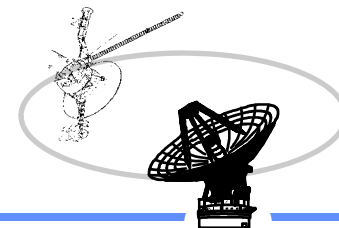


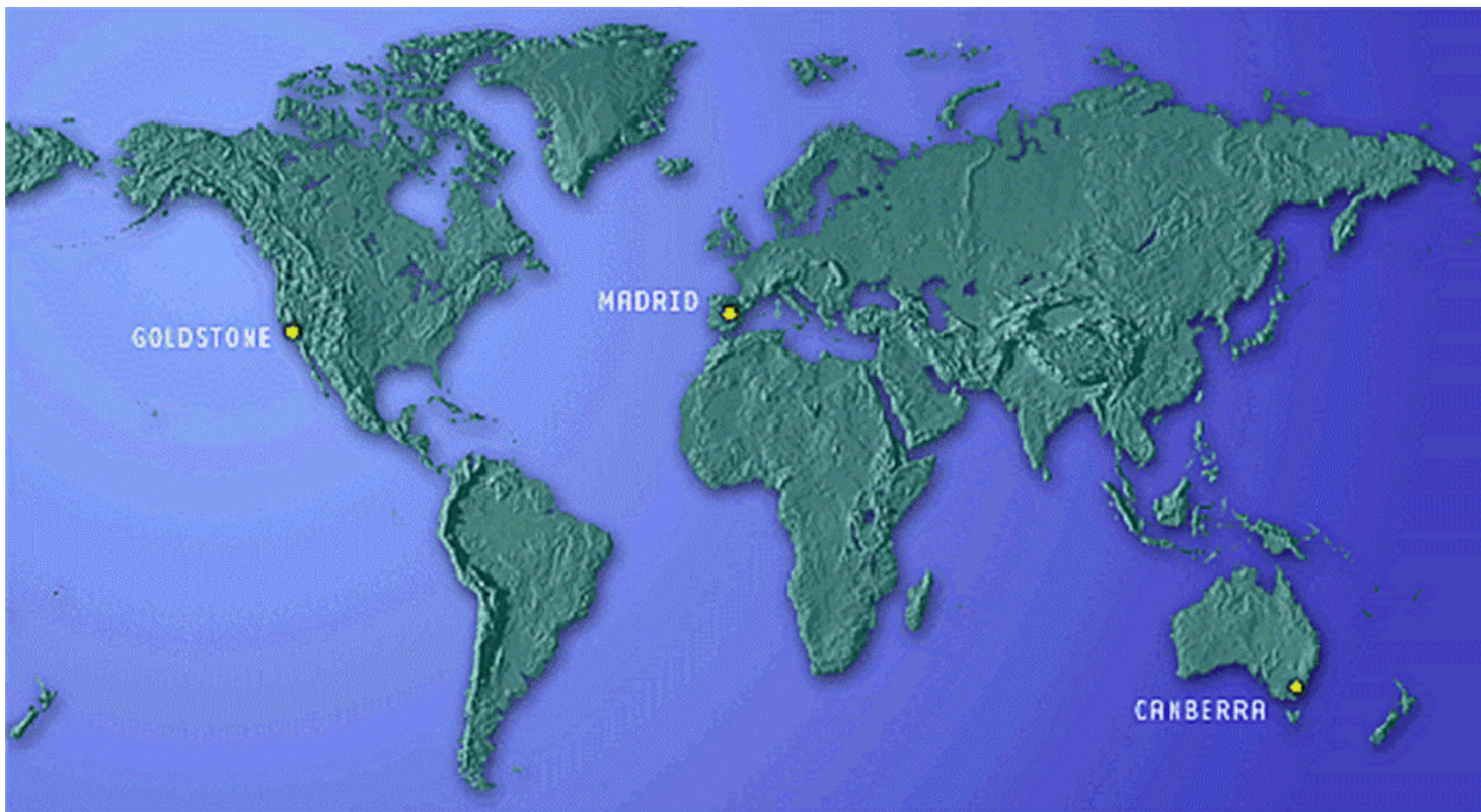


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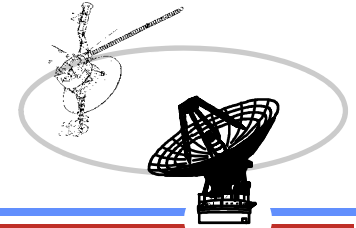
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DSN Antenna Downtime Status and Forecast





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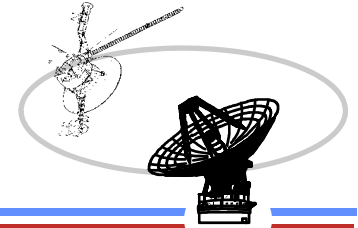
Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Complex downtime for Power House Commission	CDSCC	Jan 2013	Jun 2013	03, 04, 05, 09, 13, 21, 22, 25	John Phillips, Rob Mehrkish	Prime shift hours are requested for 3 hours each 5 blocks in May, split between weeks 21 and 22 All Power House tasks have been completed
Complex downtime for G86 Power Cutover	GDSCC	Feb 2013	Sep 2013	08, 14, 17, 22, 25, 29, 33	Hill Reus, Richard Fleig, Tony Medeiros	Request 16 hours each block Week 29 hours changed to start off shift due to project activities in that week. Week 32 rescheduled for week 33 due to JUNO activities and extension of DSS-63 grouting into week 32 Week 37 was cancelled, weeks 29 and 33 remain to be completed. NMC ALB work will be NIB to G86 downtimes based on power availability.
Complex downtime for NMC Automated Link Build (ALB)	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.
	CDSCC	July 2013	July 2013	30		



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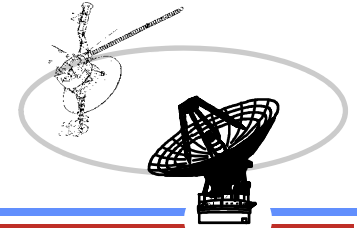


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
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 – completed, pending review Added Gain Select Installation NIB on a Best Efforts Basis (BEB)
	DSS-26	Mar 10, 2014	Jun 20, 2014	11 – 26	Hal Ahlstrom	80kW Facility prep, RF Reconfig Prep and DLM are NIB
	DSS-55	Mar 9, 2015	Jun 26, 2015	11 – 21	Asim Sehic	
	DSS-25	Jan 29, 2018	Apr 9, 2018	05 – 14	Asim Sehic	XX/Ka Installation is scheduled NIB during DSS-25 downtime is proposed
Gain Select Installation	DSS-34	Jun 24 2013	Jul 14 2013	26 – 28	Chris Link, Juan Ocampo, Harout Matossian	For each week this maintenance will be NIB to DSS-34 Gain Select – Should be completed this week
	DSS-25	Jun 2013	Jun 2013	24 – 26		Weeks 24 and 26 downtimes will be prime with DSS-25 Maintenance NIB, week 25 NIB to Maint.
	DSS-65	Jun 2013	Jun 2013	25 – 27		For each week this downtime will be NIB to DSS-65 Maintenance - Completed
	DSS-45	Jul 2013	Jul 2013	27 – 29		For each week this maintenance will be NIB to DSS-45 Gain Select – In progress
	DSS-54	Sep 2013	Oct 2013	39 - 41		For each week this downtime will be NIB to DSS-54 Maintenance
HBA Prep Metrology – AZ Runner Measurement	DSS-63	Jun 27 2013	June 27 2013	26	Tim Sink	Week 26 DOY's 175, 176 and 178 for AZ Runner Measurements - Completed



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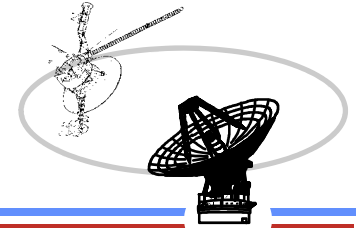


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Power Robustness	GDSCC	Jun 2013	Jun 2013	23	Hill Reus, Chris Jeffries	Request 2 10 hour blocks Daylight hours only STB Demo scheduled for Gain Select Installation - Completed
BWG Antenna Controller Replacement	DSS-55	Jun 10, 2013	Jul 19, 2013	24 – 29	Anna Fan, Barzia Tehrani Juan Ocampo	Depot Level Maintenance NIB Added Gain Select Installation NIB (BEB) ZDD scheduled for week 29 DOY 196 In progress
Grouting	DSS-63	2013 2014 2014 2015 2015 2016 2016	2013 2014 2014 2015 2015 2016 2016	29 – 32 10 – 13 45 – 48 19 & 20 32 & 33 18 – 21 44 – 47	Pam Rothman, Dave Taylor, David Munoz Bernardo Lopez, Asim Sehic	An additional 5 days added. Need to be done prior to JUNO TCM. DLM Maintenance - NIB Requesting 2 additional groutings each in 2014 – 2016 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 If HBA Upgrade is not approved for 2017, 2 additional grouting will be scheduled in 2017, 9 months apart
Antenna Efficiency Measurement	DSS-55	Jun 22, 2013	Jun 26, 2013	30	Pete Hames	Request 5 days (10 hours each) of daylight to test and make sure that the antenna is meeting performance levels, for all aspects of antenna efficiency, as specified in 810-005.



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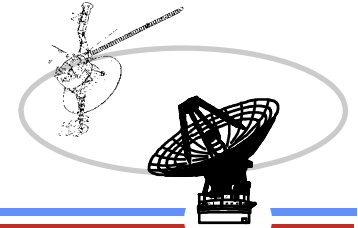


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Heat Exchanger Update Install	DSS-26	Jul 29, 2013	Aug 2, 2013	31	Harout Matossian	Request 5 days each antenna, projects can track in downlink only mode
	DSS-25	Aug 12, 2013	Aug 16, 2013	33		
HEF Maser Replacement	DSS-15	Aug 19, 2013	Nov 9, 2013	34 – 45	Anna Fan, Chris Link	Replacing Maser LNA with HEMT LNA 250W S-Band & Depot Level Maintenance NIB Shifted from weeks 32-43 to weeks 34-45 Added Gain Select Installation NIB (BEB) Proposed date. No Depot Level Maintenance at this time Proposed date. No Depot Level Maintenance at this time
	DSS-65	Aug 2015	Nov 2015	34 – 43		
	DSS-45	Oct 2015	Jan 2016	44 – 04		
Complex downtime for NMC Automated Link Build and (ALB) SOAK	GDSCC	Jan 2014	Jan 2014	03 & 08	Jim Buckley, Shirley Cizmar, Dave Taylor	Request 6 – 8 hours per block at each complex Additional downtime Requested early 2014 Request received to move to Jan instead of Mar Request was received to move from week 05 to mid Feb Request to move NMC ALB SOAK to Mar instead of Jan
	MDSCC	Feb 2014	Feb 2014	07		
	CDSCC	Mar 2014	Mar 2014	10		
Complex downtime for SPC-60 Power Cutover	MDSCC	Dec 2013	May 2014	50 2013 03, 07, 11, 15, 19 2014	Anna Fan, Rob Mehrkish, Javier Lopez-Perea	Request 12 hours blocks of prime shift hours, but hours are negotiable. Maintenance blocks for DSS-54, 55, and 65 are NIB for 8-hours to proposed downtimes in week 50 of 2013, and weeks 03, 07, 11, 15, and 19 of 2014.



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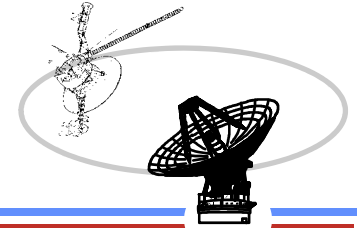
Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
DCD 4.1 software	GDSCC and DSOC	Jan 8, 2014	Jan 9, 2014	02	Anna Fan, Sheila Garrett	These are proposed dates at this time
	CDSCC	Jan 2014	Feb 2014	03, 08		
	MDSCC	Mar 6, 2014	Mar 6, 2014	10		
Depot Level Maintenance	DSS-45	Jan 2014	Feb 2014	03 – 05	John Phillips for CDSCC	Recurring task to optimize antennas Requested Feb 2013
	DSS-43	Feb 2014	Feb 2014	06 – 08		
	DSS-65	April 2014	May 2014	17 – 20	David Munoz Mochon for MDSCC	
	DSS-34	Jan 2015	Feb 2015	05 – 08		
Antenna Inspections	MDSCC	Mar 2014	Mar 2014	12 & 13	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	David Allen	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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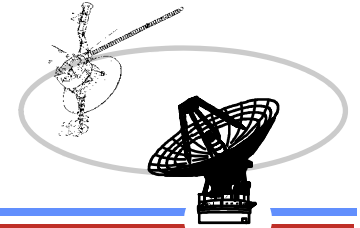


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
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		
Antenna Inspections	CDSCC	Jan 2016	Jan 2016	1 & 2	Anna Fan, Dave Taylor, Neil Bucknam, Daniel Olson	2016 – During DSS-45 Maser Replacement
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		



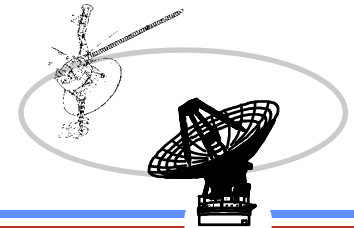
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Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
SWUPS Installation	CDSCC	Nov 2, 2016	Nov 3, 2016	44	Pete Hames	These blocks are proposed at this time 12 hour blocks for each downtime Must be done in daylight. There is a connection to the power 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
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 Hodgins	This is proposed at this time
Ka2 Tune-up	DSS-24	May 1, 2018	May 13, 2018	18 & 19	Wendy Hodgins	Both Ka2 Tune-ups must be scheduled prior to JWST launch in October 2018, budget/resource driven
Ka2 Tune-up	DSS-34	May 28, 2018	Jun 4, 2018	22 & 23		

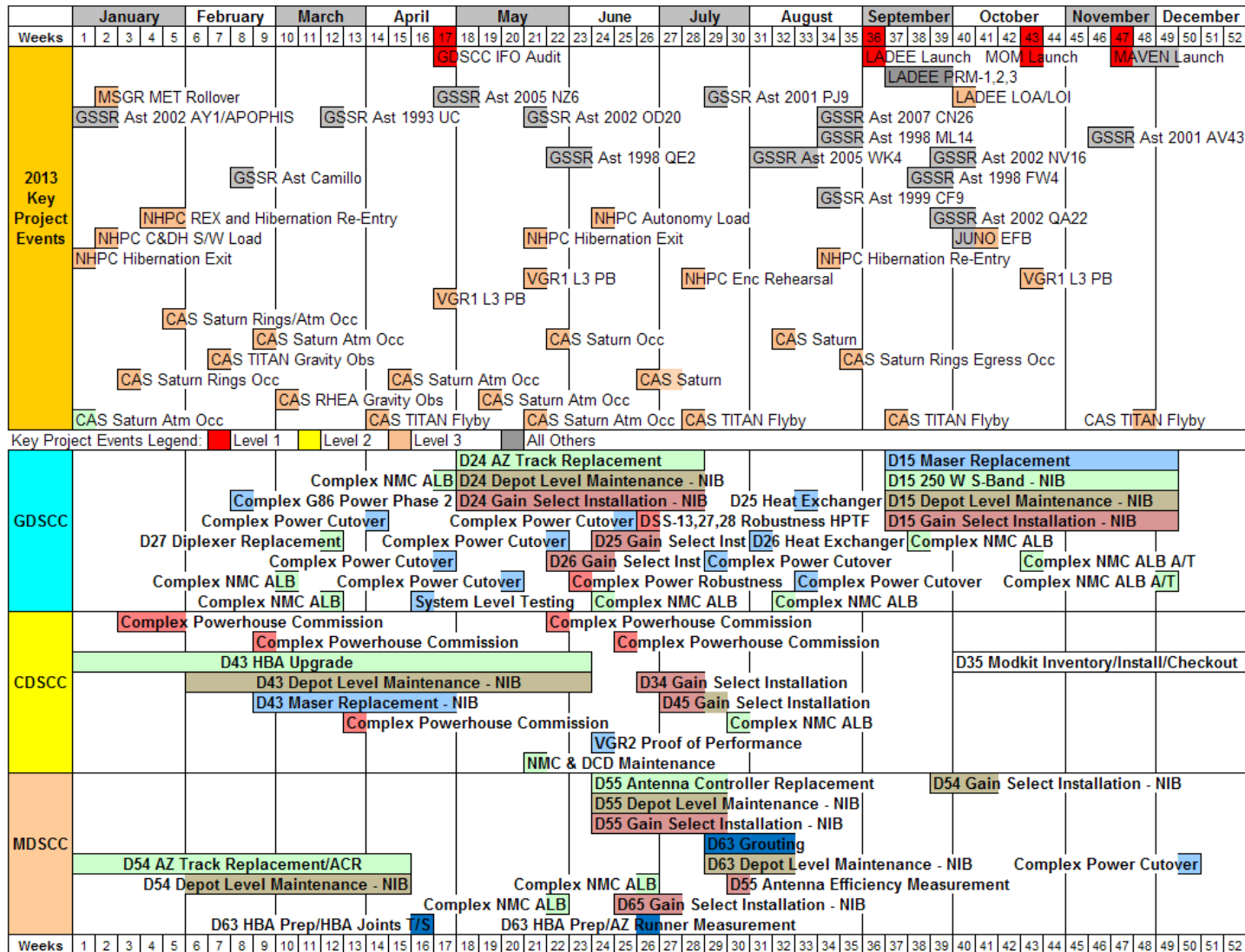


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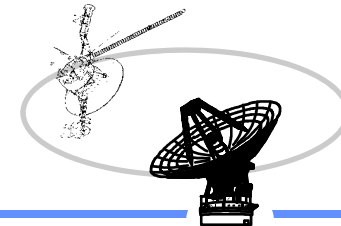
- 2013 -



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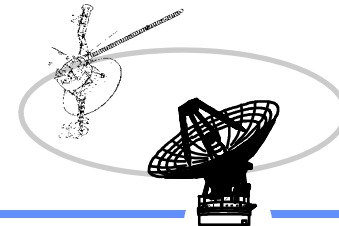
- 2016 -

	January				February				March				April				May				June				July				August				September				October				November				December							
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
2016 Key Project Events	<div style="display: flex; justify-content: space-between;"> <div style="width: 20%;"> <p style="color: red; font-weight: bold;">InSight Launch</p> <p style="color: red; font-weight: bold;">JUNO JOI</p> <p style="color: red; font-weight: bold;">ORX Launch</p> <p style="color: red; font-weight: bold;">InSight MOI</p> </div> <div style="width: 80%;"> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> <p style="font-size: 10pt;">CAS TITAN Flyby</p> </div> </div>																																																			
<p style="font-size: 8pt;">Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others</p>																																																				
GDSCC	<p style="color: red; font-weight: bold;">D15 Transmitter Replacement - Proposed</p>																																																			
CDSCC	<p style="color: red; font-weight: bold;">D45 Maser Replacement - Proposed</p> <p style="color: red; font-weight: bold;">D34, 35, 43, 45 Antenna Inspection - Proposed</p> <p style="color: red; font-weight: bold;">D36 Modkit Inventory/Installation/Checkout</p> <p style="color: red; font-weight: bold;">D36 Subsystem Acceptance Testing</p> <p style="color: red; font-weight: bold;">D36 Systems Integration Testing</p> <p style="color: red; font-weight: bold;">D36 System Performance Testing</p> <p style="color: red; font-weight: bold;">D36 Operational</p>																																																			
MDSCC	<p style="color: red; font-weight: bold;">D63 Grouting - Proposed</p> <p style="color: red; font-weight: bold;">D63 Grouting - Proposed</p>																																																			

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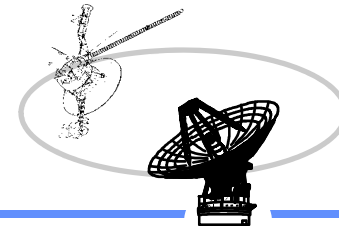
- 2017 -

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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																																																					
Key Project Events Legend: Level 1 Level 2 Level 3 All Others																																																					
GDSCC	D15 Transmitter Replacement - Proposed																																																				
CDSCC	D45 Transmitter Replacement - Proposed																																																				
MDSCC	D63 HBA Upgrades & Life Extension - Proposed																																																				
	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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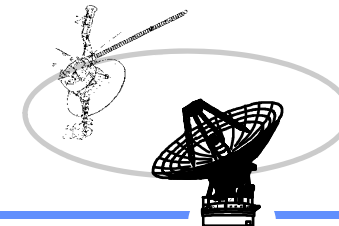
- 2018 -

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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														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														D14, 15, 25, 26, 24, 15, 27 Antenna Inspection - Proposed																								
CDSCC															D34 Ka2 Tune-up																																						
MDSCC															D54 Pedestal Rehab - Proposed														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 -

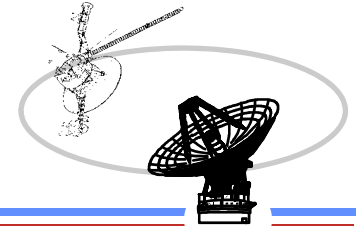
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Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52								
2019 Key Project Events						SPP Beacon					SPP Solar Enc					ORX Tag 1 Reh					Tag 1	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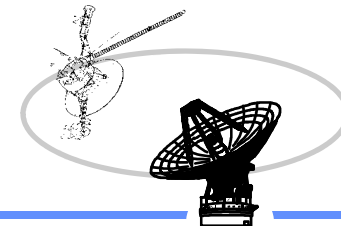


DSN Downtime 2013

2013							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
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
DSS 24	Gain Select Installation - NIB	04/29/2013 15.:00	07/13/2013 00:00	74	18 - 28	119	194
DSS 55	Antenna Controller Replacement	06/10/2013 05.:00	07/19/2013 19:10	40	24 - 29	161	200
DSS 55	Depot Level Maintenance - NIB	06/10/2013 05.:00	07/19/2013 19:10	40	24 - 29	161	200
DSS 55	Gain Select Installation - NIB	06/10/2013 05.:00	07/19/2013 19:10	40	24 - 29	161	200
DSS 34	Gain Select Installation	07/09/2013 22.:00	07/10/2013 06:00	0	28 - 28	190	191
DSS 45	Gain Select Installation	07/10/2013 21.:05	07/11/2013 09:55	1	28 - 28	191	192
DSS 63	Grouting	07/15/2013 03.:55	08/09/2013 17:00	26	29 - 32	196	221
DSS 63	Depot Level Maintenance - NIB	07/15/2013 03.:55	08/09/2013 17:00	25	29 - 32	196	221
SPC 10	G86 Complex Power Cutover	07/16/2013 07.:45	07/16/2013 23:45	1	29 - 29	197	197
DSS 45	Gain Select Installation	07/17/2013 21.:45	07/18/2013 06:40	0	29 - 29	198	199
DSS 55	Antenna Efficiency Measurement	07/22/2013 06.:00	07/22/2013 16:00	0	30 - 30	203	203
DSS 55	Antenna Efficiency Measurement	07/23/2013 06.:00	07/23/2013 16:00	0	30 - 30	204	204
DSS 55	Antenna Efficiency Measurement	07/24/2013 06.:00	07/24/2013 16:00	0	30 - 30	205	205
DSS 55	Antenna Efficiency Measurement	07/25/2013 06.:00	07/25/2013 16:00	0	30 - 30	206	206
DSS 55	Antenna Efficiency Measurement	07/26/2013 06.:00	07/26/2013 16:00	0	30 - 30	207	207
SPC 40	NMC Automated Link Build	07/28/2013 14.:45	07/28/2013 19:45	0	30 - 30	209	209
DSS 26	Heat Exchanger	07/29/2013 14.:00	08/03/2013 00:00	4	31 - 31	210	215
SPC 10	NMC Automated Link Build	08/05/2013 02.:05	08/05/2013 09:45	0	32 - 32	217	217
DSS 25	Heat Exchanger	08/12/2013 14.:00	08/17/2013 01:30	4	33 - 33	224	229
SPC 10	G86 Complex Power Cutover	08/15/2013 10.:50	08/16/2013 02:50	1	33 - 33	227	228
DSS 15	250W S-Band - NIB	09/09/2013 15.:00	12/07/2013 00:00	88	37 - 49	252	341
DSS 15	Depot Level Maintenance - NIB	09/09/2013 15.:00	12/07/2013 00:00	88	37 - 49	252	341



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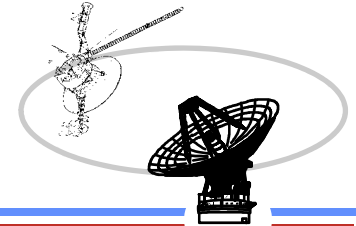
DSN Downtime 2013

2013							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 15	Gain Select Installation - NIB	09/09/2013 15.:00	12/07/2013 00:00	88	37 - 49	252	341
DSS 15	Maser Replacement	09/09/2013 15.:00	12/07/2013 00:00	88	37 - 49	252	341
SPC 10	NMC Automated Link Build	09/17/2013 02.:05	09/17/2013 09:50	0	38 - 38	260	260
DSS 54	Gain Select Installation - NIB	09/27/2013 06.:00	09/27/2013 14:05	0	39 - 39	270	270
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
SPC 60	Complex Power Cutover	12/09/2013 05.:00	12/09/2013 17:00	0	50 - 50	343	343



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DSN Downtime 2014

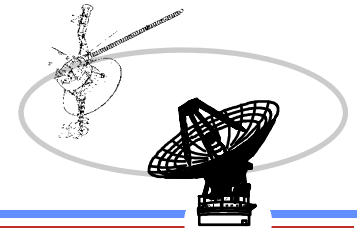
2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
GCF 20	DCD 4.1 - Proposed	01/08/2014 21.:00	01/09/2014 05:00	0	02 - 02	8	9
SPC 10	DCD 4.1 - Proposed	01/08/2014 23.:10	01/09/2014 05:10	0	02 - 02	8	9
DSS 45	Depot Level Maintenance - Proposed	01/13/2014 21.:00	01/31/2014 05:00	17	03 - 05	13	31
SPC 60	Complex Power Cutover - Proposed	01/14/2014 05.:00	01/14/2014 17:00	0	03 - 03	14	14
GCF 20	DCD 4.1 - Proposed	01/15/2014 23.:10	01/16/2014 05:10	0	03 - 03	15	16
SPC 10	NMC ALB SOAK - Proposed	01/15/2014 23.:10	01/16/2014 05:10	0	03 - 03	15	16
DSS 43	Depot Level Maintenance - Proposed	02/02/2014 21.:00	02/21/2014 06:00	18	05 - 08	33	52
SPC 60	Complex Power Cutover - Proposed	02/14/2014 05.:00	02/14/2014 17:00	0	07 - 07	45	45
SPC 60	NMC Automated Link Build - SOAK Proposed	02/16/2014 06.:00	02/16/2014 14:00	0	07 - 07	47	47
SPC 10	NMC Automated Link Build - Proposed	02/18/2014 00.:00	02/18/2014 08:00	0	08 - 08	49	49
SPC 40	DCD 4.1 - Proposed	02/20/2014 23.:00	02/21/2014 05:00	0	08 - 08	51	52
DSS 63	Grouting - Proposed	03/03/2014 06.:00	03/28/2014 17:00	25	10 - 13	62	87
SPC 40	NMC Automated Link Build - SOAK Proposed	03/05/2014 21.:00	03/06/2014 05:00	0	10 - 10	64	65
SPC 60	DCD 4.1 - Proposed	03/06/2014 07.:00	03/06/2014 13:00	0	10 - 10	65	65
SPC 60	Complex Power Cutover - Proposed	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	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



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DSN Downtime 2014

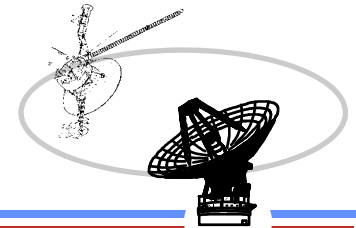
2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 65	Antenna Inspection - Proposed	03/25/2014 07.:00	03/25/2014 15:00	0	13 - 13	84	84
DSS 54	Antenna Inspection - Proposed	03/26/2014 07.:00	03/26/2014 15:00	0	13 - 13	85	85
SPC 60	Complex Power Cutover - Proposed	04/08/2014 05.:00	04/08/2014 17:00	0	15 - 15	98	98
DSS 65	Depot Level Maintenance	04/21/2014 07.:00	05/16/2014 16:00	25	17 - 20	111	136
SPC 60	Complex Power Cutover - Proposed	05/09/2014 05.:00	05/09/2014 17:00	0	19 - 19	129	129
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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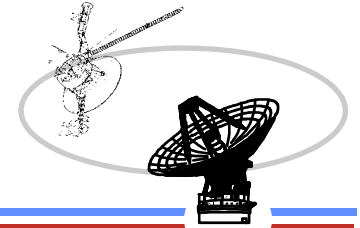
DSN Downtime 2015

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	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
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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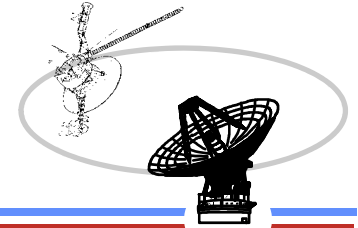
DSN Downtime 2016

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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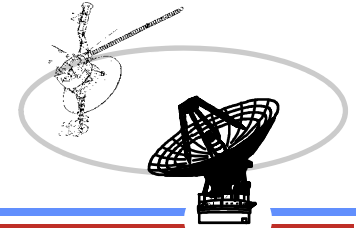
DSN Downtime 2017

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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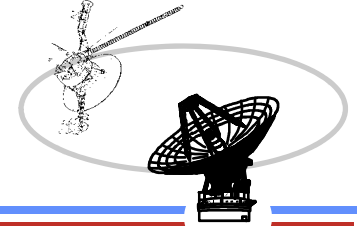
DSN Downtime 2018

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	6	23 - 24	149	156
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

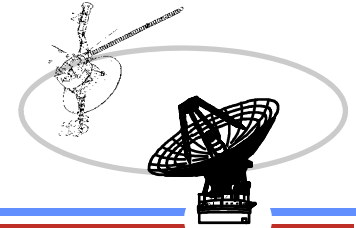
- DSS-26 80kW Installation 2014 – 2015
 - 80kW arrive at DLF October, 2014, week 40
 - 80kW arrive on-site November, 2014, week 47
 - 80kW install January – June, 2015, weeks 02 – 25
 - 80 kW test June – September, 2015, weeks 24 – 36
 - DDR September, 2015, week 38

- 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	✓	10/26/13	✓	✓	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: 4/4/2013

✓ ✓ ✓ = Capability Recently Exists

✓ = Capability Exists

* = To Be Commissioned