed	05/04/2015 06:00	05/17/2015 17:00	13	19 - 20	124	137
DSS 63	Grouting - Proposed	08/03/2015 05:00	08/16/2015 17:00	14	32 - 33	215	228



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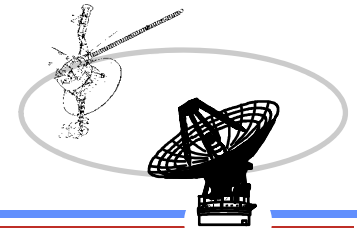
DSN Downtime 2016

2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 25	X/XKa Ka U/L - Proposed	01/04/2016 15:00	04/01/2016 00:00	87	01 - 13	4	92
DSS 43	Antenna Inspection - Proposed	01/04/2016 22:00	01/05/2016 14:00	1	01 - 01	4	5
DSS 34	Antenna Inspection - Proposed	01/05/2016 22:00	01/06/2016 14:00	1	01 - 01	5	6
DSS 45	Antenna Inspection - Proposed	01/06/2016 22:00	01/07/2016 14:00	1	01 - 01	6	7
DSS 35	Antenna Inspection - Proposed	01/07/2016 22:00	01/08/2016 14:00	1	01 - 01	7	8
DSS 43	Antenna Inspection - Proposed	01/11/2016 22:00	01/12/2016 06:00	0	02 - 02	11	12
DSS 34	Antenna Inspection - Proposed	01/12/2016 22:00	01/13/2016 06:00	0	02 - 02	12	13
DSS 63	Grouting - Proposed	04/04/2016 06:00	04/29/2016 17:00	25	14 - 17	95	120
DSS 63	Grouting - Proposed	10/03/2016 06:00	10/28/2016 17:00	25	40 - 43	277	302
DSS 14	APCA - Proposed	10/31/2016 15:00	01/27/2017 00:00	87	44 - 04	305	27
SPC 40	SWUPS Installation - Proposed	11/02/2016 21:00	11/03/2016 09:00	0	44 - 44	307	308
SPC 40	SWUPS Installation - Proposed	11/16/2016 21:00	11/17/2016 09:00	0	46 - 46	321	322
SPC 40	SWUPS Installation - Proposed	11/30/2016 21:00	12/01/2016 09:00	0	48 - 48	335	336



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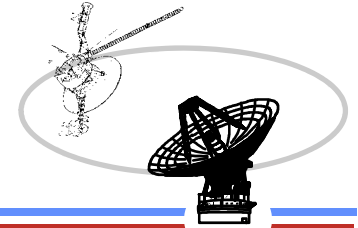
DSN Downtime 2017

2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	APCA - NIB	01/30/2017 06:00	09/08/2017 17:00	221	05 - 36	30	251
DSS 63	HBA Upgrade and Life Extension - Proposed	01/30/2017 06:00	09/08/2017 17:00	221	05 - 36	30	251
DSS 55	Antenna Inspection - Proposed	08/28/2017 07:00	08/28/2017 23:00	1	35 - 35	240	240
DSS 65	Antenna Inspection - Proposed	08/29/2017 07:00	08/29/2017 23:00	1	35 - 35	241	241
DSS 63	Antenna Inspection - Proposed	08/30/2017 07:00	08/30/2017 23:00	1	35 - 35	242	242
DSS 54	Antenna Inspection - Proposed	08/31/2017 07:00	08/31/2017 23:00	1	35 - 35	243	243
DSS 55	Antenna Inspection - Proposed	09/04/2017 07:00	09/04/2017 15:00	0	36 - 36	247	247
DSS 63	Antenna Inspection - Proposed	09/05/2017 07:00	09/05/2017 15:00	0	36 - 36	248	248
DSS 54	Antenna Inspection - Proposed	09/07/2017 07:00	09/07/2017 15:00	0	36 - 36	250	250
DSS 43	APCA - Proposed	09/11/2017 21:00	12/01/2017 06:00	80	37 - 48	254	335



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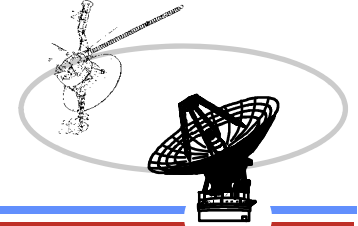
DSN Downtime 2018

2018							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 54	Pedestal Rehab	01/08/2018 06:00	09/28/2018 17:00	263	02 - 39	8	271
DSS 25	AZ Track Replacement - Proposed	01/29/2018 15:00	04/07/2018 00:00	67	05 - 14	29	97
DSS 14	Antenna Inspection - Proposed	04/08/2018 15:00	04/09/2018 06:00	1	14 - 15	98	99
DSS 26	Antenna Inspection - Proposed	04/09/2018 15:00	04/10/2018 06:00	1	15 - 15	99	100
DSS 25	Antenna Inspection - Proposed	04/10/2018 15:00	04/11/2018 06:00	1	15 - 15	100	101
DSS 15	Antenna Inspection - Proposed	04/11/2018 15:00	04/12/2018 06:00	1	15 - 15	101	102
DSS 27	Antenna Inspection - Proposed	04/12/2018 15:00	04/13/2018 06:00	1	15 - 15	102	103
DSS 14	Antenna Inspection - Proposed	04/15/2018 15:00	04/16/2018 00:00	0	15 - 16	105	106
DSS 26	Antenna Inspection - Proposed	04/16/2018 15:00	04/17/2018 00:00	0	16 - 16	106	107
DSS 24	Antenna Inspection - Proposed	04/17/2018 15:00	04/18/2018 06:00	1	16 - 16	107	108
DSS 27	Antenna Inspection - Proposed	04/18/2018 15:00	04/19/2018 00:00	0	16 - 16	108	109
DSS 24	Ka2 Tune-up - NIB	04/30/2018 15:00	05/13/2018 00:00	12	18 - 19	120	133
DSS 24	XX/Ka Installation - Proposed	04/30/2018 15:00	07/07/2018 00:00	67	18 - 27	120	188
DSS 34	Ka2 Tune-up - Proposed	05/28/2018 21:00	06/04/2018 06:00	6	22 - 23	148	155
DSS 54	Ka2 Tune-up - NIB	09/03/2018 06:00	09/17/2018 17:00	14	36 - 38	246	260



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Future assets new/upgrades

- DSS-35 Installation and Operational 2013 – 2014
 - Modkit Installation October 1, 2013 – March 14, 2014 weeks 40 – 11
 - Acceptance Testing February 25, 2014 – May 12, 2013, weeks 09 – 20
 - System Integration Testing March 14, 2014 – June 30, 2014 weeks 11 – 27
 - Operations Systems Performance Testing June 30, 2014 – August 28, 2014, weeks 27 – 35
 - Operational September 26, 2014

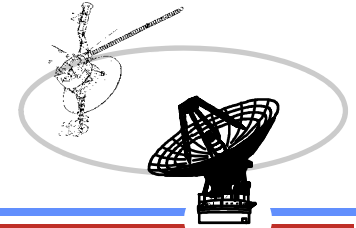
- DSS-26 80kW Installation 2014 – 2015
 - 80kW arrive at DLF October, 2014, week 40
 - 80kW arrive on-site November, 2014, week 47
 - 80kW install January – June, 2015, weeks 02 – 25
 - 80 kW test June – September, 2015, weeks 24 – 36
 - DDR September, 2015, week 38

- DSS-36 Installation and Operational 2016 – A placeholder has been set awaiting dates



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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-27	34HSB #	✓	✓	N/A	N/A	N/A	N/A	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	✓	12/21/13	✓	✓	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	10/01/19	10/01/19	10/01/19	N/A	N/A	N/A	N/A
40	DSS-34	34B1	✓	✓	✓	✓	✓	N/A	✓	✓	N/A
40	DSS-35*	34B2	N/A	N/A	09/29/14	09/29/14	09/29/14	N/A	N/A	N/A	N/A
40	DSS-36*	34B2	N/A	N/A	09/26/16	09/26/16	09/26/16	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-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	09/28/20	09/28/20	09/28/20	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: 9/16/2013

✓ ✓ ✓ = Capability Recently Exists

✓ = Capability Exists

* = To Be Commissioned

= To Be De-Commissioned - 12/8/2013