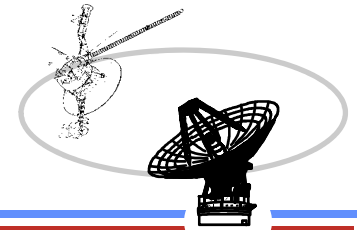


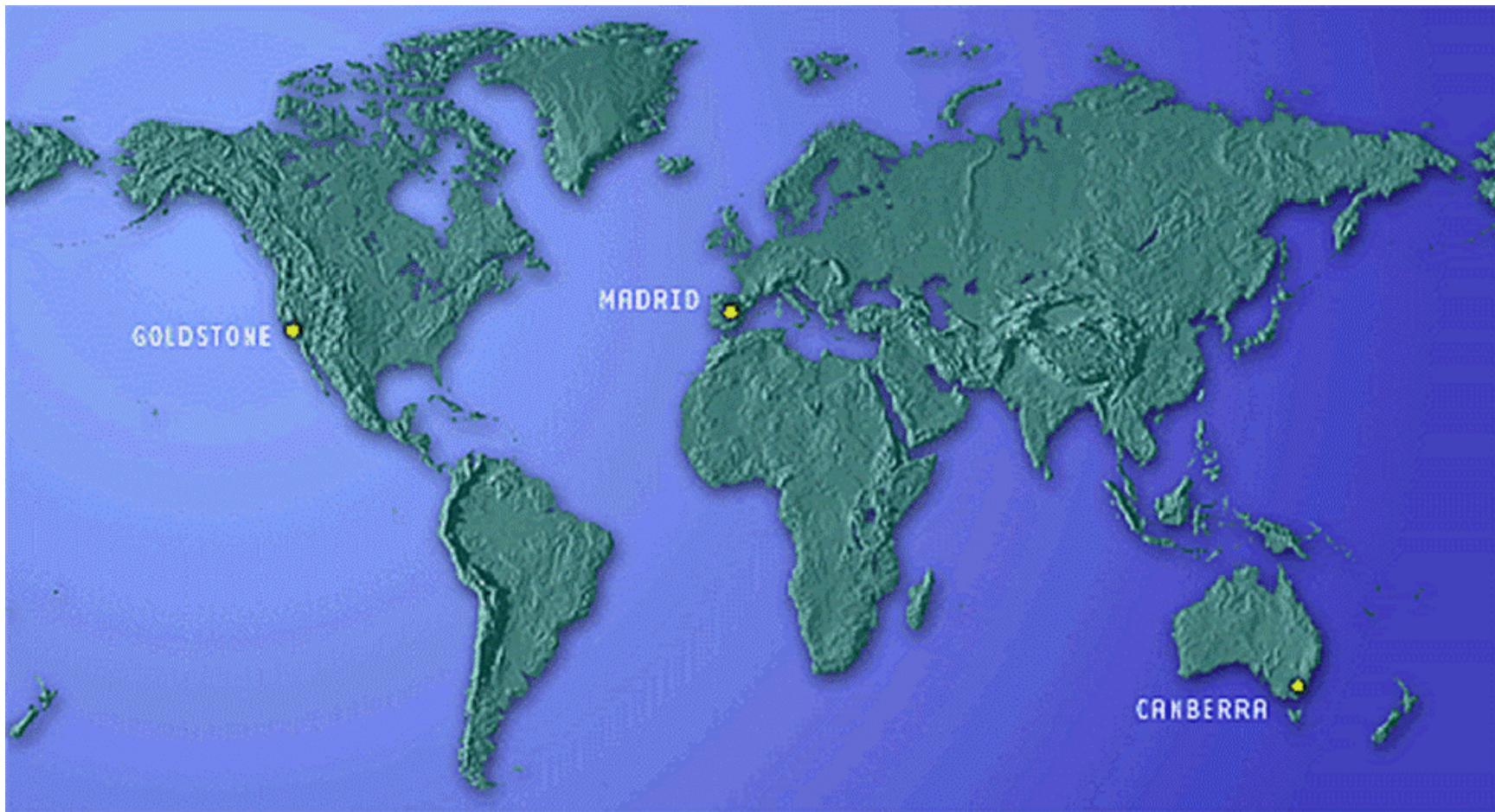


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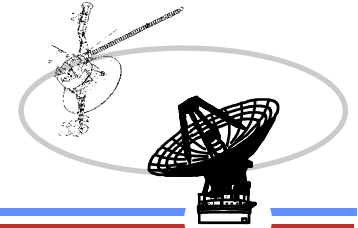
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DSN Antenna Downtime Status and Forecast





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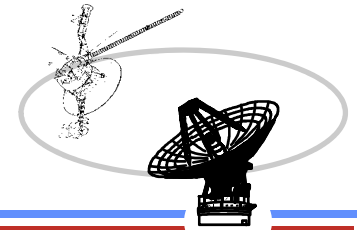


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
RF Noise Shield	DSS-26	Mar 31, 2014	Mar 31, 2014	14 23	Wendy Hodgkin	Additional time added in week 14 to complete the task.- Test will be re-performed in week 23 due to contamination from other transmitters in use.
Complex downtime for NMC Automated Link Build (ALB), SOAK and Test	GDSCC	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 GDSCC 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 10 scheduled for March 5. Added for testing as a result of CDSCC releasing Powerhouse downtime. Also requesting additional time at MDSCC & GDSCC for A/T early June to end of August and SOAK at GDSCC prior to mid September and CDSCC & MDSCC prior to mid November 2014
	MDSCC	Feb 2014	Feb 2014	07		
	CDSCC	Mar 2014	Mar 2014	10		
	CDSCC	Apr 2014	Apr 2014	14		
NMC ALB A/T and SOAK	MDSCC	June 2014	Oct 2014	24, 42		
	GDSCC			25, 35		
	CDSCC			30, 41		
Complex downtime for Power House Commission	CDSCC	March 2014	Oct 2014	12, 18,	John Phillips, Rob Mehrkish, Dave Taylor	Prime shift hours are preferred. Week 12 downtime requires 12 hours. Weeks 18, requires two 6 hour blocks. Week 14 released to NMC Test and week 30 released for NMC ALB A/T Week 51 two 6 hour requirements to move to early 2015 timeframe (Mar 6th & 9th if possible) Week 33 downtime requires 12 hours, week 35 downtime requires 6 hours Possible move to October/November timeframe.
		Mar 2015	Mar 2015	10 & 11		
		Aug 2015	Aug 2015	33, 35		



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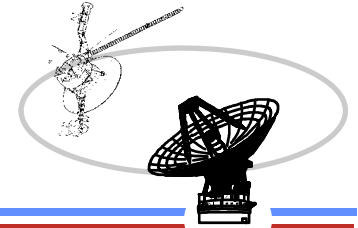


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
DSOC & DCD 4.1 software installation	CDSCC	Apr 2014	Apr 2014	14	Anna Fan, Sheila Garrett	Data at CDSCC and MDSCC will be spooled and delivered after the downtime is complete. CDSCC/MDSCC will be scheduled after GDSCC S/W installation Moved from week 16 to week 17 due to Easter Holiday Conflict with LADEE EOM cleared. Task completed.
	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 Requesting an additional week preferably week 43, which has been added. 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	43 – 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, 32, 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 31 has been moved to week 32 due to high contention. 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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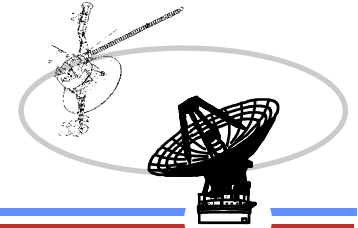


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
HBA Tune-up	DSS-43	April 2014	May 2014	16	John Phillips	Downtime shortened to DOYs 104-107. Changed the subreflector cable during this downtime. Completed
Antenna Inspections	MDSCC	April 2014 June 2017	April 2014 June 2017	14 & 15 16 & 17	Dave Taylor, Andrew Brooks	MDSCC Inspection times moved from weeks 12 & 13 to weeks 14 & 15 2017 Antenna inspections moved to the last two weeks of DSS-63 Grouting downtime Completed
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 33 12-hour downtime ends one hour before Cassini's activity
RF Test Pattern	DSS-24,25,26	June 2014	June 2014	23	Karen Frazier	Request two 16-hour downtimes. This request is being released to GDSCC planning. All Apollo site antennas will be performed
Depot Level Maintenance	DSS-45 DSS-65 DSS-34	May 2014 May 2014 Jan 2015	May 2014 June 2014 Feb 2015	19 – 21 22 – 24 05 – 08	John Phillips for David Munoz Mochon	DSS-45 required additional blocks to work on the 250W transmitter problems prior to DLM downtime. 2 blocks scheduled in week 12
HV Electrical Distribution	MDSCC	May 2014	May 2014	21 & 22	Renee Miller	Spanish Gov. mandated requirement each year. Requirement not needed at CDSCC. GDSCC using electrical maintenance for task.



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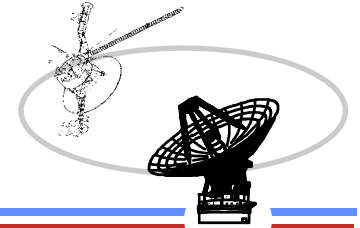


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Quad Leg Work	DSS-14	May 2014	Dec 2014	19, 29, 50	David Allen, Erik 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.
Elevation Cable Wrap	DSS-15	June 2014	July 2014	25 – 27	Marwah Buck	Moved from weeks 29-31. Erik Holmgren will follow up to confirm activities with staff. Planning in progress, parts have been ordered.
Replace Sub Reflector Cable	DSS-14	Jul 2014	Jul 2014	28	Jeff Mason	Request 5 days. Tracking available during night hours after the first 2 nights..
80kW Prep	DSS-26	July 2014 Oct 2014	July 2014 June 2015	28 – 31 44- 24	Erik Holmgren Pam Rothman, Asim Sehic	Moved from weeks 23-26. Swap with Elevation Cable Wrap. Downtime will start in week 44 and end week 24. Downtime will end in preparation the NHPC Pluto encounter in mid July. AZ Track will be NIB to the 80Kw facility prep
AZ Track Level C/O	DSS-54 DSS-55 DSS-65	Aug 2014	Aug 2014	32 33 34	Renee Miller	34M antenna requires 10 hour blocks each year 1 each week. These are scheduled to overlap with maintenance activities in each week. Will check for CDSCC/GDSCC
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.



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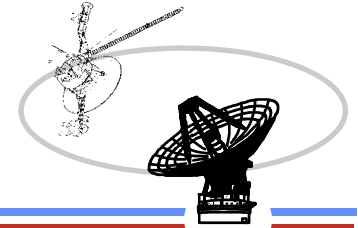
Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
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 2014 HBA Shimming shortened. Requesting an additional 2 weeks for this downtime to regain time from the shortening of the HBA downtime. This is scheduled NIB to May Grouting
	DSS-43	Mar 9, 2015	Mar 21, 2015	11 & 12 (10 - 13)	John Phillips	
	DSS-63	May 2015	May 2015	19 & 20		
Ka U/L Engineering Test	DSS-25	Jan 2015	Jan 2015	4	Andre Jongeling	The Engineers are requesting 4 daylight days T-F 8 hours each to complete this task. Monday is a holiday.
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	01 & 02	Anna Fan, Dave Taylor, Neil Bucknam, Daniel Olson	



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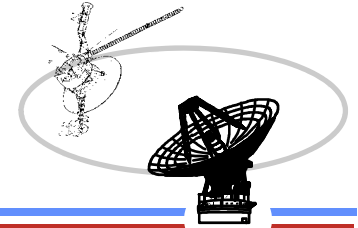


Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
APCA	DSS-14	March 2016	May 2016	10 – 21	Anna Fan, Barzia Tehrani	DSS-14 needs to be scheduled first,
	DSS-43	Nov 2017	Jan 2018	44 – 03		DSS-43 extended to 12 weeks
	DSS-63	Feb 2018	April 2018	18 – 29		DSS-63 APCA is now stand alone and moved to 2018 at this time.
SWUPS Installation	CDSCC	Apr 5 2016	Apr 5 2016	14	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.
		Apr 20 2016	Apr 20 2016	16		
		May 4 2016	May 4 2016	18		
XX/Ka Installation	DSS-25	Jan 2018	April 2018	01 - 14	Wendy Hodgin	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 Needs to happen as soon after JNO end of mission as possible



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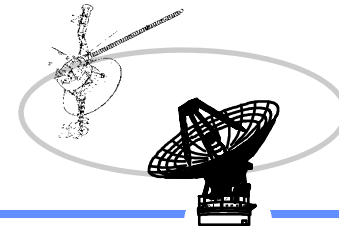
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Antenna Downtime Status and Forecast

Downtime	Antenna	Start Date	End Date	Weeks	POC	Notes
Ka2 Tune-up	DSS-24	Apr 30, 2018	May 13, 2018	18 & 19	Wendy Hodgkin	This is NIB to XX/Ka Installation
	DSS-34	May 28, 2018	Jun 4, 2018	22 & 23		
	DSS-54	Sep 3, 2018	Sep 16, 2018	36 & 37		
Pedestal Rehab	DSS-54	Feb 2019	Oct 2019	06 - 43	Ben Saldua	This downtime has moved tentatively to 2019. More information will follow.

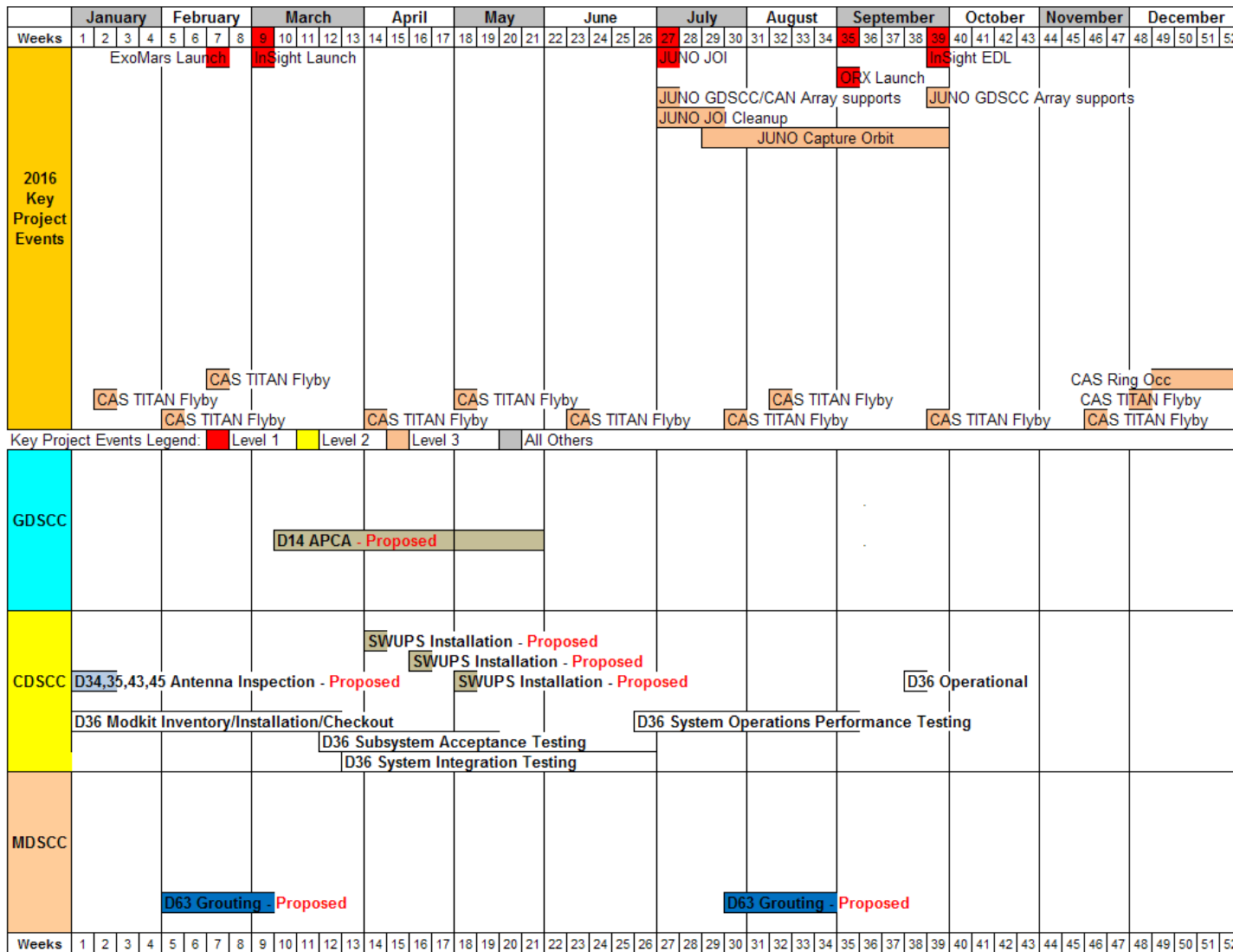


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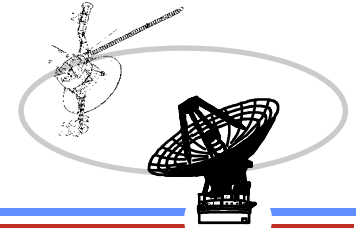
- 2016 -



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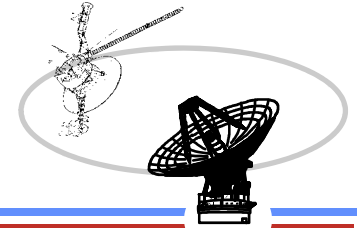
- 2018 -

	January				February				March				April				May				June				July				August				September				October				November				December																									
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52																		
2018 Key Project Events															Mars 2018 Launch and LEOP														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	D43 APCA - Proposed																												D34 Ka2 Tune-up																																									
MDSCC																													D63 APCA														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 -

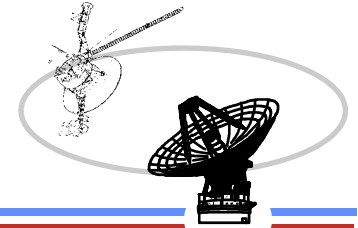
	January				February				March				April				May				June				July				August				September				October				November				December							
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
2019 Key Project Events						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																																																				
D54 Pedestal Rehab - Proposed																																																				
Weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52

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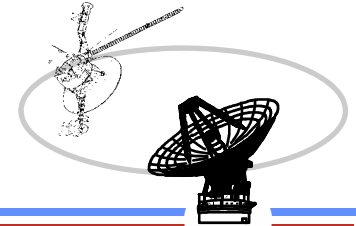
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
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
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 05:00	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	HV EL Dist. Maint.	05/19/2014 07:00	05/19/2014 15:00	0	21 - 21	139	139
DSS 55	HV EL Dist. Maint.	05/20/2014 07:00	05/20/2014 15:00	0	21 - 21	140	140
DSS 63	HV EL Dist. Maint.	05/21/2014 07:00	05/21/2014 15:00	0	21 - 21	141	141
DSS 63	HV EL Dist. Maint.	05/22/2014 07:00	05/22/2014 15:00	0	21 - 21	142	142
DSS 54	HV EL Dist. Maint.	05/23/2014 07:00	05/23/2014 15:00	0	21 - 21	143	143
DSS 65	Depot Level Maintenance	05/26/2014 06:00	06/13/2014 17:00	18	22 - 24	146	164
DSS 55	HV EL Dist. Maint.	05/26/2014 07:00	05/26/2014 15:00	0	22 - 22	146	146
DSS 65	HV EL Dist. Maint.	05/27/2014 07:00	05/27/2014 15:00	0	22 - 22	147	147
DSS 63	HV EL Dist. Maint.	05/28/2014 07:00	05/28/2014 14:20	0	22 - 22	148	148
DSS 63	HV EL Dist. Maint.	05/29/2014 07:00	05/29/2014 15:00	0	22 - 22	149	149
SPC 10	Complex Electrical Maintenance	05/29/2014 12:05	05/30/2014 00:05	0	22 - 22	149	150
DSS 54	HV EL Dist. Maint.	05/30/2014 07:00	05/30/2014 15:00	0	22 - 22	150	150



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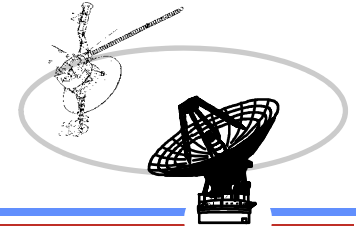
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
SPC 60	Complex Power Cutover	06/04/2014 05:00	06/04/2014 17:00	0	23 - 23	155	155
DSS 24	RF Pattern Test	06/04/2014 13:00	06/05/2014 05:00	1	23 - 23	155	156
DSS 25	RF Pattern Test	06/04/2014 13:00	06/05/2014 05:00	1	23 - 23	155	156
DSS 26	RF Pattern Test	06/04/2014 13:00	06/05/2014 05:00	1	23 - 23	155	156
DSS 24	RF Pattern Test	06/06/2014 13:00	06/07/2014 05:00	1	23 - 23	157	158
DSS 25	RF Pattern Test	06/06/2014 13:00	06/07/2014 05:00	1	23 - 23	157	158
DSS 26	RF Pattern Test	06/06/2014 13:00	06/07/2014 05:00	1	23 - 23	157	158
SPC 60	NMC ALB A/T	06/10/2014 01:00	06/10/2014 07:00	0	24 - 24	161	161
DSS 15	Elevation Cable Wrap	06/16/2014 15:00	07/05/2014 00:00	18	25 - 27	167	186
SPC 10	NMC ALB A/T	06/19/2014 12:15	06/19/2014 18:15	0	25 - 25	170	170
SPC 60	Complex Power Cutover	07/03/2014 05:00	07/03/2014 17:00	0	27 - 27	184	184
SPC 60	HV DIST MAINT - NIB	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
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 14:35	07/15/2014 23:35	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	NMC ALB A/T	07/24/2014 21:00	07/25/2014 03:00	0	30 - 30	205	206
SPC 60	Complex Power Cutover	08/07/2014 05:00	08/07/2014 17:00	0	32 - 32	219	219



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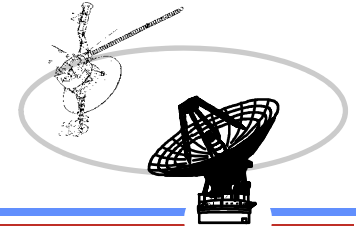
DSN Downtime 2014

2014							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 54	AZ Track Level C/O	08/07/2014 21:00	08/08/2014 07:00	0	32 - 32	219	220
DSS 55	AZ Track Level C/O	08/11/2014 21:00	08/12/2014 07:00	0	33 - 33	223	224
SPC 10	Complex Electrical Maintenance	08/13/2014 13:00	08/14/2014 01:00	0	33 - 33	225	226
DSS 65	AZ Track Level C/O	08/18/2014 21:00	08/19/2014 07:00	0	34 - 34	230	231
SPC 60	Complex Power Cutover	08/20/2014 05:00	08/20/2014 17:00	0	34 - 34	232	232
SPC 10	NMC ALB SOAK	08/29/2014 00:00	08/29/2014 06:00	0	35 - 35	241	241
SPC 40	NMC ALB SOAK	10/09/2014 00:00	10/09/2014 00:00	0	41 - 41	282	282
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
SPC 60	NMC ALB SOAK	10/16/2014 00:00	10/16/2014 06:00	0	42 - 42	289	289
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 63	Grouting	10/20/2014 08:00	11/28/2014 16:00	39	43 - 48	293	332
DSS 63	S-Band Maser Replacement - NIB	10/20/2014 08:00	11/28/2014 16:00	39	43 - 48	293	332
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 26	80kW Prep - Proposed	10/27/2014 15:00	06/14/2015 00:00	229	44 - 24	300	165
DSS 26	AZ Track Replacement - NIB	10/27/2014 15:00	06/14/2015 00:00	229	44 - 24	300	165
DSS 14	70M Tune-up/Calibration	12/01/2014 15:00	12/13/2014 00:00	11	49 - 50	335	347
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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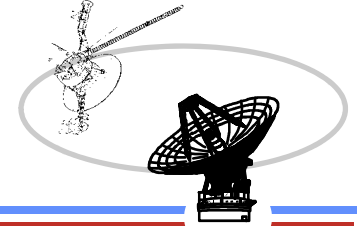
DSN Downtime 2015

2015							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 25	Ka U/L	01/20/2015 15:00	01/20/2015 23:00	0	04 - 04	20	20
DSS 25	Ka U/L	01/21/2015 15:00	01/21/2015 23:00	0	04 - 04	21	21
DSS 25	Ka U/L	01/22/2015 15:00	01/22/2015 23:00	0	04 - 04	22	22
DSS 25	Ka U/L	01/23/2015 15:00	01/23/2015 23:00	0	04 - 04	23	23
DSS 34	Depot Level Maintenance	01/26/2015 21:00	02/20/2015 05:00	24	05 - 08	26	51
SPC 40	Complex Powerhouse Upgrade - Proposed	03/03/2015 21:00	03/04/2015 03:00	0	10 - 10	62	63
SPC 40	Complex Powerhouse Upgrade - Proposed	03/09/2015 21:00	03/10/2015 03:00	0	11 - 11	68	69
DSS 43	70m Tune-up/Callibration - Proposed	03/09/2015 21:00	03/21/2015 06:00	11	11 - 12	68	80
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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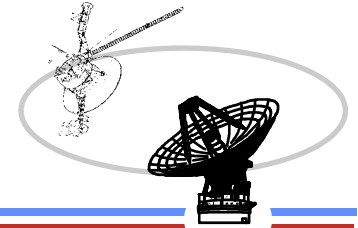
DSN Downtime 2016

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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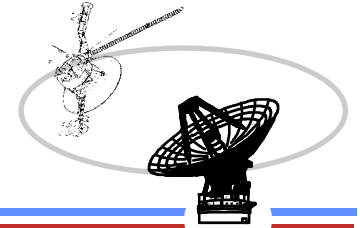
DSN Downtime 2017

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 21:00	01/19/2018 06:00	80	44 - 03	303	19



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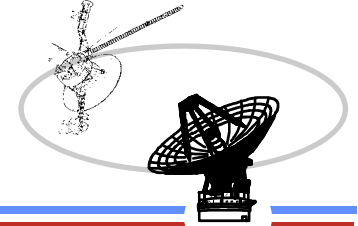


DSN Downtime 2018

2018							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 25	XX/Ka Installation	01/04/2018 15:00	04/07/2018 00:00	92	01 - 14	4	97
DSS 25	AZ Track Replacement - NIB	01/29/2018 15:00	04/07/2018 00:00	67	05 - 14	29	97
DSS 14	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	09/03/2018 07:00	09/14/2018 17:00	11	36 - 37	246	257



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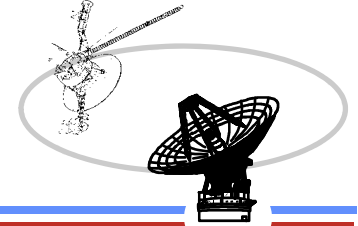
DSN Downtime 2019

2019							
Site	Details	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 54	Pedestal Rehab	02/05/2019 06:00	10/26/2019 17:00	263	06 - 43	36	299



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Future assets new/upgrades

- ❑ DSS-35 Installation and Operational 2013 – 2014
 - ❑ Modkit Installation October 1, 2013 – March 21, 2014 weeks 47 – 12
 - ❑ Acceptance Testing March 5, 2014 – May 6, 2013, weeks 10 – 19
 - ❑ System Integration Testing March 14, 2014 – June 30, 2014 weeks 13 – 27
 - ❑ Operations Systems Performance Testing June 30, 2014 – August 28, 2014, weeks 27 – 35
 - ❑ Operational September 26, 2014

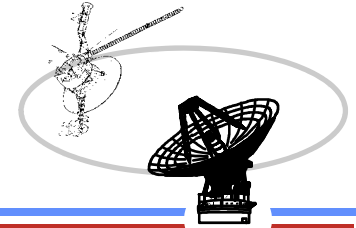
- ❑ DSS-26 80kW Installation 2014 – 2015
 - ❑ 80kW arrive at DLF October, 2014, week 40
 - ❑ DDR September, 2015, week 38

- ❑ DSS-36 Installation and Operational 2016
 - ❑ Modkit inventory/install/checkout November 23, 2015 – March 21, 2016 Weeks 48 – 12
 - ❑ Acceptance testing March 22, 2016 – May 13, 2016 weeks 12 – 19
 - ❑ System Integration Testing March 29, 2014 June 30, 2016 Weeks 13 – 26
 - ❑ Operations System Performance Testing June 30, 2016 – August 29, 2016 weeks 26 – 35
 - ❑ Operational date 9/23/2-16



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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-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: 4/9/2014

✓ ✓ ✓ = Capability Recently Exists

✓ = Capability Exists

* = To Be Commissioned