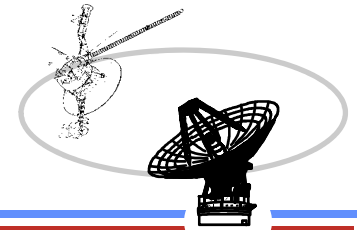


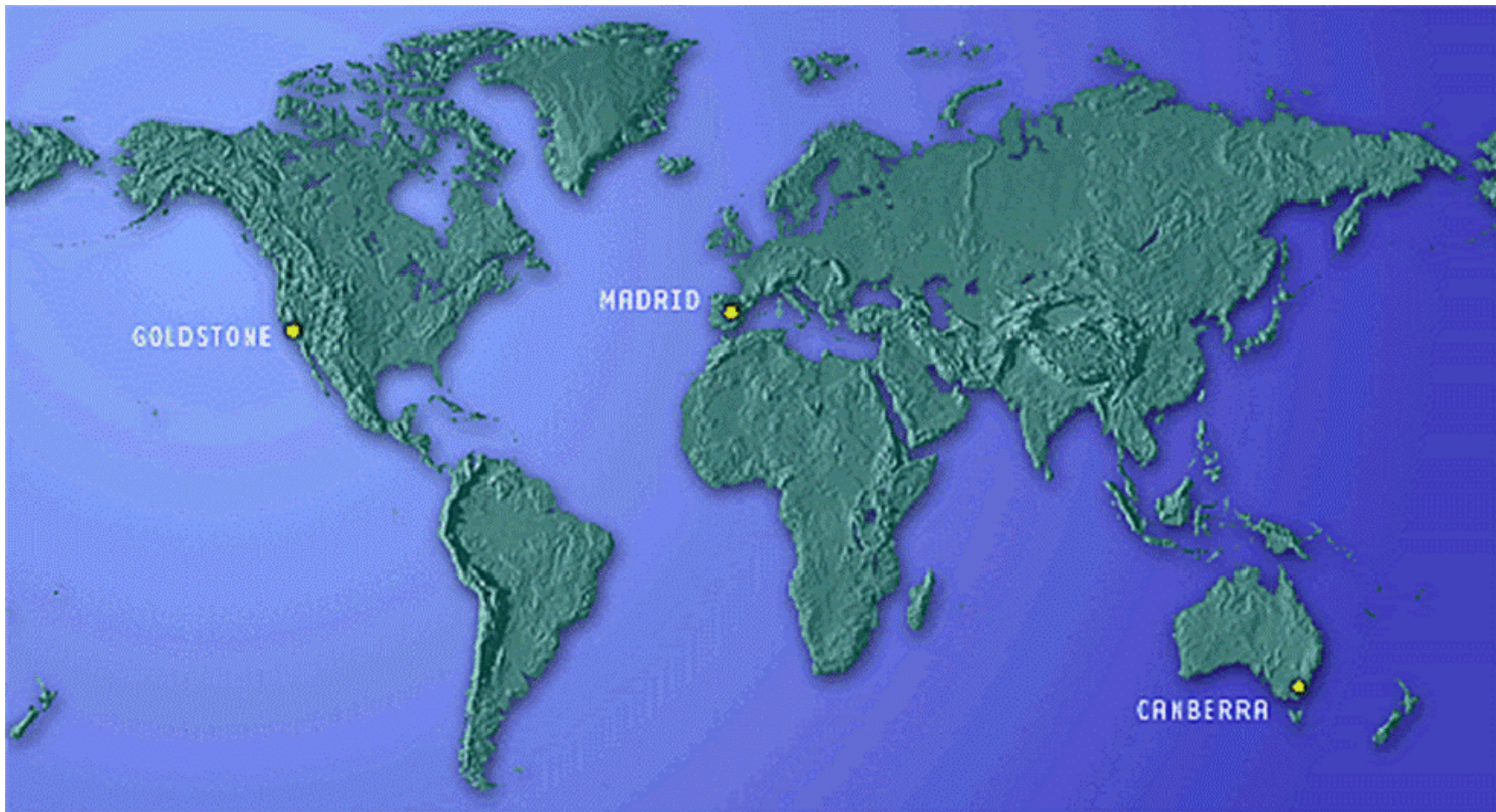


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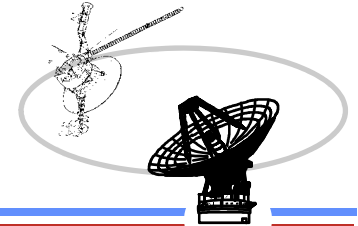
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## DSN Antenna Downtime Status and Forecast





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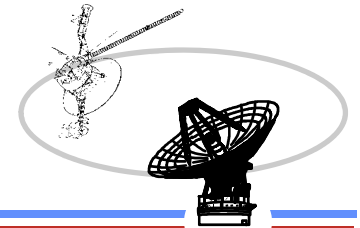
## Antenna Downtime Status and Forecast

| Downtime   | Antenna                         | Start Date                       | End Date                         | Weeks                        | POC  | Notes  |
|--|---------------------------------|----------------------------------|----------------------------------|------------------------------|--|--|
| RF Noise Shield  | DSS-26                          | Jan 9, 2014                      | Jan 10, 2014                     | 02                           | Wendy Hodgins                              | Request 2 blocks of time in Jan to shield the quad legs – <b>Partially completed, need another 4-8 hours downtime after mid February.</b>  |
| Complex downtime for NMC Automated Link Build (ALB) and Acceptance testing | GDSCC                           | Jan 2014                         | Jan 2014                         | 03                           | 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. - <b>Completed</b>   |
| Complex downtime for NMC Automated Link Build (ALB) and SOAK               | GDSCC<br>DSOC<br>MDSCC<br>CDSCC | Jan 2014<br>Feb 2014<br>Mar 2014 | Jan 2014<br>Feb 2014<br>Mar 2014 | 05<br>07<br>10               | 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 – <b>Week 05 is scheduled for Sunday DOY 033</b> |
| HBA Prep Metrology – AZ Runner Measurement                                 | DSS-63                          | Feb 4 2014                       | Feb 7 2014                       | 06                           | Tim Sink                                   | Requested 4 additional 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   |
| Complex downtime for Power House Commission                                | CDSCC                           | March 2014<br>March 2015         | Oct 2014<br>March 2015           | 12, 14, 18, 30, 51<br>33, 35 | John Phillips, Rob Mehrkish<br>Dave Taylor | Prime shift hours are preferred. Week 12 downtime requires 12 hours. Downtimes in weeks 14, 18, 30, and two in week 51 require 6 hours Week 33 downtime requires 12 hours, week 35 downtime requires 6 hours – <b>Dates confirmed</b>  |



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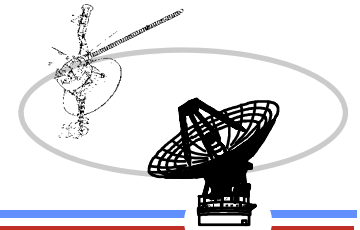


## Antenna Downtime Status and Forecast

| 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   |
|   | CDSCC      | Apr 2014   | Apr 2014 | 14                     |  | 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  |
|   | MDSCC      | Apr 2014   | Apr 2014 | 17                     |  | Moved from week 16 to week 17 due to Easter Holiday   |
| Grouting                                  | DSS-63     | 2014       | 2014     | 09 – 15                | Dave Taylor,                               | An additional week was added to first grouting in 2014 in preparation for the DSN 50 <sup>th</sup> 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<br><b>Per mission requirements in 2017 have reduced time to 10 weeks and will place APCA downtime as stand alone in 2018.</b> |
|   |            | 2014       | 2014     | 44 – 48                | David                                      |   |
|   |            | 2015       | 2015     | 19 & 20                | Munoz                                      |   |
|   |            | 2015       | 2015     | 32 & 33                | Mochon,                                    |   |
|   |            | 2016       | 2016     | 05 – 09                | Bernardo                                   |   |
|   |            | 2016       | 2016     | 30 – 34                | Lopez,                                     |   |
|   |            | 2017       | 2017     | 08 – 17                | Asim Sehic                                 |   |
| 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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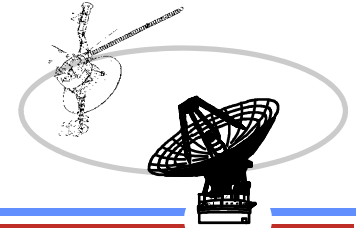
## Antenna Downtime Status and Forecast

| Downtime                       | Antenna       | Start Date | End Date   | Weeks      | POC                           | Notes   |
|--------------------------------|---------------|------------|------------|------------|-------------------------------|---|
| HBA Shimming                   | DSS-43        | April 2014 | May 2014   | 16 – 18    | John Phillips                 | HBA Shimming<br>2400 Vac Alternate Bus Installation will be NIB   |
| Antenna Inspections            | MDSCC         | April 2014 | April 2014 | 14 & 15    | Dave Taylor,<br>Andrew Brooks | MDSCC Inspections 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 HBA downtime   |
| Electrical Maintenance         | DSS-24,25,26, | April 2014 | May 2014   | 16 & 19    | David Lloyd,<br>Erik Holmgren | Requesting downtime for preventative maintenance blocks to update electrical items  |
| Complex wide Electrical Maint. | SPC-10        | May 2014   | May 2014   | 22 & 33    |                               | Week 22 12-hour downtime ends one hour before Cassini's activities. <b>Week 33 was added as final complex wide downtime</b>   |
| Depot Level Maintenance        | DSS-45        | May 2014   | May 2014   | 19 – 21    | John Phillips for             | DSS-45 DLM was moved to accommodate mission supports  |
|                                | DSS-65        | May 2014   | June 2014  | 22 – 24    | CDSCC                         | DSS-65 DLM was moved to accommodate mission supports  |
|                                | DSS-34        | Jan 2015   | Feb 2015   | 05 – 08    | David Munoz Mochon for MDSCC  |   |
| Quad Leg Work                  | DSS-14        | May 2014   | Dec 2014   | 19, 29, 50 | David Lloyd,<br>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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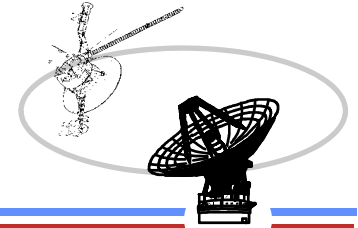


## Antenna Downtime Status and Forecast

| 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<br>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<br>Jan 2015      | July 2014<br>June 2015       | 28 – 31<br>01 - 26 | Erik Holmgren<br>Pam Rothman,<br>Asim Sehic | Moved from weeks 23-26. Swap with Elevation Cable Wrap.<br>After the November downtime meeting, this downtime was moved from weeks 34 - 04, 2015/2016 to weeks 01 - 26 of 2015.<br>AZ Track will be NIB to the 80Kw facility prep task |
| 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<br>DSS-43 | Dec 1, 2014<br>Mar 9, 2015 | Dec 15, 2014<br>Mar 21, 2015 | 49 & 50<br>11 & 12 | David Allen<br>John Phillips                | These are proposed dates at this time and are In preparation for NHPC Pluto Encounter  |



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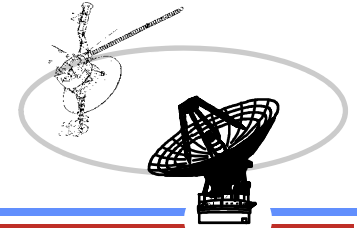


## Antenna Downtime Status and Forecast

| 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 downtime were requested at July downtime meeting<br>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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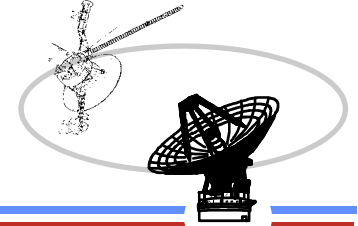


## Antenna Downtime Status and Forecast

| Downtime           | Antenna | Start Date                              | End Date                                | Weeks      | POC           | Notes  |
|--------------------|---------|---|---|------------|---------------|--|
| SWUPS Installation | CDSCC   | Apr 5 2016<br>Apr 20 2016<br>May 4 2016 | Apr 5 2016<br>Apr 20 2016<br>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

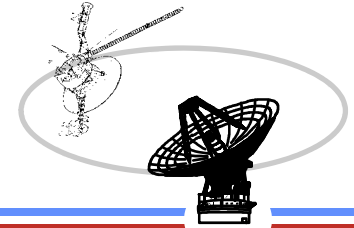
| Downtime    | Antenna | Start Date   | End Date    | Weeks   | POC           | Notes   |
|-------------|---------|--------------|-------------|---------|---------------|---|
| Ka2 Tune-up | DSS-34  | May 28, 2018 | Jun 4, 2018 | 22 & 23 | Wendy Hodgkin | All Ka2 Tune-ups (DSS-24, 34 and 54) must be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





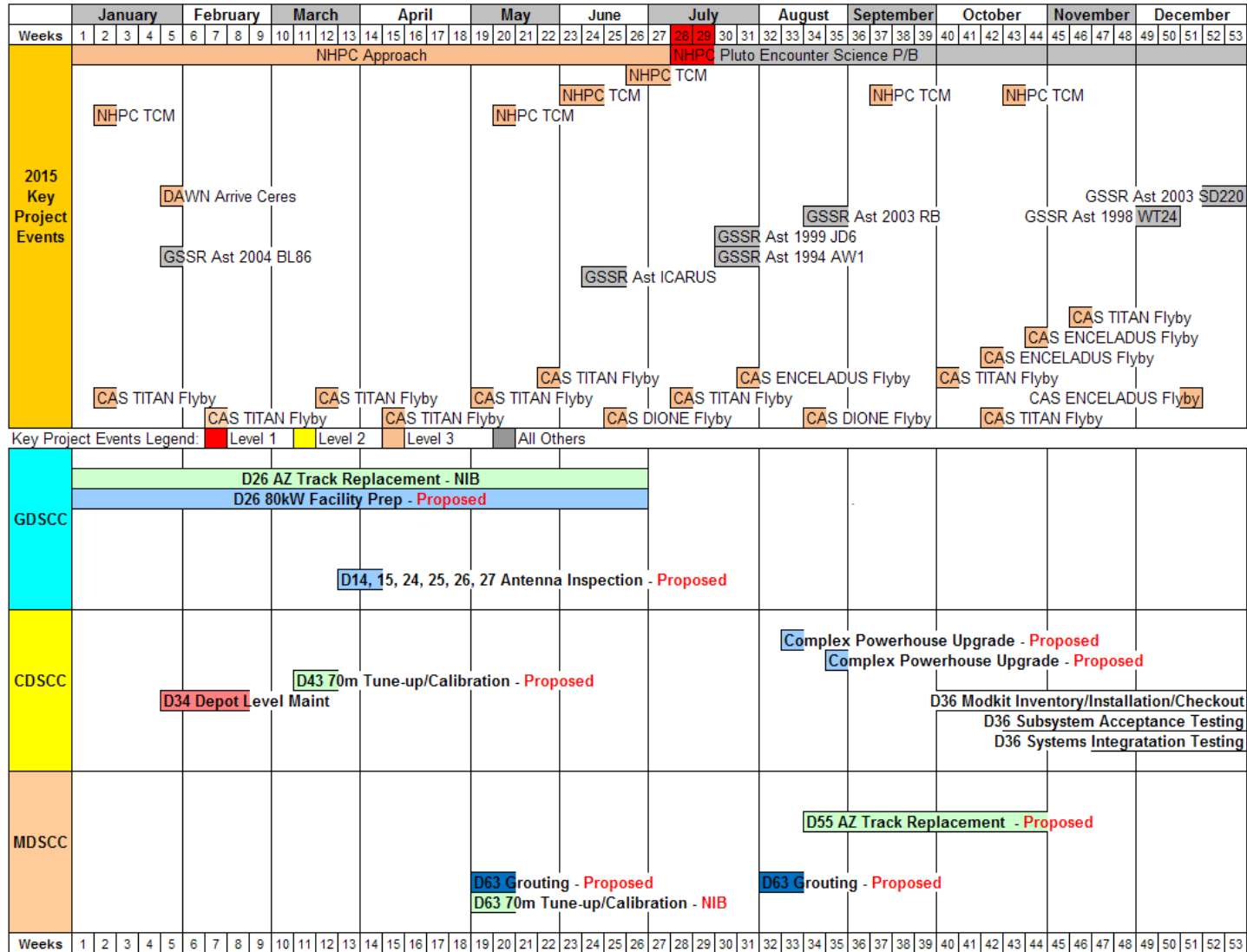


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**- 2015 -**



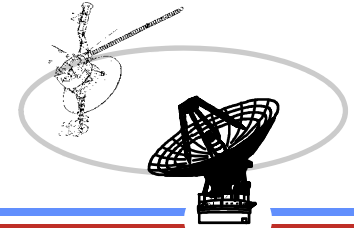
Revised: November 22, 2013







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- 2018 -

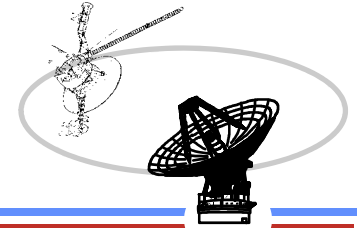
|  | January                |   |   |   | February |   |   |   | March |    |    |    | April |    |  |    | May |    |    |    | June |    |    |    | July |    |    |    | August                 |    |    |    | September |    |    |    | October |    |    |    | November |    |                               |    | 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                      |    |     |    |    |    |      |    |    |    |      |    |    |    | S/P Launch and LEOP    |    |    |    |           |    |    |    |         |    |    |    |          |    | JWST Launch and Commissioning |    |          |    |    |    |    |    |    |    |  |  |  |  |
| Key Project Events Legend: <span style="color: red;">■</span> Level 1 <span style="color: yellow;">■</span> Level 2 <span style="color: orange;">■</span> Level 3 <span style="color: gray;">■</span> 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 |  |  |  |  |

Revised: February 3, 2014





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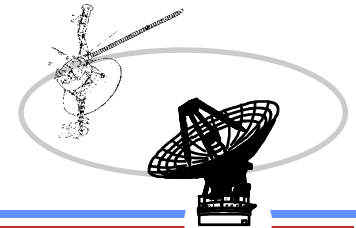
|  | January |   |   |   |   | February   |   |   |   |    | March         |    |    |    |    | April |    |    |    |    | May           |    |    |    |    | June  |    |    |    |    | July          |    |    |    |    | August |    |    |    |    | September       |    |    |    |    | October |    |    |    |    | 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: <span style="color: red;">■</span> Level 1 <span style="color: yellow;">■</span> Level 2 <span style="color: orange;">■</span> Level 3 <span style="color: gray;">■</span> 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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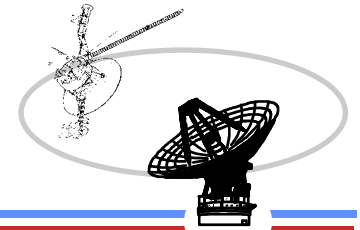
## DSN Downtime 2014

| 2014   |   |                  |                  |                 |         |           |         |
|--------|---|------------------|------------------|-----------------|---------|-----------|---------|
| Site   | Details                                     | Start            | End              | Duration (Days) | Weeks   | Start DOY | End DOY |
| DSS 63 | Metrology AZ Runner Measurement             | 02/03/2014 19:00 | 02/04/2014 01:20 | 0               | 06 - 06 | 34        | 35      |
| DSS 63 | Metrology AZ Runner Measurement             | 02/04/2014 19:00 | 02/05/2014 07:00 | 0               | 06 - 06 | 35        | 36      |
| DSS 63 | Metrology AZ Runner Measurement             | 02/05/2014 19:00 | 02/06/2014 07:00 | 0               | 06 - 06 | 36        | 37      |
| DSS 63 | Metrology AZ Runner Measurement             | 02/06/2014 19:00 | 02/07/2014 07:00 | 0               | 06 - 06 | 37        | 38      |
| SPC 60 | NMC ALB SOAK                                | 02/16/2014 07:00 | 02/16/2014 15:00 | 0               | 07 - 07 | 47        | 47      |
| DSS 63 | Grouting                                    | 02/24/2014 06:00 | 04/11/2014 17:00 | 46              | 09 - 15 | 55        | 101     |
| SPC 10 | DCD 4.1                                     | 02/24/2014 18:15 | 02/24/2014 22:15 | 0               | 09 - 09 | 55        | 55      |
| GCF 20 | DSOC DCD 4.1                                | 02/24/2014 18:15 | 02/24/2014 22:15 | 0               | 09 - 09 | 55        | 55      |
| 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 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 05:00 | 04/08/2014 17:00 | 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 | 2400 Vac Alternate Bus Installatation - NIB | 04/14/2014 21:00 | 05/02/2014 05:00 | 17              | 16 - 18 | 104       | 122     |
| DSS 43 | HBA Shimming                                | 04/14/2014 21:00 | 05/02/2014 05:00 | 17              | 16 - 18 | 104       | 122     |



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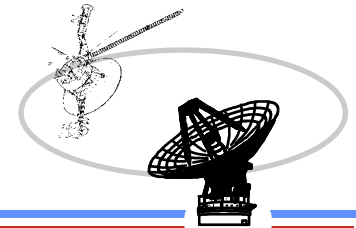
## DSN Downtime 2014

| 2014   |                                |                  |                  |                 |         |           |         |
|--------|--------------------------------|------------------|------------------|-----------------|---------|-----------|---------|
| Site   | Details                        | Start            | End              | Duration (Days) | Weeks   | Start DOY | End DOY |
| DSS 24 | Electrical Maintenance         | 04/16/2014 15:00 | 04/17/2014 03:00 | 0               | 16 - 16 | 106       | 107     |
| DSS 25 | Electrical Maintenance         | 04/16/2014 15:00 | 04/17/2014 03:00 | 0               | 16 - 16 | 106       | 107     |
| DSS 26 | Electrical Maintenance         | 04/16/2014 15:00 | 04/17/2014 03:00 | 0               | 16 - 16 | 106       | 107     |
| SPC 60 | DCD 4.1                        | 04/23/2014 07:00 | 04/23/2014 13:00 | 0               | 17 - 17 | 113       | 113     |
| SPC 40 | Complex Powerhouse Upgrade     | 04/30/2014 21:00 | 05/01/2014 03:00 | 0               | 18 - 18 | 120       | 121     |
| DSS 14 | Quad Leg Work                  | 05/05/2014 14:00 | 05/05/2014 23:00 | 0               | 19 - 19 | 125       | 125     |
| DSS 45 | Depot Level Maintenance        | 05/05/2014 21:00 | 05/23/2014 06:00 | 17              | 19 - 21 | 125       | 143     |
| DSS 14 | Quad Leg Work                  | 05/06/2014 14:00 | 05/06/2014 23:00 | 0               | 19 - 19 | 126       | 126     |
| DSS 24 | Electrical Maintenance         | 05/06/2014 14:00 | 05/07/2014 02:00 | 0               | 19 - 19 | 126       | 127     |
| DSS 25 | Electrical Maintenance         | 05/06/2014 14:00 | 05/07/2014 02:00 | 0               | 19 - 19 | 126       | 127     |
| DSS 26 | Electrical Maintenance         | 05/06/2014 14:00 | 05/07/2014 02:00 | 0               | 19 - 19 | 126       | 127     |
| DSS 14 | Quad Leg Work                  | 05/07/2014 14:00 | 05/07/2014 23:00 | 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 17:00 | 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 15 | Elevation Cable Wrap           | 06/16/2014 15:00 | 07/04/2014 00:00 | 17              | 25 - 27 | 167       | 185     |
| 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     |



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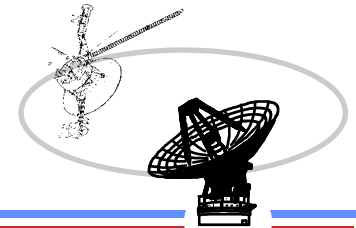
## DSN Downtime 2014

| 2014   |                                |                  |                  |                 |         |           |         |
|--------|--------------------------------|------------------|------------------|-----------------|---------|-----------|---------|
| Site   | Details                        | Start            | End              | Duration (Days) | Weeks   | Start DOY | End DOY |
| 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 14:00 | 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 63 | Grouting                       | 10/27/2014 06:00 | 11/28/2014 17:00 | 32              | 44 - 48 | 300       | 332     |
| DSS 63 | S-Band Maser Replacement - NIB | 11/03/2014 06:00 | 11/28/2014 17:00 | 25              | 45 - 48 | 307       | 332     |
| DSS 25 | 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     |
| SPC 40 | Complex Powerhouse Upgrade     | 12/16/2014 21:00 | 12/17/2014 03:00 | 0               | 51 - 51 | 350       | 351     |
| 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             | 26-Jan  | 363       | 178     |
| DSS 26 | AZ Track Replacement - NIB     | 12/29/2014 15:00 | 06/27/2015 00:00 | 179             | 26-Jan  | 363       | 178     |



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## DSN Downtime 2015

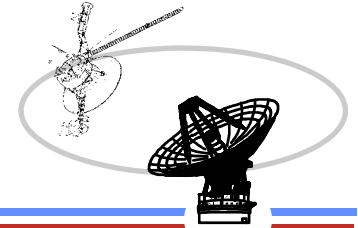
| 2015   |                                       |                  |                  |                 |         |           |         |
|--------|---------------------------------------|------------------|------------------|-----------------|---------|-----------|---------|
| Site   | Details                               | 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/Calibration - 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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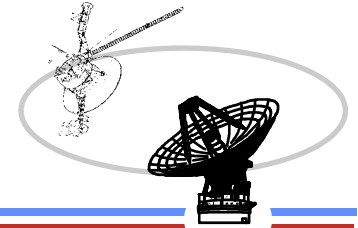
## DSN Downtime 2016

| 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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# Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service



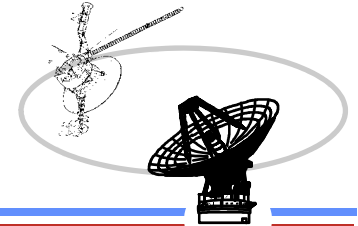
## DSN Downtime 2017

| 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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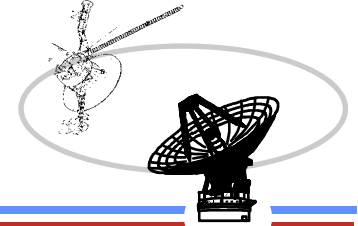
## DSN Downtime 2018

| 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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# Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service



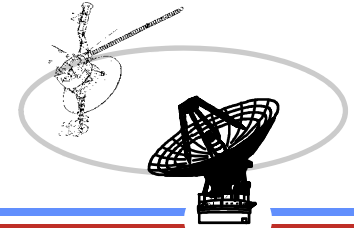
## Future assets new/upgrades

- ❑ 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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# Interplanetary Network Directorate (IND) Deep Space Network (DSN) Resource Allocation Planning Service



## 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