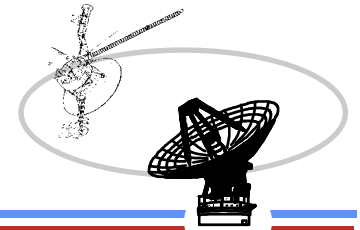


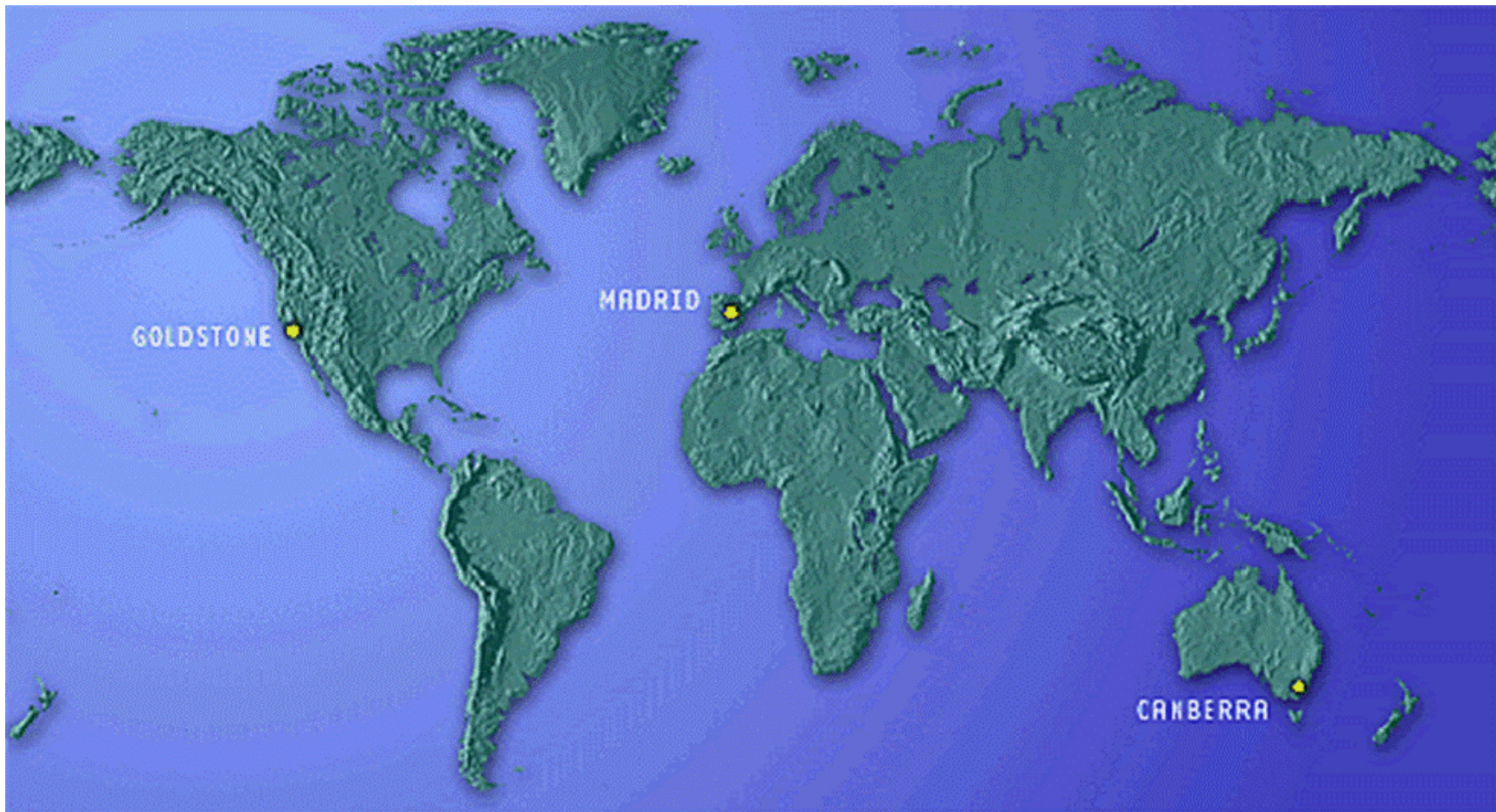


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Deep Space Network (DSN)
Resource Allocation Planning Service



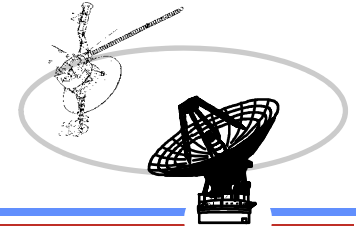
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DSN Antenna Downtime Status and Forecast





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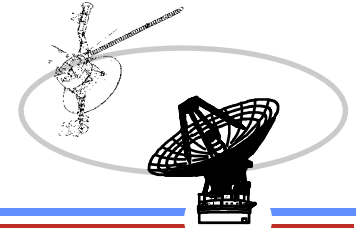


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex downtime for Power House Commission	CDSCC	Jan 2013	Jun 2013	03, 04, 09, 13, 21, 22, 25	John Phillips, Rob Mehrkish	Prime shift hours are requested for 3 hours each 4 blocks – 2 consecutive blocks each in weeks 3 and 4 5 blocks in May, split between weeks 21 and 22 2 blocks in June, week 25 Added additional blocks in weeks 03, 04, 05, 09 and 13. 2 of 4 blocks in week 13 were released by the complex
Complex downtime for G86 Power Cutover	GDSCC	Feb 2013	Sep 2013	08, 12, 14, 17, 22, 25, 29, 32, 37	Hill Reus, Richard Fleig, Tony Medeiros	Request 16 hours each block Week 8 scheduled for 14 hours 15 minutes Week 12 released due to MSL S/C Emergency at DSS-14, rescheduled for G86 prep. Week 14 scheduled as replacement for MSL S/C Emergency 17 hours 40 minutes Week 17 scheduled for 15.5 hours – This downtime released due to NASA IFO audit scheduled for this week. 8 hour block scheduled in week 17 prior to audit.
Complex downtime for NMC Automated Link Build (ALB)	GDSCC	Mar 2013	Oct 2013	10, 12, 17, 24, 32, 38, 42	Jim Buckley, Dave Taylor, Shirley Cizmar	Request 6 – 8 hours each block – days/times flexible Week 10 scheduled Mar 4 for 7 hours Week 12 scheduled Mar 18 for 7 hours Week 15 released to G86 Week 17 scheduled Apr 24 for 8 hours and Apr 28 for 8 hours to replace time released to G86 in week 15
	CDSCC	Mar 2013	Mar 2013	32		New request for CDSCC added to schedule for 8 hours



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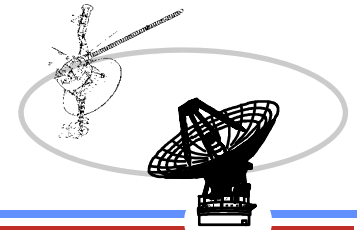


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
HBA Prep (HBA Joints T/S)	DSS-63	April 2013	April 2013	16	Bernardo Lopez	Scheduled for 3 days during maintenance blocks with time added between days 2 & 3 to cover day-night-day contiguous session
Complex System Level Testing (Power)	GDSCC	Apr 21, 2013	Apr 21, 2013	16	Hill Reus, Richard Fleig	Needed to validate the new G86 power distribution system sequence of operation, to make sure the system will function as intended.
AZ Track Replacement	DSS-24	Apr 29, 2013	Jul 12, 2013	18 – 28	Pam Rothman, Asim Sehic	ZDD is required NIB during DSS-24 downtime
	DSS-26	Mar 10, 2014	Jun 20, 2014	11 – 26		Downtime includes RF Reconfiguration and 80 kW Facility Preparation
DSS-55, 25 Primary task changed from Reconfig. Prep to AZ Track Replacement	DSS-55	Mar 9, 2015	Jun 26, 2015	11 – 26		Downtime includes RF Reconfiguration and 80 kW Facility Preparation. Will do power and A/C mods also
	DSS-25	Jan 29, 2018	Apr 9, 2018	05 – 14		XX/Ka Installation is scheduled NIB during DSS-25 downtime is proposed
Complex downtime for SPC-60 Power Cutover	MDSCC	May 2013	Oct 2013	22, 26, 31, 34, 39, 44	Anna Fan, Rob Mehrkish, Javier Parez	Request 10 hours blocks of prime shift hours, but hours are negotiable. Week 22 scheduled for 12 hours – Weeks prior to week 31 can be released due to hardware delivery delay. Weeks 22 and 26 were released to NMC ALB. Replacement weeks are needed for the power cutover



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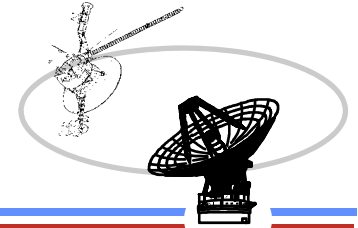


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Strong Signal Test	DSS-26	May 28, 2013	May 30, 2013	22	Chris Link, Juan Ocampo	Install, test and accept all the components for the gain select task. NIB to G86 Power on DOY 148 and prime with maintenance on DOY 151
Antenna Inspections	CDSCC	May 2013	May 2013	19 & 20	Anna Fan, Dave Taylor, Neil Bucknam, Daniel Olson	Antenna Inspections have been cancelled for 2013
		Jan 2016	Jan 2016	1 & 2		2016 – During DSS-45 Maser Replacement
Power Robustness	GDSCC	Jun 2013	Jun 2013	23	Hill Reus, Chris Jeffries	Request 2 10 hour blocks Daylight hours only
BWG Antenna Controller Replacement	DSS-55	Jun 10, 2013	Jul 19, 2013	24 – 29	Anna Fan, Barzia Tehrani	Will perform Ka Modeling and 8md fix Depot Level Maintenance NIB
HBA Prep Metrology – AZ Runner Measurement	DSS-63	June 25 2013	June 27 2013	26	Tim Sink	Three nights were added to the schedule DOYs 175, 176 and 178



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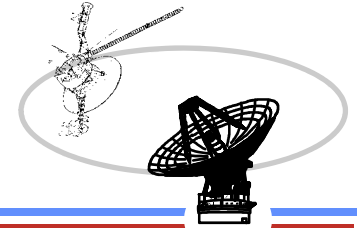


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
HEF Maser Replacement	DSS-15	Aug 5, 2013	Oct 26, 2013	32 – 43	Anna Fan, Chris Link	Replacing Maser LNA with HEMT LNA 250W NIB Depot Level Maintenance NIB
	DSS-65	Aug 2015	Nov 2015	34 – 43		Proposed date. No Depot Level Maintenance at this time
	DSS-45	Oct 2015	Jan 2016	44 – 04		Proposed date. No Depot Level Maintenance at this time
Grouting	DSS-63	Jul 15, 2013	Aug 9, 2013	29 - 32	Pam Rothman, Dave Taylor, David Munoz	An additional 5 days added. Need to be done prior to JUNO TCM. Depot Level Maintenance added NIB Requesting 2 additional groutings each in 2014 – 2016 These are proposed dates:
		Mar 2014	Mar 2014	10 – 13	Mochon, Bernardo	Nov 2014, S-Band Maser Replacement NIB
		Nov 2014	Nov 2014	45 – 48	Lopez, Pete	May 2015, 70m Tune-up and calibration NIB
		May 2015	May 2015	19 & 20	Hames	2015 groutings are only 2 weeks to allow support of NHPC
		Aug 2015	Aug 2015	32 & 33		
		May 2016	May 2016	18 – 21		
Nov 2016	Nov 2016	44 – 47			If HBA Upgrade is not approved for 2017, 2 additional grouting will be scheduled in 2017, 9 months apart	



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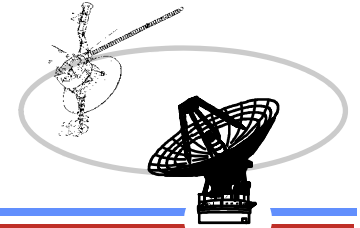
Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex downtime for NMC Automated Link Build (ALB) SOAK	GDSCC	Oct 2013	Oct 2013	42	Jim Buckley, Shirley Cizmar, Dave Taylor	Request 6 – 8 hours per block at each complex 2014 downtimes are proposals at this time
	CDSCC	Jan 2014	Jan 2014	03		
	MDSCC	Jan 2014	Jan 2014	05		
DCD 4.1 software installation and SOAK	GDSCC and DSOC	Jan 8, 2014	Jan 9, 2014	02	Anna Fan, Susan Zia	These are proposed dates at this time
	CDSCC	Feb 20, 2014	Feb 21, 2014	08		
	MDSCC	Mar 6, 2014	Mar 6, 2014	10		
Antenna Inspections	MDSCC	Mar 2014	Mar 2014	19 & 20	Anna Fan, Neil Bucknam	These are proposed dates at this time
		Aug 2017	Aug 2017	35 & 36		
70M Tune-up and calibration	DSS-14	Dec 1, 2014	Dec 15, 2014	49 & 50	Bob Haroldsson	These are proposed dates at this time and are In preparation for NHPC Pluto Encounter
	DSS-43	Mar 9, 2015	Mar 21, 2015	11 & 12	John Phillips	



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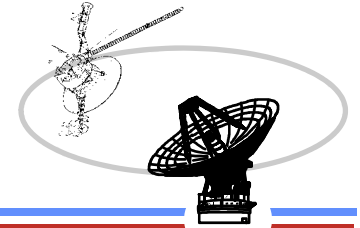


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Depot Level Maintenance	DSS-45	Jan 2014	Feb 2015	05 – 08	John Phillips, David Munoz Mochon	Recurring task to optimize antennas Requested Feb 2013
	DSS-65	April 2014	May 2014	17 - 20		
	DSS-34	Jan 2015	Feb 2015	05 - 08		
Antenna Inspections	GDSCC	May 2015	May 2015	22 & 23	Anna Fan, Neil Bucknam, Daniel Olson	These are proposed dates at this time
		Apr 2018	Apr 2018	15 & 16		
SWUPS Installation	CDSCC	Nov 2, 2016	Nov 3, 2016	44	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.
		Nov 16, 2016	Nov 17, 2016	46		
		Nov 30, 2016	Dec 1, 2016	48		
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 Maser Replacement is NIB Tentative date, may move to 2018



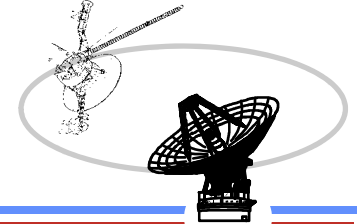
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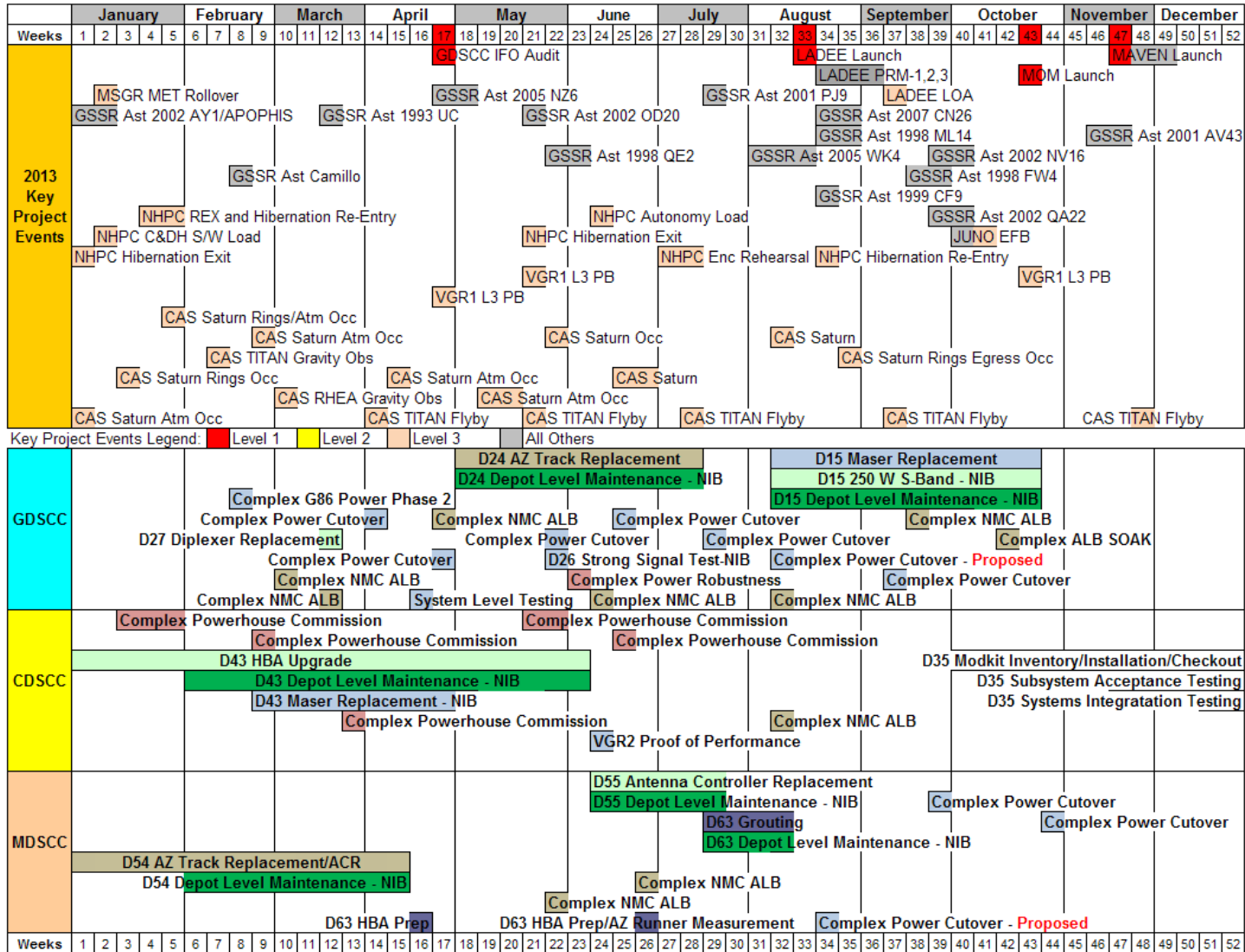
Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
HEF Transmitter Replacement	DSS-15	Oct 3, 2016	Jan 13, 2017	40 – 02	Wendy Hodgkin	These are proposed dates at this time
	DSS-45	Jan 16, 2017	Apr 8, 2017	03 – 14		
	DSS-65	Sep 11, 2017	Dec 1, 2017	37 – 48		
Pedestal Rehab	DSS-54	Jan 8, 2018	Sep 28, 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	This is proposed at this time
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, budget/resource driven
Ka2 Tune-up	DSS-34	Jun 4, 2018	Jun 16, 2018	22 & 23		



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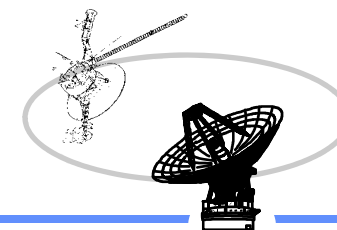
- 2013 -



Revised: March 29, 2013

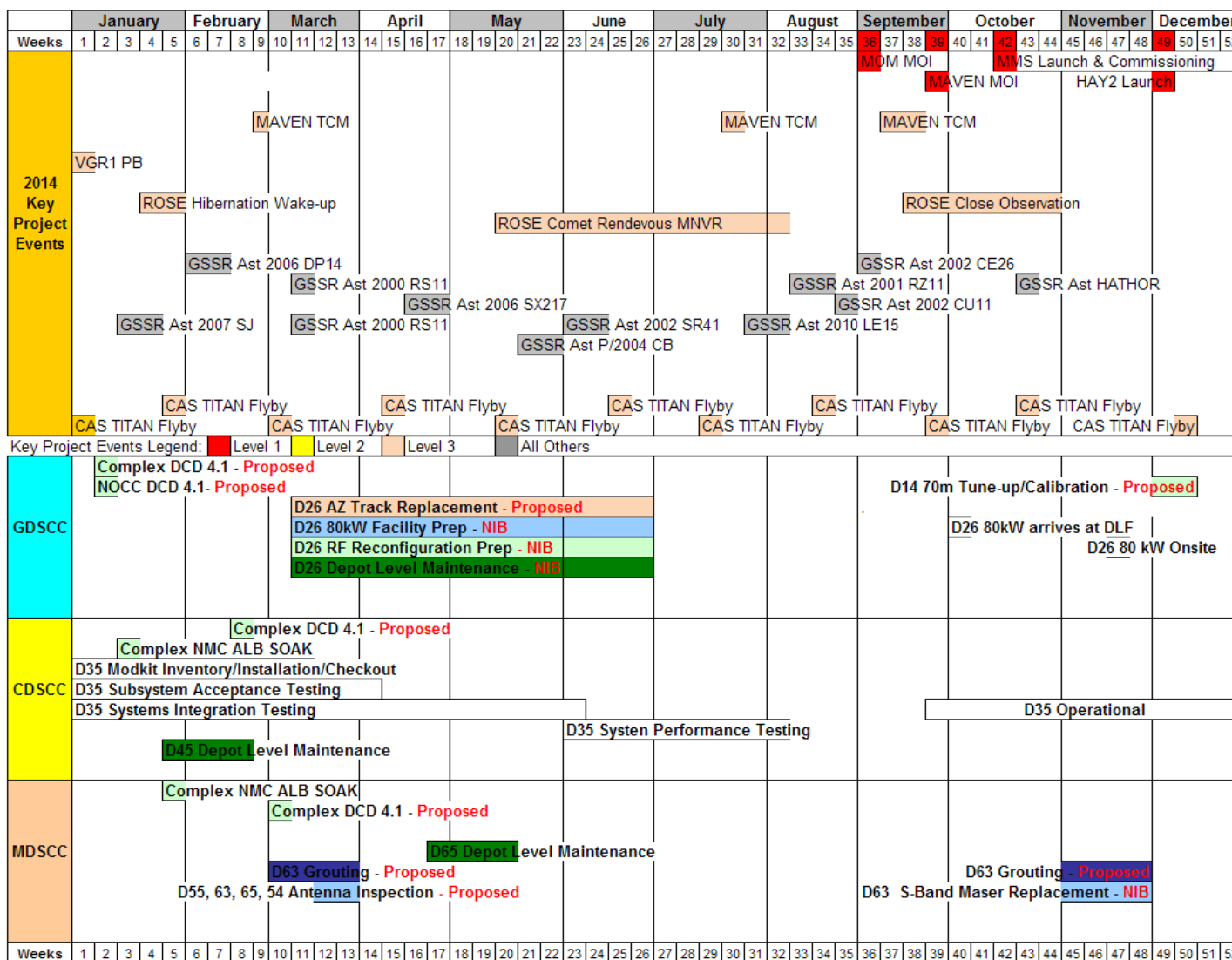


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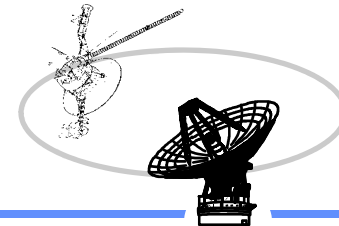
- 2014 -



Revised: March 20, 2013



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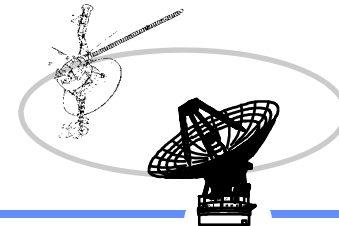
- 2016 -

	January				February				March				April				May				June				July				August				September				October				November				December																																																																																					
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2016 Key Project Events										InSight Launch													JUNO JOI								ORX Launch				InSight MOI																																																																																															
	CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby				CAS TITAN Flyby																																																																																					
Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others																																																																																																																																		
GDSCC																																								D15 Transmitter Replacement - Proposed																																																																																										
CDSCC	D35 Install 80kW										D35 80kW Test										D45 Maser Replacement - Proposed										D34, 35, 43, 45 Antenna Inspection - Proposed										D36 Modkit Inventory/Installation/Checkout										D36 Subsystem Acceptance Testing										D36 Systems Integration Testing										D36 System Performance Testing										UPS Installation - Proposed										UPS Installation - Proposed										UPS Installation - Proposed										D35 DDR										D36 Operational									
MDSCC	D63 Grouting - Proposed																		D55 80kW to DLF										D55 80kW on site										D63 Grouting - 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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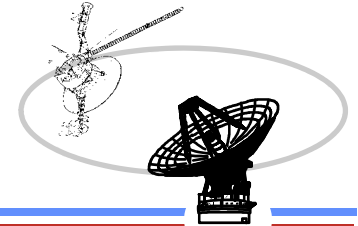
- 2017 -

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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	D15 Transmitter Replacement - Proposed																																																			
CDSCC	D45 Transmitter Replacement - Proposed																																																			
MDSCC	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">D55 Install 80kW</div> <div style="width: 45%;">D55 Test 80kW</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 60%;">D63 HBA Upgrades & Life Extension - Proposed</div> <div style="width: 35%;">D65 Transmitter Replacement - Proposed</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 65%;">D54, 55, 63, 65 Antenna Inspection - Proposed</div> <div style="width: 25%;">D55 DDR</div> </div>																																																			

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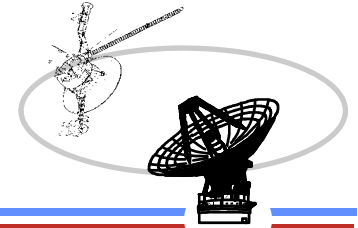
- 2018 -

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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				
2018 Key Project Events															Mars 2018 Launch and LEOP														SP 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																													
															D14, 15, 25, 26, 24, 15, 27 Antenna Inspection - Proposed																																									
CDSCC															D36 Install 80kW														D34 Ka2 Tune-up				D36 80kW Test								D36 DDR															
MDSCC															D54 Pedestal Rehab - Proposed																		D55 DDR				D54 Ka2 Tune-up NIB																			
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 -

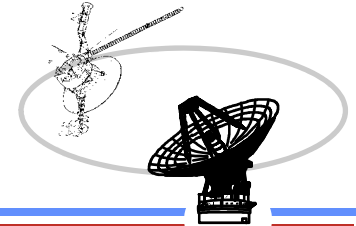
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Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52									
2019 Key Project Events								SPP Beacon					SPP Solar Enc											ORX Tag 1 Reh					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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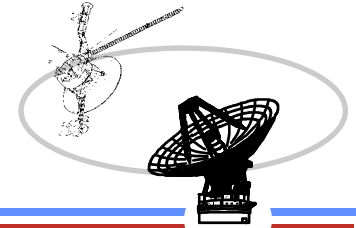
DSN Downtime 2013

2013							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 54	Depot Level Maintenance - NIB	02/04/2013 00:00	04/12/2013 07:00	67	06 - 15	35	102
DSS 43	Depot Level Maintenance - NIB	02/04/2013 00:00	06/10/2013 07:00	126	06 - 24	35	161
SPC 10	G86 Complex Power Cutover	04/07/2013 16:05	04/08/2013 21:45	1	14 - 15	97	98
DSS 63	HBA Prep	04/16/2013 06:00	04/16/2013 14:00	0	16 - 16	106	106
DSS 63	HBA Prep	04/17/2013 06:15	04/18/2013 00:00	1	16 - 16	107	108
DSS 63	HBA Prep	04/17/2013 20:50	04/18/2013 05:50	0	16 - 16	107	108
DSS 63	HBA Prep	04/18/2013 00:00	04/18/2013 14:00	1	16 - 16	108	108
SPC 10	System Level Testing (Power)	04/21/2013 01:15	04/21/2013 09:15	0	16 - 16	111	111
SPC 10	G86 Complex Power Cutover	04/22/2013 01:40	04/22/2013 09:40	0	17 - 17	112	112
SPC 10	NMC Automated Link Build	04/24/2013 17:00	04/25/2013 01:00	0	17 - 17	114	115
SPC 10	NMC Automated Link Build	04/28/2013 00:40	04/28/2013 08:40	0	17 - 17	118	118
DSS 24	AZ Track Replacement	04/29/2013 15:00	07/13/2013 00:00	74	18 - 28	119	194
DSS 24	Depot Level Maintenance - NIB	04/29/2013 15:00	07/13/2013 00:00	74	18 - 28	119	194
SPC 40	Powerhouse Commission	05/21/2013 00:25	05/21/2013 03:25	0	21 - 21	141	141
SPC 40	Powerhouse Commission	05/22/2013 21:30	05/23/2013 00:30	0	21 - 21	142	143
SPC 40	Powerhouse Commission	05/23/2013 21:00	05/24/2013 00:00	0	21 - 21	143	144
SPC 40	Powerhouse Commission	05/27/2013 20:00	05/27/2013 23:00	0	22 - 22	147	147
SPC 10	G86 Complex Power Cutover	05/28/2013 13:00	05/29/2013 05:00	1	22 - 22	148	149
DSS 26	Strong Signal Test - NIB	05/28/2013 13:00	05/29/2013 05:00	1	22 - 22	148	149
SPC 60	NMC Automated Link Build	05/29/2013 09:00	05/29/2013 19:00	0	22 - 22	149	149
SPC 40	Powerhouse Commission	05/30/2013 02:45	05/30/2013 05:45	0	22 - 22	150	150
SPC 10	Power Robustness	06/03/2013 15:00	06/04/2013 03:00	0	23 - 23	154	155
SPC 10	Power Robustness	06/04/2013 15:00	06/05/2013 03:00	0	23 - 23	155	156



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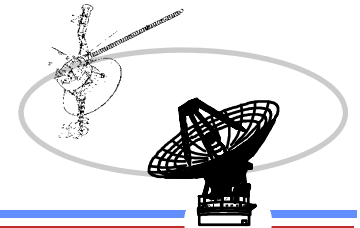


DSN Downtime 2013

2013							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 55	Antenna Controller Replacement	06/10/2013 05:00	07/19/2013 17:00	40	24 - 29	161	200
DSS 55	Depot Level Maintenance - NIB	06/10/2013 05:00	07/19/2013 17:00	40	24 - 29	161	200
SPC 10	NMC Automated Link Build	06/11/2013 04:35	06/11/2013 10:35	0	24 - 24	162	162
SPC 40	Powerhouse Commission	06/17/2013 05:05	06/17/2013 08:05	0	25 - 25	168	168
SPC 40	Powerhouse Commission	06/18/2013 05:40	06/18/2013 08:40	0	25 - 25	169	169
SPC 10	G86 Complex Power Cutover	06/19/2013 13:00	06/20/2013 05:00	1	25 - 25	170	171
SPC 40	Powerhouse Commission	06/20/2013 18:45	06/20/2013 21:45	0	25 - 25	171	171
DSS 63	HBA Prep AZ Runner Measurement	06/24/2013 22:00	06/25/2013 06:00	0	26 - 26	175	176
DSS 63	HBA Prep AZ Runner Measurement	06/25/2013 22:00	06/26/2013 06:00	0	26 - 26	176	177
DSS 63	HBA Prep AZ Runner Measurement	06/26/2013 20:05	06/27/2013 04:05	0	26 - 26	177	178
SPC 60	NMC Automated Link Build	06/27/2013 22:25	06/28/2013 06:00	0	26 - 26	178	179
DSS 63	Depot Level Maintenance - NIB	07/15/2013 06:00	08/09/2013 17:00	25	29 - 32	196	221
DSS 63	Grouting	07/15/2013 06:00	08/09/2013 17:00	25	29 - 32	196	221
SPC 10	G86 Complex Power Cutover	07/16/2013 13:00	07/17/2013 05:00	1	29 - 29	197	198
SPC 10	NMC Automated Link Build	08/05/2013 00:00	08/05/2013 08:00	0	32 - 32	217	217
DSS 15	250W S-Band - NIB	08/05/2013 15:00	10/26/2013 00:00	81	32 - 43	217	299
DSS 15	Depot Level Maintenance - NIB	08/05/2013 15:00	10/26/2013 00:00	81	32 - 43	217	299
DSS 15	Maser Replacement	08/05/2013 15:00	10/26/2013 00:00	81	32 - 43	217	299
SPC 10	G86 Complex Power Cutover	08/06/2013 13:00	08/07/2013 05:00	1	32 - 32	218	219
SPC 40	NMC Automated Link Build	08/11/2013 08:15	08/11/2013 16:15	0	32 - 32	223	223
SPC 60	Complex Power Cutover	08/22/2013 05:00	08/22/2013 17:00	0	34 - 34	234	234
SPC 10	G86 Complex Power Cutover	09/10/2013 13:00	09/11/2013 05:00	1	37 - 37	253	254
SPC 10	NMC Automated Link Build	09/19/2013 00:00	09/19/2013 08:00	0	38 - 38	262	262



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DSN Downtime 2013

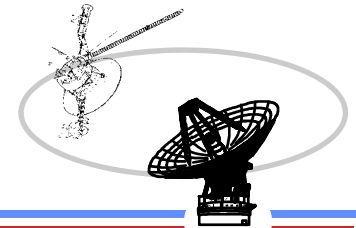
2013							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 60	Complex Power Cutover	09/26/2013 05:00	09/26/2013 17:00	0	39 - 39	269	269
SPC 10	NMC Automated Link Build - SOAK	10/17/2013 00:00	10/17/2013 08:00	0	42 - 42	290	290
SPC 60	Complex Power Cutover	10/31/2013 05:00	10/31/2013 17:00	0	44 - 44	304	304



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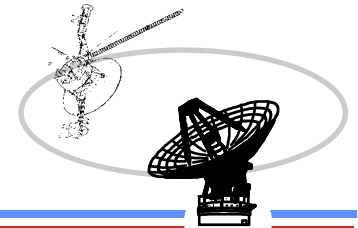
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
GCF 20	DCD 4.1 - Proposed	01/08/2014 23:10	01/09/2014 05:10	0	02 - 02	8	9
SPC 10	DCD 4.1 - Proposed	01/08/2014 23:10	01/09/2014 05:10	0	02 - 02	8	9
SPC 40	NMC Automated Link Build - SOAK Proposed	01/15/2014 21:00	01/16/2014 05:00	0	03 - 03	15	16
DSS 45	Depot Level Maintenance	01/27/2014 21:00	02/21/2014 05:00	24	05 - 08	27	52
SPC 60	NMC Automated Link Build - SOAK Proposed	01/29/2014 06:00	01/29/2014 14:00	0	05 - 05	29	29
SPC 40	DCD 4.1 - Proposed	02/20/2014 23:00	02/21/2014 05:00	0	08 - 05	51	52
DSS 63	Grouting - Proposed	03/03/2014 06:00	03/28/2014 17:00	25	10 - 13	62	87
SPC 60	DCD 4.1 - Proposed	03/06/2014 07:00	03/06/2014 13:00	0	10 - 10	65	65
DSS 26	80 kW Facility Prep - NIB	03/10/2014 15:00	06/27/2014 00:00	108	11 - 26	69	178
DSS 26	AZ Track Replacement - Proposed	03/10/2014 15:00	06/27/2014 00:00	108	11 - 26	69	178
DSS 26	Depot Level Maintenance - NIB	03/10/2014 15:00	06/27/2014 00:00	108	11 - 26	69	178
DSS 26	RF Reconfiguration Prep - NIB	03/10/2014 15:00	06/27/2014 00:00	108	11 - 26	69	178
DSS 55	Antenna Inspection - Proposed	03/17/2014 07:00	03/17/2014 23:00	1	12 - 12	76	76
DSS 65	Antenna Inspection - Proposed	03/18/2014 07:00	03/18/2014 23:00	1	12 - 12	77	77
DSS 63	Antenna Inspection - Proposed	03/19/2014 07:00	03/19/2014 23:00	1	12 - 12	78	78
DSS 54	Antenna Inspection - Proposed	03/20/2014 07:00	03/20/2014 23:00	1	12 - 12	79	79
DSS 55	Antenna Inspection - Proposed	03/24/2014 07:00	03/24/2014 15:00	0	13 - 13	83	83
DSS 65	Antenna Inspection - Proposed	03/25/2014 07:00	03/25/2014 15:00	0	13 - 13	84	84
DSS 54	Antenna Inspection - Proposed	03/26/2014 07:00	03/26/2014 15:00	0	13 - 13	85	85
DSS 65	Depot Level Maintenance	04/21/2014 07:00	05/16/2014 16:00	25	17 - 20	111	136
DSS 63	Grouting - Proposed	11/03/2014 06:00	11/28/2014 17:00	25	45 - 48	307	332
DSS 63	S-Band Maser Replacement - NIB	11/03/2014 06:00	11/28/2014 17:00	25	45 - 48	307	332
DSS 14	70M Tune-up/Calibration - Proposed	12/01/2014 15:00	12/15/2014 00:00	13	49 - 51	335	349



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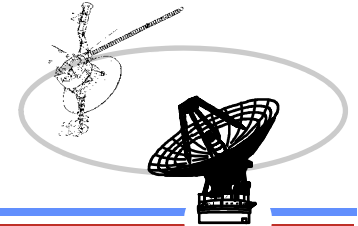
DSN Downtime 2015

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
DSS 55	80 kW Facility Prep - NIB	03/09/2015 06:00	06/26/2015 17:00	109	11 - 26	68	177
DSS 55	AZ Track Replacement - Proposed	03/09/2015 06:00	06/26/2015 17:00	109	11 - 26	68	177
DSS 55	RF Reconfiguration Prep - NIB	03/09/2015 06:00	06/26/2015 17:00	109	11 - 26	68	177
DSS 43	70m Tune-up/Callibration - Proposed	03/09/2015 21:00	03/21/2015 06:00	11	11 - 12	68	80
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 14	Antenna Inspection - Proposed	05/25/2015 15:00	05/26/2015 06:00	1	22 - 22	145	146
DSS 26	Antenna Inspection - Proposed	05/26/2015 15:00	05/27/2015 06:00	1	22 - 22	146	147
DSS 25	Antenna Inspection - Proposed	05/27/2015 15:00	05/28/2015 06:00	1	22 - 22	147	148
DSS 15	Antenna Inspection - Proposed	05/28/2015 15:00	05/29/2015 06:00	1	22 - 22	148	149
DSS 27	Antenna Inspection - Proposed	05/29/2015 15:00	05/30/2015 06:00	1	22 - 22	149	150
DSS 14	Antenna Inspection - Proposed	06/01/2015 15:00	06/02/2015 00:00	0	23 - 23	152	153
DSS 26	Antenna Inspection - Proposed	06/02/2015 15:00	06/03/2015 00:00	0	23 - 23	153	154
DSS 24	Antenna Inspection - Proposed	06/03/2015 15:00	06/04/2015 06:00	1	23 - 23	154	155
DSS 15	Antenna Inspection - Proposed	06/04/2015 15:00	06/05/2015 00:00	0	23 - 23	155	156
DSS 27	Antenna Inspection - Proposed	06/05/2015 15:00	06/05/2015 23:00	0	23 - 23	156	156
DSS 63	Grouting - Proposed	08/03/2015 05:00	08/16/2015 17:00	14	32 - 33	215	228
DSS 65	Maser Replacement - Proposed	08/17/2015 06:00	10/23/2015 17:00	67	34 - 43	229	296
DSS 45	Maser Replacement - Proposed	10/26/2015 21:00	01/29/2016 06:00	94	44 - 04	299	29



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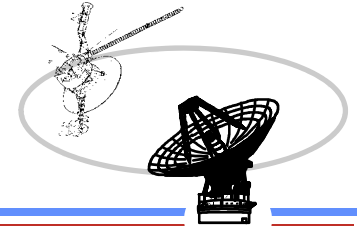
DSN Downtime 2016

2016							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
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	05/02/2016 06:00	05/29/2016 17:00	27	18 - 21	123	150
DSS 15	Transmitter Replacement - Proposed	10/03/2016 15:00	01/13/2017 00:00	101	40 - 02	277	13
DSS 63	Grouting - Proposed	10/31/2016 06:00	11/25/2016 17:00	25	44 - 47	305	330
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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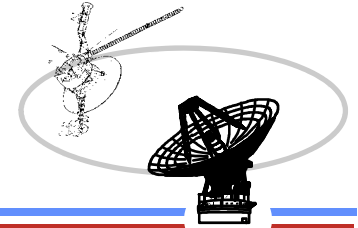
DSN Downtime 2017

2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 45	Transmitter Replacement - Proposed	01/16/2017 21:00	04/08/2017 06:00	81	03 - 14	16	98
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 65	Transmitter Replacement - Proposed	09/11/2017 06:00	12/01/2017 17:00	81	37 - 48	254	335



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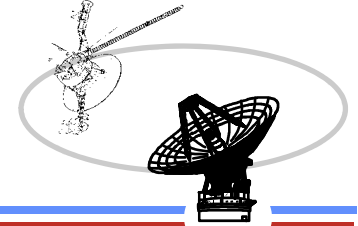
DSN Downtime 2018

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 25	XX/Ka Installation - NIB	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	06/04/2018 21:00	06/16/2018 06:00	11	23 - 24	155	167
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 November 22, 2013 – April 4, 2014, weeks 47 – 14
 - ❑ System Integration Testing December 17, 2013 – June 2, 2014 weeks 51 – 23
 - ❑ Operations Systems Performance Testing June 2, 2014 – August 15, 2014, weeks 23 – 33
 - ❑ 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

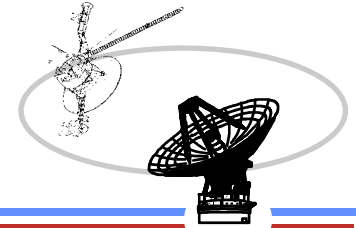
- ❑ DSS-35 80kW Installation 2016 – A placeholder has been set awaiting dates

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

- ❑ DSS-55 80kW Installation 2016 – 2017
 - ❑ 80kW Facility Prep – February 2016, weeks 05 – 10
 - ❑ 80kW at DLF September, 2016, week 39
 - ❑ 80kW on-site November, 2016, week 47
 - ❑ 80kW install January – June, 2017, weeks 01 – 24
 - ❑ 80kW test June – September, 2017, weeks 24 – 37
 - ❑ DDR September, 2017, week 39



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Antenna Downtime Status and Forecast

DSN Resource Implementation Planning Matrix by Subnet

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
40	DSS-34	34B1	✓	✓	✓	✓	✓	N/A	✓	✓	N/A
60	DSS-54	34B1	✓	✓	✓	✓	✓	N/A	✓	✓	N/A
10	DSS-25	34B2	N/A	N/A	✓	✓	✓	✓	N/A	N/A	TBD
10	DSS-26	34B2	N/A	N/A	✓	✓	✓	N/A	N/A	N/A	10/01/15
40	DSS-33*	34B2	N/A	N/A	10/01/19	10/01/19	10/01/19	N/A	N/A	N/A	TBD
40	DSS-35*	34B2	N/A	N/A	09/29/14	09/29/14	09/29/14	N/A	N/A	N/A	10/01/16
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
60	DSS-55	34B2	N/A	N/A	✓	✓	✓	N/A	N/A	N/A	10/01/17
60	DSS-56*	34B2	N/A	N/A	09/28/20	09/28/20	09/28/20	N/A	N/A	N/A	TBD
10	DSS-15	34HEF	✓	N/A	✓	✓	N/A	N/A	N/A	N/A	N/A
40	DSS-45	34HEF	✓	✓	✓	✓	N/A	N/A	N/A	N/A	N/A
60	DSS-65	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-43	70M	✓	✓	✓	✓	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: 11/28/2012
 ✓✓✓ = Capability Recently Exists ✓ = Capability Exists * = To Be Commissioned