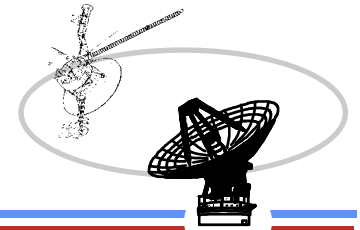


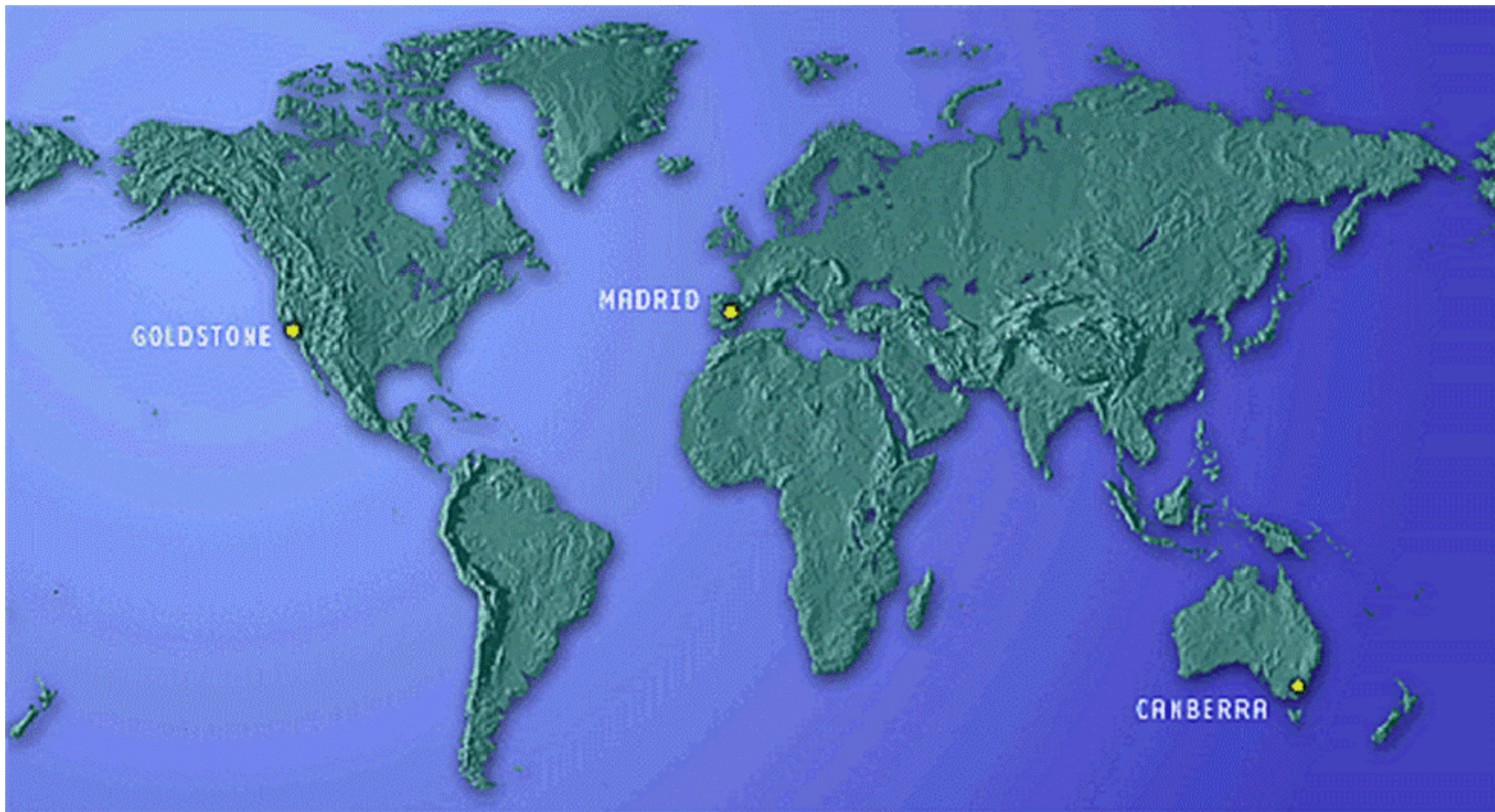


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Deep Space Network (DSN)
Resource Allocation Planning Service



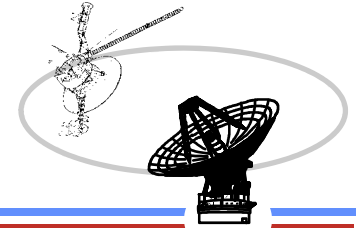
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DSN Antenna Downtime Status and Forecast





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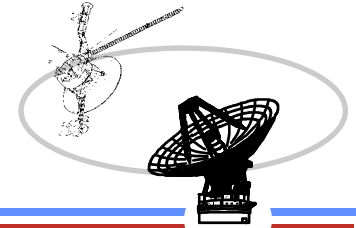


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
RF Noise Shield	DSS-26	Jan 9, 2014	Jan 10, 2014	02	Wendy Hodgkin	Request 2 blocks of time in Jan to shield the quad legs – This is partially completed.
		Mar 31, 2014	Mar 31, 2014	14		Additional time added in week 14 to complete the task.
Complex downtime for NMC Automated Link Build (ALB) and SOAK	GDSOC	Jan 2014	Jan 2014	05	Jim Buckley, Shirley Cizmar, Dave Taylor	Request 6 – 8 hours per block at each complex A management decision was made to move DSOC and GDSOC from week 08 to week 05. DSOC is scheduled to be completed prior to NMC ALB and is not network wide downtime – JPL only Week 05 and 07 were completed. Week 10 scheduled for March 5.
	MDSOC	Feb 2014	Feb 2014	07		
	CDSCC	Mar 2014	Mar 2014	10		
HBA Prep Metrology – AZ Runner Measurement	DSS-63	Feb 4 2014	Feb 7 2014	06	Tim Sink	Requested 4 nights 12 hours each Jan/Feb 2014 timeframe – The first night of downtime was reduced to 6 hours 20 minutes to accommodate Cassini's T98 P/B pass. Completed
Complex downtime for Power House Commission	CDSCC	March 2014	Oct 2014	12, 14, 18, 30, 51	John Phillips, Rob Mehrkish Dave Taylor	Prime shift hours are preferred. Week 12 downtime requires 12 hours. Weeks 14, 18, 30, and 51 require two 6 hour blocks. Week 51, first downtime moved to accommodate Cassini Week 33 downtime requires 12 hours, week 35 downtime requires 6 hours
		March 2015	March 2015	33, 35		



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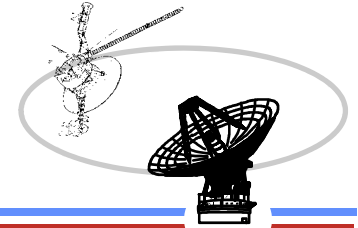


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
DSOC & DCD 4.1 software installation	GDSCC DSOC	Feb 2014	Feb 2014	09	Anna Fan, Sheila Garrett	DSOC and DCD moved to week 09 to run with the Network wide GNM task – Week 09 has been completed.
	CDSCC	Apr 2014	Apr 2014	14		
	MDSCC	Apr 2014	Apr 2014	17		
Grouting	DSS-63	2014	2014	09 – 15	Dave Taylor, David Munoz Mochon, Bernardo Lopez, Asim Sehic	An additional week was added to first grouting in 2014 in preparation for the DSN 50 th anniversary. 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 Per mission requirements in 2017 have reduced time to 10 weeks and will place APCA downtime as stand alone in 2018.
		2014	2014	44 – 48		
		2015	2015	19 & 20		
		2015	2015	32 & 33		
		2016	2016	05 – 09		
		2016	2016	30 – 34		
		2017	2017	08 – 17		
Complex downtime for SPC-60 Power Cutover	MDSCC	Apr 2014	Aug 2014	15, 19, 23, 27, 31, 34	Anna Fan, Rob Mehrkish, Javier Lopez- Perea	Request 12 hours blocks of prime shift hours, but hours are negotiable. Weeks 7 & 11 were moved to weeks 31 & 34. Week 34 is the last downtime for this task. They may have to compress time between specific dates and hours for each downtime. Anna will clarify list of tasks during downtime



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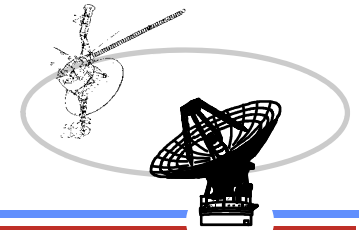


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
HBA Tune-up	DSS-43	April 2014	May 2014	16	John Phillips	2400 Vac Alternate Bus Installation has been removed from NIB status. Downtime shortened from 17 days to 3 days in week 16, DOYs 104-107
Antenna Inspections	MDSCC	April 2014	April 2014	14 & 15	Dave Taylor, Andrew Brooks	MDSCC Inspection times moved from weeks 12 & 13 to weeks 14 & 15
		June 2017	June 2017	16 & 17		2017 Antenna inspections moved to the last two weeks of DSS-63 Grouting downtime
Electrical Maintenance	DSS-24,25,26,	April 2014	May 2014	16 & 19	David Lloyd,	Requesting downtime for preventative maintenance blocks to update electrical items
Complex wide Electrical Maint.	SPC-10	May 2014	Aug 2014	22 & 33	Erik Holmgren	Week 22 12-hour downtime ends one hour before Cassini's activity
Apollo Power Upgrade	DSS-24,25,26	June 2014	June 2014	23	Jerome Bragg	Request two 16-hour downtimes 24-48 hours apart for circuit breaker upgrades
Depot Level Maintenance	DSS-45	May 2014	May 2014	19 – 21	John Phillips for David Munoz	DSS-45 DLM was moved to accommodate mission supports DSS-65 DLM was moved to accommodate mission supports
	DSS-65	May 2014	June 2014	22 – 24		
	DSS-34	Jan 2015	Feb 2015	05 – 08	Mochon	
Quad Leg Work	DSS-14	May 2014	Dec 2014	19, 29, 50	David Lloyd, Erik Holmgren	Quad Leg Work downtime requires a total of 12 prime shift days with tracking available off shift. In weeks 19 and 29 there will be five downtimes M – F and week 50 two downtimes Tues and Thurs.



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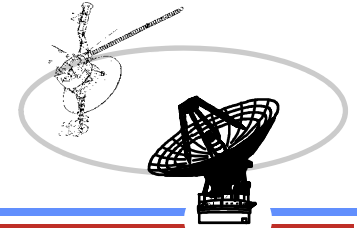


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Elevation Cable Wrap	DSS-15	June 2014	July 2014	25 – 27	Marwah Buck	Moved from weeks 29-31. Swap with 80kW Prep.
Replace Sub Reflector Cable	DSS-14	Jul 2014	Jul 2014	28	Erik Holmgren	Request 5 days to perform Sub Reflector Cable replacement Tracking available during night hours after the first 2 nights. Moved from week 07 to week 09 due to GSSR activities.
80kW Prep	DSS-26	July 2014 Jan 2015	July 2014 June 2015	28 – 31 01 - 26	Erik Holmgren Pam Rothman, Asim Sehic	Moved from weeks 23-26. Swap with Elevation Cable Wrap. After the November downtime meeting, this downtime was moved from weeks 34 - 04, 2015/2016 to weeks 01 - 26 of 2015. AZ Track will be NIB to the 80Kw facility prep task
TXR RF Characterization	MDSCC	Oct 2014	Oct 2014	42 & 43	Harout Matossian	Requires 12-hour downtimes for each antenna in weeks 42 and 43. Task will occur on antenna maintenance days.
Ka U/L 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 2014 HBA Shimming shortened. Requesting an additional week for this downtime.



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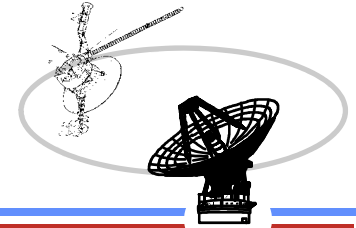


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Antenna Inspections	GDSCC	Mar 2015	Apr 2015	13 & 14	Anna Fan, Neil Bucknam, Daniel Olson	2015 Antenna Inspections moved to March - April timeframe
		Apr 2018	Apr 2018	15 & 16		
AZ Track Replacement	DSS-55	Aug 2015	Oct 2015	34 – 44	Pam Rothman, Asim Sehic	This was moved from weeks 11-21
Antenna Inspections	CDSCC	Jan 2016	Jan 2016	1 & 2	Anna Fan, Dave Taylor, Neil Bucknam, Daniel Olson	2016 – During DSS-45 Maser Replacement
APCA	DSS-14	March 2016	May 2016	10 – 21	Anna Fan, Barzia Tehrani	These downtimes were requested at July downtime meeting DSS-14 needs to be scheduled first, DSS-63 and DSS-43 to follow , no preferred order
	DSS-43	Nov 2017	Feb 2017	44 – 52		
	DSS-63	Feb 2018	April 2018	18 – 29		



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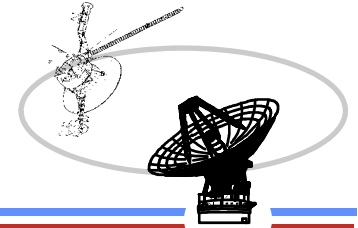


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
SWUPS Installation	CDSCC	Apr 5 2016 Apr 20 2016 May 4 2016	Apr 5 2016 Apr 20 2016 May 4 2016	14, 16, 18	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. Will know more in Jan 2014 about moving to beginning of 2016. This will be scheduled in the April 2016 timeframe. Two blocks in a 3 week period. Need to avoid InSight activities.
Pedestal Rehab	DSS-54	Feb 2018	Oct 2018	06 - 43	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. Note: DSS-56 will be implemented prior to DSS-54. DSS-54 pedestal will move to DSS-53, the task will require more than 9 months to complete
XX/Ka Installation	DSS-25	Jan 2018	April 2018	01 - 14	Wendy Hodgins	XX/Ka requires 14 weeks - AZ Track will be NIB in weeks 05-14
	DSS-24	Apr 30, 2018	Jul 9, 2018	18 - 27		Ka2 Tune-up is NIB weeks 18 & 19 and scheduled prior to JWST launch in 2018



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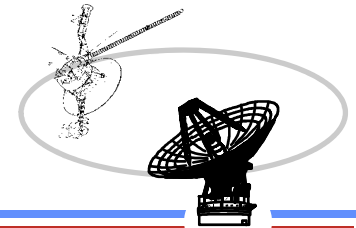
Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Ka2 Tune-up	DSS-34	May 28, 2018	Jun 4, 2018	22 & 23	Wendy Hodgkin	All Ka2 Tune-ups (DSS-24, 34 and 54) must be scheduled prior to JWST launch in October 2018, If JWST launch slips, tune-ups may be slipped also. This is budget/resource driven

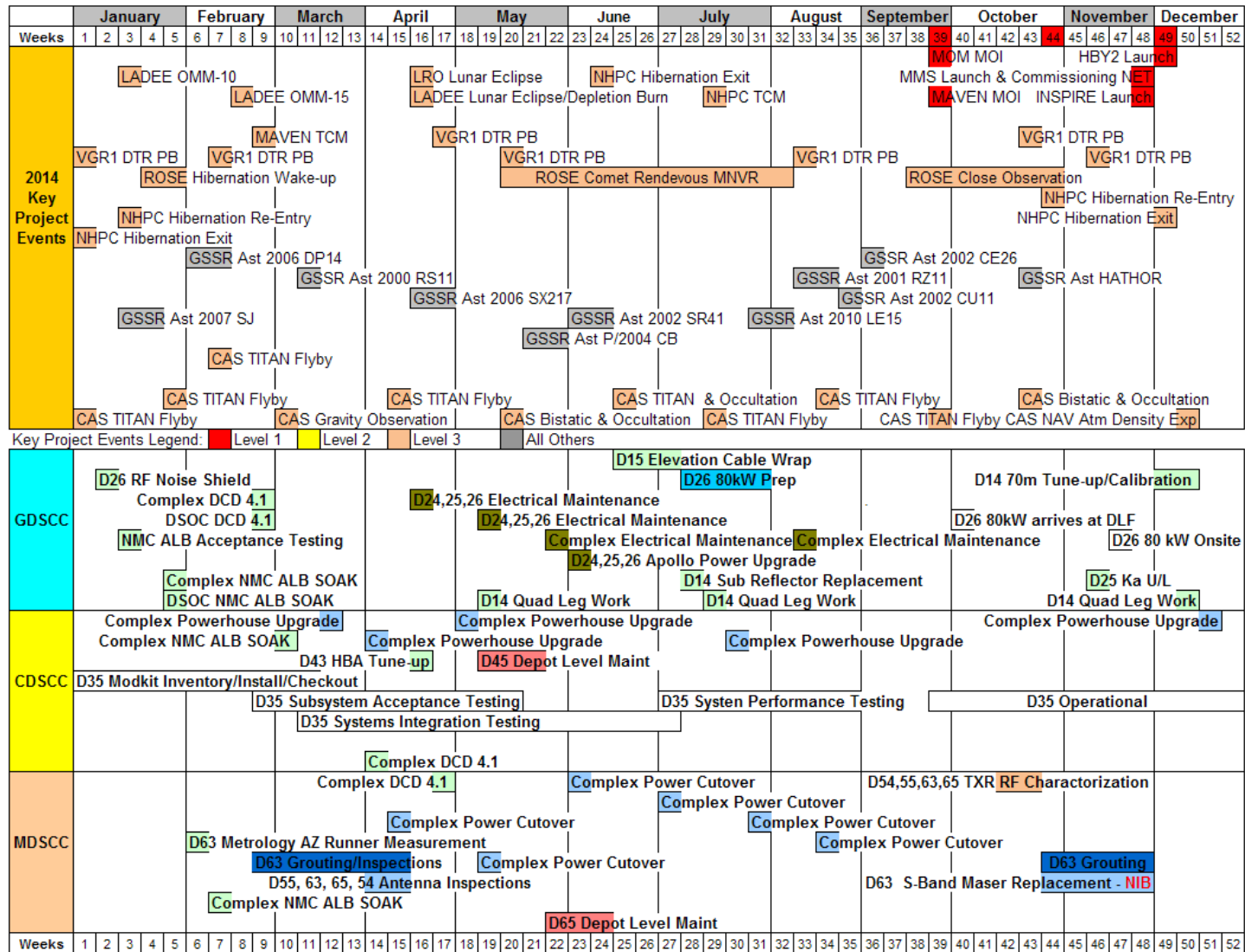


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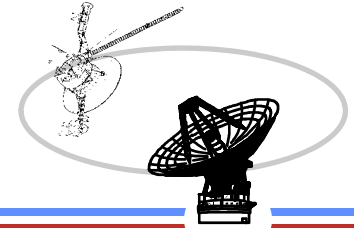
- 2014 -



Revised: March 3, 2014

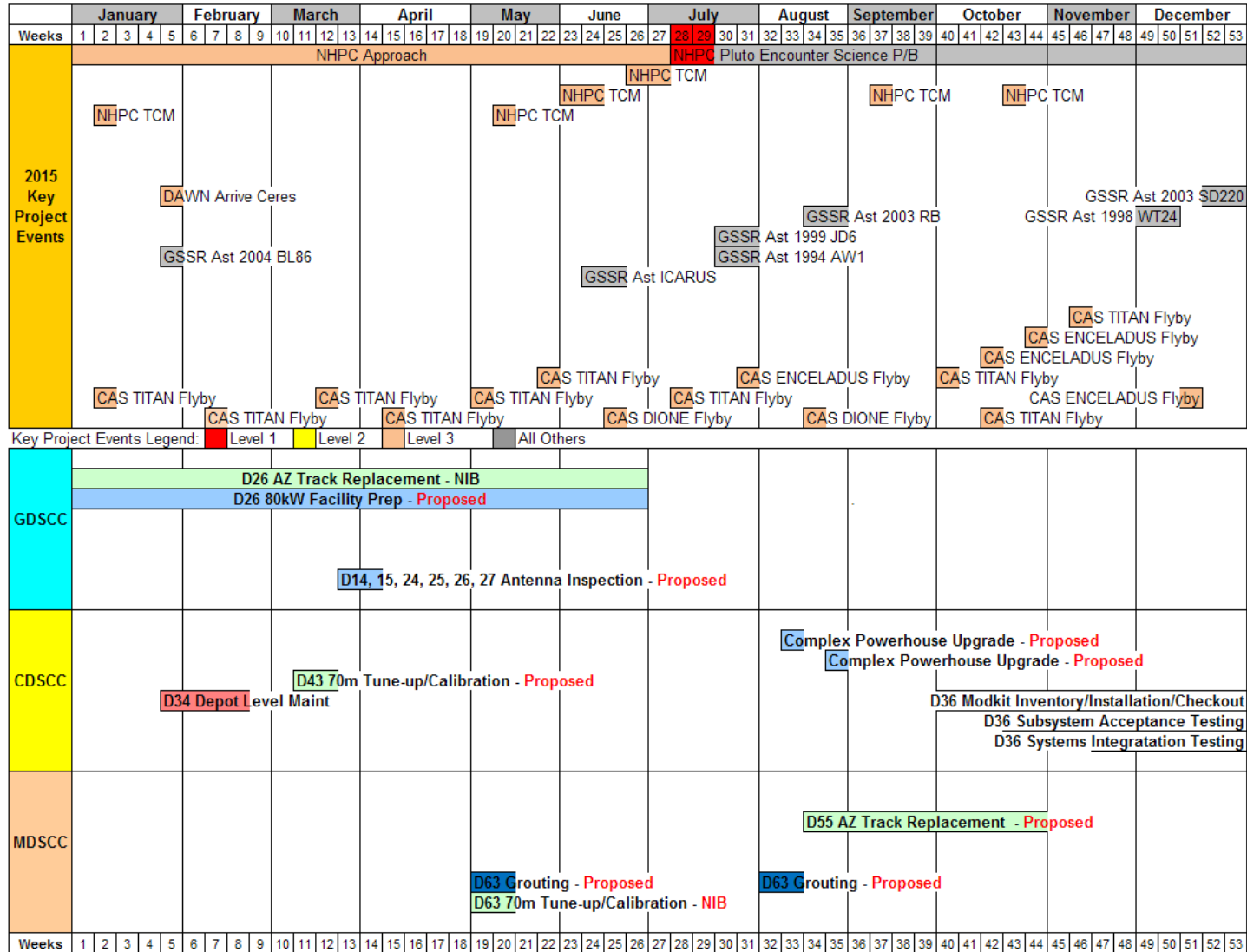


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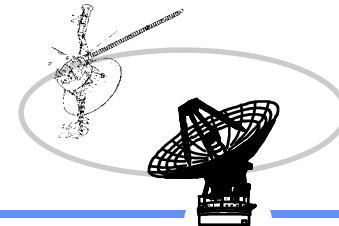
- 2015 -



Revised: November 22, 2013



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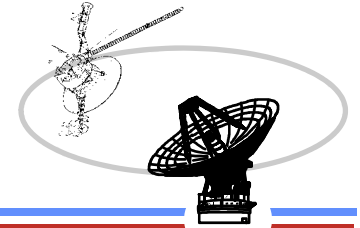
- 2016 -

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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				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											D14 APCA - Proposed																																										
CDSCC	D34,35,43,45 Antenna Inspection - Proposed										SWUPS Installation - Proposed										SWUPS Installation - Proposed										SWUPS Installation - Proposed										D36 Operational												
											D36 Modkit Inventory/Installation/Checkout										D36 Subsystem Acceptance Testing										D36 System Performance Testing																						
											D36 Systems Integration Testing																																										
MDSCC											D63 Grouting - Proposed																				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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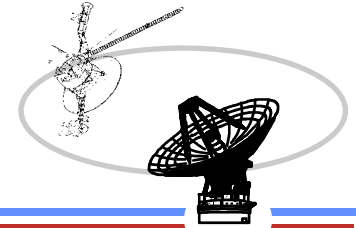
- 2017 -

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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 Ring Occ																																																			
	CAS Ring Occ																																																			
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JUNO EOM																																																				
GDSCC																																																				
CDSCC																																																				
MDSCC																																																				
D63 Grouting - Proposed																																																				
D54,55,63, 65 Antenna Inspection - Proposed																																																				
D43 APCA																																																				
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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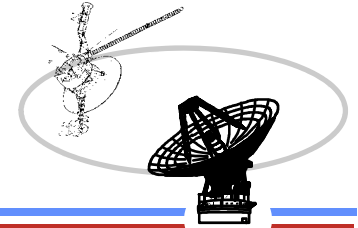
- 2018 -

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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														SP Launch and LEOP														JWST Launch and Commissioning													
Key Project Events Legend: ■ Level 1 ■ Level 2 ■ Level 3 ■ All Others																																																								
GDSCC	D25 XX/Ka Installation														D25 AZ Track Replacement - NIB														D24 XX/Ka Installation														D24 Ka2 Tune-up NIB													
															D14, 15, 25, 26, 24, 15, 27 Antenna Inspection																																									
CDSCC																													D34 Ka2 Tune-up																											
MDSCC																													D63 APCA																											
																													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 -

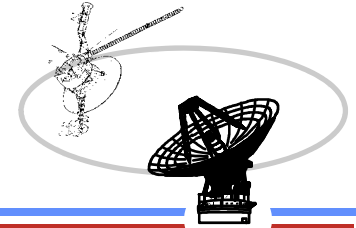
	January					February					March					April					May					June					July					August					September					October					November					December				
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52								
2019 Key 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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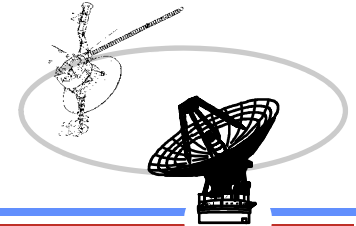
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	Grouting	02/24/2014 06:00	04/11/2014 17:00	46	09 - 15	55	101
SPC 40	NMC Automated Link Build - SOAK	03/05/2014 06:40	03/05/2014 12:40	0	10 - 10	64	64
SPC 40	Complex Powerhouse Upgrade	03/21/2014 21:25	03/22/2014 09:25	0	12 - 12	80	81
DSS 55	Antenna Inspection	03/31/2014 06:00	03/31/2014 14:00	0	14 - 14	90	90
DSS 26	RF Noise Shield	03/31/2014 17:35	03/31/2014 23:35	0	14 - 14	90	90
DSS 65	Antenna Inspection	04/01/2014 06:00	04/01/2014 14:00	0	14 - 14	91	91
DSS 63	Antenna Inspection	04/02/2014 06:00	04/02/2014 14:00	0	14 - 14	92	92
SPC 40	DCD 4.1	04/02/2014 23:00	04/03/2014 05:00	0	14 - 14	92	93
DSS 54	Antenna Inspection	04/04/2014 06:00	04/04/2014 14:00	0	14 - 14	94	94
SPC 40	Complex Powerhouse Upgrade	04/04/2014 21:00	04/05/2014 03:00	0	14 - 14	94	95
DSS 55	Antenna Inspection	04/07/2014 06:00	04/07/2014 18:00	0	15 - 15	97	97
SPC 60	Complex Power Cutover	04/08/2014 03:15	04/08/2014 15:15	0	15 - 15	98	98
DSS 65	Antenna Inspection	04/08/2014 06:00	04/08/2014 18:00	0	15 - 15	98	98
DSS 63	Antenna Inspection	04/09/2014 06:00	04/09/2014 18:00	0	15 - 15	99	99
DSS 54	Antenna Inspection	04/11/2014 06:00	04/11/2014 18:00	0	15 - 15	101	101
DSS 43	HBA Tune-up	04/14/2014 21:00	04/17/2014 06:00	2	16 - 16	104	107
DSS 24	Electrical Maintenance	04/16/2014 15:40	04/17/2014 03:40	0	16 - 16	106	107
DSS 25	Electrical Maintenance	04/16/2014 15:40	04/17/2014 03:40	0	16 - 16	106	107
DSS 26	Electrical Maintenance	04/16/2014 15:40	04/17/2014 03:40	0	16 - 16	106	107
SPC 60	DCD 4.1	04/22/2014 07:00	04/22/2014 13:00	0	17 - 17	112	112
SPC 40	Complex Powerhouse Upgrade	05/01/2014 23:00	05/02/2014 05:00	0	18 - 18	121	122
DSS 14	Quad Leg Work	05/05/2014 14:40	05/05/2014 23:40	0	19 - 19	125	125
DSS 45	Depot Level Maintenance	05/05/2014 22:00	05/23/2014 06:00	17	19 - 21	125	143



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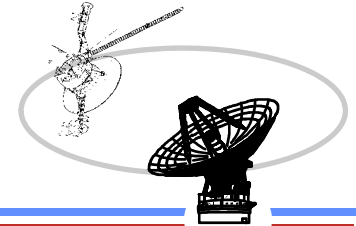
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 24	Electrical Maintenance	05/06/2014 13:30	05/07/2014 01:30	0	19 - 19	126	127
DSS 25	Electrical Maintenance	05/06/2014 13:30	05/07/2014 01:30	0	19 - 19	126	127
DSS 26	Electrical Maintenance	05/06/2014 13:30	05/07/2014 01:30	0	19 - 19	126	127
DSS 14	Quad Leg Work	05/06/2014 14:40	05/06/2014 23:40	0	19 - 19	126	126
DSS 14	Quad Leg Work	05/07/2014 13:00	05/07/2014 22:00	0	19 - 19	127	127
DSS 14	Quad Leg Work	05/08/2014 14:00	05/08/2014 23:00	0	19 - 19	128	128
SPC 60	Complex Power Cutover	05/09/2014 04:10	05/09/2014 16:10	0	19 - 19	129	129
DSS 14	Quad Leg Work	05/09/2014 14:00	05/09/2014 23:00	0	19 - 19	129	129
DSS 65	Depot Level Maintenance	05/26/2014 06:00	06/13/2014 17:00	18	22 - 24	146	164
SPC 10	Complex Electrical Maintenance	05/27/2014 13:00	05/28/2014 01:00	0	22 - 22	147	148
SPC 60	Complex Power Cutover	06/04/2014 05:00	06/04/2014 17:00	0	23 - 23	155	155
DSS 24	Apollo Power Upgrade	06/04/2014 13:00	06/05/2014 05:00	1	23 - 23	155	156
DSS 25	Apollo Power Upgrade	06/04/2014 13:00	06/05/2014 05:00	1	23 - 23	155	156
DSS 26	Apollo Power Upgrade	06/04/2014 13:00	06/05/2014 05:00	1	23 - 23	155	156
DSS 24	Apollo Power Upgrade	06/05/2014 13:00	06/06/2014 05:00	1	23 - 23	156	157
DSS 25	Apollo Power Upgrade	06/05/2014 13:00	06/06/2014 05:00	1	23 - 23	156	157
DSS 26	Apollo Power Upgrade	06/05/2014 13:00	06/06/2014 05:00	1	23 - 23	156	157
DSS 15	Elevation Cable Wrap	06/16/2014 15:00	07/05/2014 00:00	18	25 - 27	167	186
SPC 60	Complex Power Cutover	07/03/2014 05:00	07/03/2014 17:00	0	27 - 27	184	184
DSS 26	80KW Prep	07/07/2014 14:00	08/02/2014 00:00	25	28 - 31	188	214
DSS 14	Sub Reflector Replacement	07/07/2014 16:00	07/10/2014 00:00	2	28 - 28	188	191
DSS 14	Sub Reflector Replacement	07/10/2014 16:00	07/11/2014 00:00	0	28 - 28	191	192
DSS 14	Sub Reflector Replacement	07/11/2014 16:00	07/12/2014 00:00	0	28 - 28	192	193



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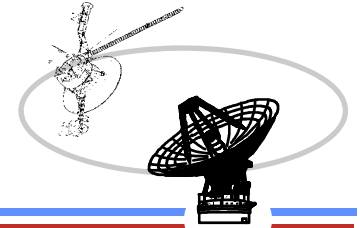
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 14	Quad Leg Work	07/14/2014 14:00	07/14/2014 23:00	0	29 - 29	195	195
DSS 14	Quad Leg Work	07/15/2014 14:00	07/15/2014 23:00	0	29 - 29	196	196
DSS 14	Quad Leg Work	07/16/2014 14:00	07/16/2014 23:00	0	29 - 29	197	197
DSS 14	Quad Leg Work	07/17/2014 14:00	07/17/2014 23:00	0	29 - 29	198	198
DSS 14	Quad Leg Work	07/18/2014 14:00	07/18/2014 23:00	0	29 - 29	199	199
SPC 40	Complex Powerhouse Upgrade	07/23/2014 21:00	07/24/2014 03:00	0	30 - 30	204	205
SPC 60	Complex Power Cutover	07/30/2014 05:00	07/30/2014 17:00	0	31 - 31	211	211
SPC 10	Complex Electrical Maintenance	08/12/2014 13:00	08/13/2014 01:00	0	33 - 33	224	225
SPC 60	Complex Power Cutover	08/20/2014 05:00	08/20/2014 17:00	0	34 - 34	232	232
DSS 55	TXR RF Characterization	10/13/2014 07:00	10/13/2014 19:00	0	42 - 42	286	286
DSS 65	TXR RF Characterization	10/14/2014 07:00	10/14/2014 19:00	0	42 - 42	287	287
DSS 63	TXR RF Characterization	10/16/2014 07:00	10/16/2014 19:00	0	42 - 42	289	289
DSS 54	TXR RF Characterization	10/17/2014 07:00	10/17/2014 19:00	0	42 - 42	290	290
DSS 55	TXR RF Characterization	10/20/2014 07:00	10/20/2014 19:00	0	43 - 43	293	293
DSS 65	TXR RF Characterization	10/21/2014 07:00	10/21/2014 19:00	0	43 - 43	294	294
DSS 63	TXR RF Characterization	10/23/2014 07:00	10/23/2014 19:00	0	43 - 43	296	296
DSS 54	TXR RF Characterization	10/24/2014 07:00	10/24/2014 19:00	0	43 - 43	297	297
DSS 63	Grouting	10/27/2014 08:00	11/28/2014 16:00	32	44 - 48	300	332
DSS 63	S-Band Maser Replacement - NIB	10/27/2014 08:00	11/28/2014 16:00	32	44 - 48	300	332
DSS 25	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
DSS 14	Quad Leg Work	12/09/2014 14:00	12/09/2014 23:00	0	50 - 50	343	343
DSS 14	Quad Leg Work	12/11/2014 14:00	12/11/2014 23:00	0	50 - 50	345	345



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DSN Downtime 2014

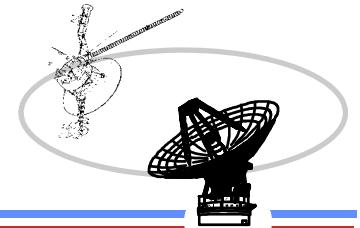
2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 40	Complex Powerhouse Upgrade	12/15/2014 21:00	12/16/2014 03:00	0	51 - 51	349	350
SPC 40	Complex Powerhouse Upgrade	12/17/2014 21:00	12/18/2014 03:00	0	51 - 51	351	352
DSS 26	80kW Prep - Proposed	12/29/2014 15:00	06/27/2015 00:00	179	01 - 26	363	178
DSS 26	AZ Track Replacement - NIB	12/29/2014 15:00	06/27/2015 00:00	179	01 - 26	363	178



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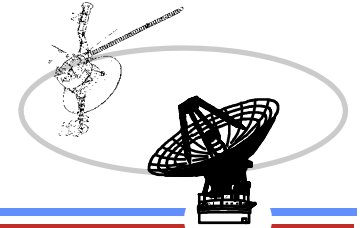
DSN Downtime 2015

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 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 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 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
SPC 40	Complex Powerhouse Upgrade - Proposed	08/12/2015 21:00	08/13/2015 09:00	0	33 - 33	224	225
DSS 55	AZ Track Replacement - Proposed	08/17/2015 06:00	10/31/2015 00:00	75	34 - 44	229	304
SPC 40	Complex Powerhouse Upgrade	08/26/2015 21:00	08/27/2015 03:00	0	35 - 35	238	239



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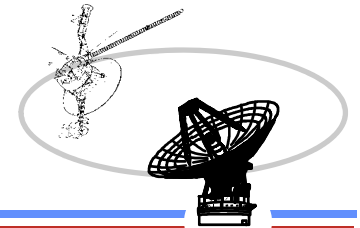
DSN Downtime 2016

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	02/01/2016 06:00	03/04/2016 17:00	32	05 - 09	32	64
DSS 14	APCA - Proposed	03/07/2016 15:00	05/27/2016 00:00	80	10 - 21	67	148
SPC 40	SWUPS Installation - Proposed	04/05/2016 21:00	04/06/2016 09:00	0	14 - 14	96	97
SPC 40	SWUPS Installation - Proposed	04/20/2016 21:00	04/21/2016 09:00	0	16 - 16	111	112
SPC 40	SWUPS Installation - Proposed	05/04/2016 21:00	05/05/2016 09:00	0	18 - 18	125	126
DSS 63	Grouting - Proposed	07/25/2016 06:00	08/26/2016 17:00	32	30 - 34	207	239



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DSN Downtime 2017

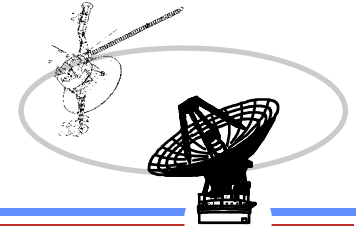
2017							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	Grouting	02/20/2017 06:00	04/28/2017 17:00	67	08 - 17	51	118
DSS 55	Antenna Inspection - Proposed	04/17/2017 07:00	04/17/2017 23:00	1	16 - 16	107	107
DSS 65	Antenna Inspection - Proposed	04/18/2017 07:00	04/18/2017 23:00	1	16 - 16	108	108
DSS 63	Antenna Inspection - Proposed	04/19/2017 07:00	04/19/2017 23:00	1	16 - 16	109	109
DSS 54	Antenna Inspection - Proposed	04/20/2017 07:00	04/20/2017 23:00	1	16 - 16	110	110
DSS 55	Antenna Inspection - Proposed	04/24/2017 07:00	04/24/2017 15:00	0	17 - 17	114	114
DSS 65	Antenna Inspection - Proposed	04/25/2017 07:00	04/25/2017 15:00	0	17 - 17	115	115
DSS 54	Antenna Inspection - Proposed	04/28/2017 07:00	04/28/2017 15:00	0	17 - 17	118	118
DSS 43	APCA - Proposed	10/30/2017 06:00	12/29/2017 17:00	60	44 - 52	303	363



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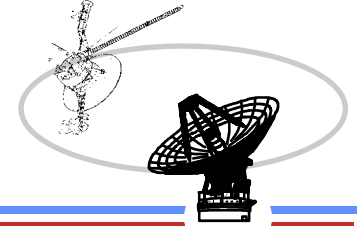
DSN Downtime 2018

2018							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 25	XX/Ka Installation	01/04/2018 15:00	04/07/2018 00:00	92	01 - 14	4	97
DSS 25	AZ Track Replacement - NIB	01/29/2018 15:00	04/07/2018 00:00	67	05 - 14	29	97
DSS 54	Pedestal Rehab	02/05/2018 06:00	10/26/2018 17:00	263	06 - 43	36	299
DSS 14	Antenna Inspection	04/08/2018 15:00	04/09/2018 06:00	1	14 - 15	98	99
DSS 26	Antenna Inspection	04/09/2018 15:00	04/10/2018 06:00	1	15 - 15	99	100
DSS 25	Antenna Inspection	04/10/2018 15:00	04/11/2018 06:00	1	15 - 15	100	101
DSS 15	Antenna Inspection	04/11/2018 15:00	04/12/2018 06:00	1	15 - 15	101	102
DSS 14	Antenna Inspection	04/15/2018 15:00	04/16/2018 00:00	0	15 - 16	105	106
DSS 26	Antenna Inspection	04/16/2018 15:00	04/17/2018 00:00	0	16 - 16	106	107
DSS 24	Antenna Inspection	04/17/2018 15:00	04/18/2018 06:00	1	16 - 16	107	108
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	04/30/2018 15:00	07/07/2018 00:00	67	18 - 27	120	188
DSS 63	APCA	04/30/2018 21:00	07/20/2018 06:00	80	18 - 29	120	201
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

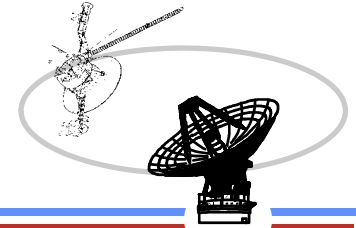
- ❑ DSS-26 80kW Installation 2014 – 2015
 - ❑ 80kW arrive at DLF October, 2014, week 40
 - ❑ DDR September, 2015, week 38

- ❑ 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