

Jet Propulsion Laboratory
California Institute of Technology

4800 Oak Grove Drive
Pasadena, CA 91109-8099

(818) 354-4321



November 18, 2003

Refer to: 930-02-023-ESB:lc

TO: Distribution

FROM: Eugene S. Burke

SUBJECT: Minutes for the Joint Users Resource Allocation Planning Committee Meeting held October 16, 2003.

**NEXT JURAP MEETING:
Thursday, November 20, 2003
JPL Bldg. 303, Room 411 1:00 p.m.**

Attendees:

Abramo, C.	Hills, D.	Martinez, G.	Ryne, M.
Andujo, A.	Kehrbaum J.	Martinez, K.	Slade, M.
Hall, J.	Kim, K.	Morris, D.	
Hampton, E.	Lacey, N.	Ryan, R.	

The Joint Users Resource Allocation Planning Committee meets monthly to review the status of Flight Projects, the requirements of other resource users, and to identify future requirements and outstanding conflicts. The last regular meeting was held on October 16, 2003, at the Jet Propulsion Laboratory.

Introductory Remarks / Conflict Resolutions – D. Morris

Mr. Morris welcomed the attendees to the JURAP meeting. The new DSN O & M contract was awarded to ITT. They have begun interviewing the staff, and are committed to hiring a high percentage of the current staff. The contract will be fully initiated as of January 1, 2004.

The availability of Parkes Radiotelescope and DSS-55 in November is on schedule. At this time, only Voyager 2 and the Mars missions utilize the contracted time with Parkes. Performance tests are being run on the DSS-55 antenna.

The Mid-range scheduling team has completed negotiations up to week 17 of 2004, bringing the process to 26 weeks ahead of real time. Although some conflicts still exist, they have been identified and are being negotiated at the appropriate levels.

Special Reports

DSS-43 Antenna Rebalancing and Structural Stiffening Downtime – A. Andujo

Mr. Andujo presented a proposal to change the existing timeframe of the approved DSS-43 Antenna Rebalancing task (which was approved, at the August 2003 RARB, to occur in weeks 25-26 of 2004).

Cassini project representatives contested the time presented at the August 2003 RARB. The task times have been reanalyzed to occur in weeks 22-23 of 2004 (May 29 – June 06, 2004), and all affected projects, including the Cassini project, approved the new timeframe for the downtime.

RARB Action Items – D. Morris

Action Item status from the August 2003 RARB is as follows:

1. Assigned to Mars Program; Belinda Arroyo; Due: 06/01/2003 - **Closed**
Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) at least 6 months prior to the schedule week. This action will use the result of Action Item 6 (of 8/13/02 RARB) to clarify the scope of available resources.
RESPONSE: (10/06/2003) All weeks are delivered.
2. Assigned to Cassini Project; Ron Gillette and David Seal; Due: 09/12/2003 - **Closed**
Prepare Risk Assessment for Cassini because of DSS-43 Rebalance Downtime planned in June 2004. Concern is that this occurs too close to the Cassini Saturn Orbit Insertion (SOI).
RESPONSE: (9/04/03) Office 930 states that this downtime is too close to this Class A event and has requested an alternative downtime plan.
3. Assigned to MRO; Rob Locke and Jim Hodder; Due: 10/09/2003 - **Pending**
Evaluate whether Mars Reconnaissance Orbiter (MRO) could utilize MSPA while in orbit around Mars prior to achieving their final science orbit. What affects this is the MRO orbit apogee, transmitting frequency, antenna beamwidth (34m and 70m) and Mars range.
4. Assigned to RFC; Chris Jacobs; Due: 09/12/2003 - **Pending**
Investigate and propose alternative support versus the recommended deletion of Reference Frame Calibration (RFC) Catalog Enhancement and Maintenance (Cat M&E) support.
5. Assigned to DSMS Engineering; Jeff Osman and John Cucchissi; Due: 1/15/2004 - **Open**

Distribute plan for 26m subnet antenna hydraulic system refurbishment. This will then be worked by the Resource Analysis Team to coordinate DSS-16/46/66 downtimes with Operations and Flight Projects.

6. 2005 October Polar; Nap Lacey; Due: 09/18/2003 - **Closed**

Update Mission Set to show that Polar will end their mission as of October 1, 2005.

RESPONSE: (09/10/03) The RAPSO Mission Set has been updated to reflect the new End of Mission date of October 1, 2005.

Resource Analysis Team – K. Kim

The following is a list of changes to the DSN Mission Planning Set:

- Ulysses Project has extended the End of Prime Mission to March 31, 2008.
- The Lunar-A launch has been changed to reflect the August 30, 2004 launch date.

For a complete listing of Ongoing and Advanced Planning projects visit the following link for the RAPSO website: <http://rapweb.jpl.nasa.gov/tmodmiss.pdf>

The following is a list of changes to the DSN Resource Implementation Planning Matrix:

- 20kW X-band is now available at DSS-25.
- DSS-27 is now scheduled for NSP delivery by January 31, 2005.
- A date has been determined for the DSS-54 X/X/Ka installation of August 01, 2007.

For a complete listing of the DSN Resource Implementation visit the following link for the RAPSO website: <http://rapweb.jpl.nasa.gov/tmodplns.pdf>

A special study has been completed on the Integral DSN Requirements Review.

The Mid-Range scheduling RAP Team will transfer weeks 01 - 04 to DSN scheduling on November 07, 2003. Schedule negotiations have been completed for weeks 14 and 15; which puts Mid-Range Scheduling 27 weeks ahead of real-time.

RARB User Loading Profiles and Event files have been posted for Project review. All Projects were asked to update their ULP and Mission Events files and return them to the RAPSO team no later than October 31, 2003. The February 2004 RARB timeline is available and has been posted on the RAPWeb site.

DSN Downtime Forecast – A. Andujo

The Antenna Balancing task at DSS-43, proposed and approved at the August 2003 RARB, is proposed to move to an earlier date due to concerns over its close proximity to the Cassini Saturn Orbit Insertion, which will require DSS-43 for its success. The task was proposed and approved to occur in weeks 22-23 of 2004 (May 29 – June 06, 2004).

Please see the attached downtime report for a complete listing of downtimes or visit the following link on the RAPSO website: <http://rapweb.jpl.nasa.gov/planning.htm>

DSN Operations – J. Buckley

There was no presentation given at this month's JURAP.

Goldstone Solar System Radar – M. Slade

GSSR successfully carried out a Mars 4-station Interferometry track, in support of Mars landing site investigations for the Mars Program Office, and a successful final Mars DSS-14-to-VLA track.

In conjunction with Arecibo, GSSR successfully supported observations for Near-Earth Asteroid 1999 CU3. GSSR also successfully supported observations of SR84 2003 and binary Near-Earth Asteroid 2003 SS84.

DSS-14-to-Arecibo X-band observations of Mercury's North Pole were carried out. The observation on DOY 255 had no echo, for reasons that remain unclear. On DOY 256, DSS-14 recorded no outgoing phase to synch up the Random Long Code. No significant problems were observed on the other 3 days.

Arecibo-to-Goldstone S-band Radar Speckle Displacement tracks on Mercury, in support of the MESSENGER project, and Venus, in support of the Venus Express project were successful.

The Mid-Range scheduling process is so far ahead that GSSR and co-observers, such as Arecibo, are having difficulty scheduling time. Proposed solutions were discussed.

Radio Astronomy / Special Activities – G. Martinez

In September, the DSN performed two Clock Sync's; one went perfectly, but the other suffered an antenna problem. 90% data capture was reported.

One Cat M & E's was performed with no problems. In total, 100% data time was utilized.

Space Geodesy Program performed IVS-T2021, International VLBI Service (IVS) T2 sessions to monitor the Terrestrial Reference Frame. The observation was 100% successful at DSS-45. The SGP also supported EUROPE-69, to determine station coordinates and their evolution in the European geodetic VLBI network, with the highest precision possible. No problems were reported by DSS-65.

Mr. Martinez discussed the DSS-55 BWG Ties, that these passes are intended to tie DSS-55 to the International Terrestrial Reference Frame, to the DSN. These passes will also verify the usability of DSS-55 for radiometric observations, especially VLBI observations such as delta DOR.

- Test the ability of DSS-55 to acquire natural radio sources using an open loop receiver.
- Test the ability of DSS-55 to record a signal to the VSRs.
- Test the ability of DSS-55 to acquire sources with blind pointing over the full sky.

- Tie together the SPC-60 BWG station locations in order to meet the DSN station location requirement of 3cm (or better) accuracy.

The first experiment was on DOY 263 with DSS-54 and neither station reported data loss. The first VLBI fringes from DSS-55 were detected for all sources observed.

JURAP Science Advisor – E. Smith

There was no presentation given at this month's JURAP.

FLIGHT PROJECTS REPORTS

Voyager – J. Hall

Both Voyager spacecraft are healthy and all operations are nominal. During this period the Voyager spacecraft completed routine science and spacecraft maintenance support successfully. Overall DSN support was reported as good.

Stardust - R. Ryan

The Stardust spacecraft is healthy and operations continue normally. There are some issues with DSS-14 support, however. The station has had some problem locking up on Telemetry from the spacecraft. The issue seems to be related to DSN predicts and the antenna pointing model. This is becoming a concern, as each of the two passes per week are very important to the mission. There has been some action in investigating the issue, as it affects all missions using the DSS-14 antenna.

The spacecraft has exited from superior conjunction and has been configured for cruise. There have been problems with contamination to the Navigation Camera. Project personnel are working to clear the contamination and calibrate the camera.

Mars Global Surveyor – P. Poon

The MGS spacecraft is in good health and operations are nominal. It has been determined that the spacecraft has enough fuel to continue operations throughout the decade. The project has been occupied with planning and performing Orbit Synchronization Maneuvers to position the spacecraft in order to perform relay support for MER-A and B EDL.

Mars Odyssey – P. Poon

The Mars Odyssey mission is healthy and has been meeting all mapping objectives to date. One of the key findings has been that the spacecraft has found a greater amount of ice than was previously believed to exist on Mars. The Prime mission of Mars Odyssey will be ending in August of 2004, but the Program is developing an extended mission for the spacecraft. Like the MGS mission the M01O spacecraft will provide relay support for the MER missions, but M01O will also perform relay support for the Beagle-2 Rover.

Cassini – D. Doody

The Cassini spacecraft is healthy. Currently the spacecraft is conducting routine science observations, with approach science observations beginning in January of 2004. Results from the Radio Science Solar Conjunction Experiment were published in Nature magazine. The project is preparing for the 20-day Gravitational Wave Experiment #3. Ka-Band support at DSS-25 is improving and has been measured to output 400 to 600 Watts; however the spacecraft is having difficulty receiving.

All other operations are proceeding well, Cassini successfully completed TCM-19B, which successfully demonstrated SOI burn cutoff algorithm based on energy determination on-board, on DOY 274. Approach Science / Tour Operations Readiness Review was completed on October 7 and 8. The Cassini mission is participating in Array Support testing. DSMS has responded to the projects request for replacement of NOCC-R/T display, the system is under project evaluation. The Project is concerned that its visibility into the DSN might be a problem, possibly risking degraded real-time support.

NOZOMI – M. Ryne

The Nozomi mission is still unable to communicate with the spacecraft since July 3, 2003. It has been determined after a recent short Delta –DOR campaign that the spacecraft missed its target trajectory by eight kilometers after the Earth Swingby in June. The project will attempt to communicate with the spacecraft at the end of November, at which time they will attempt repair operations. It is scheduled for the spacecraft to arrive at Mars on December 13, 2003. Once at Mars, it is unknown if the spacecraft will be alive or able to perform any science functions.

Hayabusa – M. Ryne

Mr. Ryne stated that the Hayabusa spacecraft is a Japanese technology test spacecraft with limited science duties. The Mission is to demonstrate ion propulsion, and will rendezvous with an asteroid and return a sample to Earth. Since launching the spacecraft in May, it has performed an Earth Swingby. The spacecraft will arrive at its target asteroid in June 2005, and return to Earth in 2007.

Mars Express –D. Holmes

There was no presentation given at this month's JURAP, but presentation material is included with the minutes.

INTEGRAL –D. Holmes

There was no presentation given at this month's JURAP, but presentation material is included with the minutes.

Space Infrared Telescope – J. Carr

There was no presentation given at this month's JURAP, but presentation material is included with the minutes.

Mars Exploration Rover – B. Toyoshima

There was no presentation given at this month's JURAP, but presentation material is included with the

minutes.

Ulysses – B. Brymer

There was no presentation given at this month's JURAP, but presentation material is included with the minutes.

MAP, ACE, IMAGE and Genesis – S. Waldherr

There was no presentation given at this month's JURAP, but presentation material is included with the Minutes.

WIND, POLAR, SOHO, GEOTAIL and Cluster – S. Waldherr

There was no presentation given at this month's JURAP, but presentation material is included with the Minutes.

Chandra – K. Gage

There was no presentation given at this month's JURAP.

ACE

Afkhami, F. GSFC
 Rhoads, L. L. GSFC
 Snell, J. M. GSFC
 Sodano, R. J. GSFC

Canberra Complex

Churchill, P. CDSCC
 Jacobsen, R. CDSCC
 Ricardo, L. CDSCC
 Robinson, A. CDSCC
 Wiley, B. CDSCC

Cassini

Arroyo, B. 264-235
 Chin, G. E. 230-310
 Doody, D. F. 230-310
 Frautnick, J. C. 230-301
 Gustavson, R. P. 230-301
 Matson, D. L. (PS) 230-205
 Maize, E. H. 230-104
 Mitchell, R. T. (PM) 230-205
 Seal, D. A. 230-205
 Webster, J. L. 230-104

Chandra

Gage, K. R. SAO
 Hefner, W. K. (PM) MSFC
 Marsh, K. SAO
 Weisskopf, M. C. (PS) MSFC
 Wicker, D. SAO
 Wright, G. M. MSFC

Cluster II

Abramo, C. A. 507-120
 Christensen, J. L. GSFC
 Dutilly, R. N. GSFC
 Gurnett, D. U. of Iowa
 Pickett, J. U. of Iowa

Europa

McNamee, J.B. (PM) 301-335
 Simpson, K.A. 301-335

Genesis

Arroyo, B. 264-235
 Burnett, D. S. CIT 170-25
 Hirst, E. A. 264-379
 Mainland, N. 264-235
 No, S. 264-235
 Sweetnam, D. N. (PM) 264-370

Goldstone Complex

Duran, A. GDSCC-57
 Massey, K. DSCC-61
 Massey, M. GDSCC-37
 McConahy, R. DSCC-33
 McCoy, J. DSCC-57
 Millard, T. DSCC-37

Goldstone Orbital Debris Radar (GODR)

Goldstein, R. M. (PM) 300-227

Goldstone Solar System Radar (GSSR)

Haldemann, A. F. 238-420
 Hills, D. L. 238-420
 Ostro, S. J. (PS) 300-233
 Slade, III, M. A. (PM) 238-420
 Wolken, P. R. 507-105

Gravity Probe-B

Arroyo, B. 264-235
 Keiser, M. (PS) Stanford Univ.
 Shapiro, Prof. I. I. Harvard Univ.

IMAGE

Abramo, C. A. 507-120
 Burley, R. J. GSFC
 Green, J. L. GSFC

IND / General

Doms, P. E. 303-400
 Polansky, R. G. 303-400
 Stelzried, C. T. 303-407
 Webber, III, W.J. 303-400

IND / DSMS Engineering

Freiley, A. J. 303-404
 Kimball, K. R. 303-404
 Klose, J. C. 303-404
 Kurtik, S. C. 303-210
 Osman, J. W. 303-210
 Sible, Jr., R. W. 303-404
 Statman, J. I. 303-404

IND DSMS / Mission Management Office

Rosell, S. N. 264-235
 Varghese, P. 264-235

IND / DSMS Operations

Almassy, W. T.	502-420
Berman, A. L.	303-403
Black, C. A.	303-403
Hodder, J. A.	303-403
Landon, A. J.	507-105
Martinez, G.	507-120
Nevarez, R. E.	502-400
Recce, D. J.	303-403
Roberts, J. P.	502-400
Salazar, A. J.	303-403
Schroeder, H. B.	507-120
Short, A. B.	507-120
Wackley, J. A.	303-403
Waldherr, S.	507-120
Watzig, G. A.	502-420
Wert, M.	502-420

IND DSMS Plans & Commitments

Abraham, D. S.	303-402
Altunin, V. I.	303-402
Benson, R. D.	303-402
Beyer, P. E.	303-402
Cesarone, R. J.	303-402
Chang, A. F.	303-402
Gillette, R. L.	303-402
Holmes, D. P.	303-402
Luers, E. B.	303-402
Miller, R. B.	303-402
Peng, T. K.	303-402
Poon, P. T.	303-402
Slusser, R. A.	303-402
Yetter, B. G.	303-402

IND / DSMS RAPSO

Andujo, A. E.	504-102
Baldwin, J. R.	301-240
Bartoo, R. H.	171-370
Borden, C. S.	301-165
Burke, E. S.	303-403
Hampton, E.	504-102
Kehrbaum, J. M.	301-180
Kim, K.	504-102
Lacey, N.	504-102
Lineaweaver, S.	504-102
Martinez, K. A.	504-102
Morris, D. G.	303-403
Wang, Y-F.	301-165
Zendejas, S. C.	301-165

ISTP (GEOTAIL/POLAR/SOHO/WIND)

Abramo, C. A.	507-120
Alexander, H.	502-320
Bush, R. I.	Stanford Univ.
Carder, M. E.	GSFC
Dutilly, R. N.	GSFC
Hearn, S. P.	GSFC
Mahmot, R. E.	GSFC
Milasuk-Ross, J.	GSFC
Miller, K. A.	GSFC
Mish, W. H.	GSFC
Nace, E. M.	GSFC
Pukansky, S. M.	GSFC

JPL/General

Burgess, L. N	230-107
Burton, M. E.	169-506
Finley, S. G.	11-116
Gershman, R.	264-440
Holladay, J. A.	303-404
Jurgens, R. F.	238-420
Kahn, P. B.	301-486
Kliore, A. J.	161-260
Kobrick, M.	300-233
Moore, W. V.	161-260
Morabito, D. D.	161-260
Naudet, C. J.	238-600
Resch, G. M.	238-600
Robbins, P. E.	161-260
Silva, A.	149-200
Smith, J. L.	301-180
Taylor, A. H.	264-538
Toyoshima, B.	301-276
Winterhalter, D.	169-506
Woo, H. W.	126-110
Yung, C. S.	238-808

Madrid Complex

Martin, A.	MDSCC
Gimeno, J.	MDSCC
Gonzalez, C.	MDSCC
Pasero, G.	MDSCC

MAP

Abramo, C. A.	507-120
Bennett, C. L. (PS)	GSFC
Coyle, S. E.	GSFC
Dew, H. C.	GSFC

Mars Exploration Rover (MER A & B)

Adler, M.	T-1723
Arroyo, B.	264-235
Compton, B.	230-102
Crisp, J. A. (PS)	T-1722
Erickson, J. K.	T-1723
Ludwinski, J.B.	T-1722
Roncoli, R. B.	301-140L
Theisinger, P. C. (PM)	T-1722

Mars Express

Horttor, R. L. (PM)	238-540
Thompson, T. W.	300-227

Mars Global Surveyor

Albee, A. (PS)	264-282
Arroyo, B.	264-235
Brower, E. E.	264-235
Thorpe, T. E. (PM)	264-214
Yetter, K. E.	264-235

Mars Program Office

Cutts, J. A.	264-426
Edwards, C.	301-340
Jordan, Jr., J. F.	264-472
McCleese, D. J.	264-426
Naderi, F. M.	264-438

Mars Reconnaissance Orbiter

Arroyo, B.	264-235
Graf, J. E. (PM)	264-440
Johnston, M. D.	301-140L
Lock, R. E.	301-140L
Zurek, R. (PS)	301-420

Mars 2001 Odyssey Mission

Arroyo, B.	264-235
Harris, J. A.	301-455
Landano, M. R. (PM)	264-725
Mase, R. A.	264-380
Saunders, R. S. (PS)	180-701
Spencer, D. A.	264-255

NASA Headquarters

Costrell, J. A.	Code MT
Geldzahler, B.	Code SR
Hertz, P.	Code SR
Holmes, C. P.	Code SR
Spearing, R. E.	Code M3

NASA/GSFC/General

Barbehenn, G. M.	GSFC
Levine, A. J.	GSFC
Martin, J. B.	GSFC

NASA/SOMO

Dalton, J. T.	GSFC
Downen, A. Z.	303-400
Hall, V. F.	JSC
Morse, G. A.	JSC
Thompson, E. W.	JSC

NOZOMI (Planet B)

Tay, P.	264-235
Yetter, K. E.	264-235

Radio Astronomy

Klein, M. J. (PM)	303-402
Kuiper, T. B. (PS)	169-506
Martinez, G.	507-120
Volken, P. R.	507-105

Space Infrared Telescope Facility (SIRTF)

Arroyo, B.	264-235
Gallagher, D. B. (PM)	264-767
Kwok, J. H.	264-767
Werner, M. W. (PS)	265-767

Stardust

Arroyo, B.	264-235
Duxbury, T. C. (PM)	264-379
Hirst, E.	264-379
Ryan, R. E.	301-285

Ulysses / Voyager

Arroyo, B.	264-235
Brymer, B. F.	264-114
Cummings, A. C.	CIT 220-47
Hall, Jr., J. C.	264-801
Massey, E. B. (PM)	264-801
Smith, E. J. (PS - ULS)	169-506
Stone, E.C. (PS - VGR)	CIT 220-47

U.S. Space VLBI

Altunin, V. I.	303-402
Miller, K. J.	264-828
Preston, R.A. (PS)	238-332
Smith, J. G. (PM)	264-828

Please send any additions, deletions, or corrections to: David G. Morris
email: David.G.Morris@jpl.nasa.gov



Joint Users Resource Allocation Planning

October 16, 2003

Proposal:

DSS-43 Elevation Rebalance and Structural Reinforcement

Resource Allocation Planning & Scheduling Office
Interplanetary Network Directorate



Events

DSS-15 approved downtime (antenna controller replacement) ends in week 24

DSS-43 proposed downtime (elevation rebalance and structural reinforcement, weeks 22 – 23)

Cassini approach and TCM (DOY 147)

Genesis maneuver on DOY 146/147

GSSR Venus RSD

Mars Exploration Rover 1 surface operations

Mars Odyssey mapping

MESSENGER launch phase

MUSES Trim-4

Rosetta DSM-1

SOHO TSO 5-day continuous support in week 22 and HSO continuous support beginning in week 23



Recommendations

Approve DSS-43 downtime in week 22 (Sat DOY 150) through week 23 (Sunday DOY 158)

Cluster remove DSS-43 from SSO request in week 23

DSS delete week 23 DSS-63 bearing and routine maintenance support and change DSS-14 from one 6-hour block to two 4-hour blocks.

GBRA move week 23 DSS-63 Host Country to week 24, move DSS-14\63 RA-500 to week 24, and delete the DSS-43 M-wave spectroscopy

M01O move 70M mapping and MSPA support with MER1 to DSS-14,63

MER1 move 70M MSPA support with M01O DSS-14,63

RFC move week 22 and 23 CAT M&E pair to week 24 and 25

VGR1 change support in week 23 from 70M to DSS-14

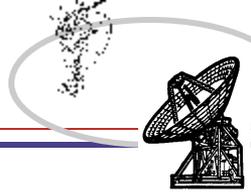
VGR2 change week 23 U/L support at DSS-43 to BLF using DSS-34 and routine request from DSS-34,43,45 to DSS-34,45

MAP change week 23 support from 70M to DSS-14,63 and add 2 ranging passes at DSS-34



Analysis

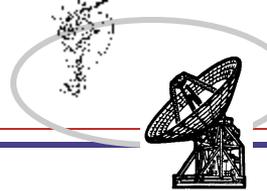
The proposed downtime at DSS-43 causes contention with requirements supporting Cluster SSO, GBRA M-wave spectroscopy, M01O mapping, MER1 surface operations, VGR1 U/L, VGR2 U/L and routine support, and MAP



Action Item Status From 12 August 2003 RARB (Resource Allocation Review Board)

David G. Morris
October 16, 2003

JPL



Action Item Summary

<i>AI#</i>	<i>Year</i>	<i>Month(s)</i>	<i>System</i>	<i>Responsible</i>	<i>Due Date</i>	<i>Status</i>
01	2003-2004	December-April	Mars Program	B. Arroyo	06/01/2003	Closed

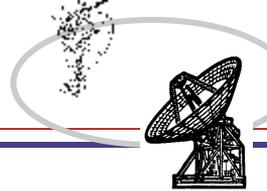
ACTION: (aka 8/13/02 RARB A.I. #7) Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item 6 (of 8/13/02 RARB) to clarify the scope of resources in which to plan to.

RESPONSE: (10/06/2003) All weeks are delivered.

<i>AI#</i>	<i>Year</i>	<i>Month(s)</i>	<i>System</i>	<i>Responsible</i>	<i>Due Date</i>	<i>Status</i>
02	2004	June - July	Cassini	R. Gillette/ D. Seal	09/12/2003	Closed

ACTION: Prepare Risk Assessment for Cassini because of DSS-43 Rebalance Downtime planned in June 2004. Concern is that this occurs too close to the Cassini Saturn Orbit Insertion (SOI).

RESPONSE: (9/04/03) Office 930 states that this downtime is too close to this Class A event and has requested an alternative downtime plan. The Resource Analysis Team is tasked to do this.



Action Item Summary

<i>AI#</i>	<i>Year</i>	<i>Month(s)</i>	<i>System</i>	<i>Responsible</i>	<i>Due Date</i>	<i>Status</i>
03	2006	July	MRO	R. Lock J. Hodder	11/09/2003	Open

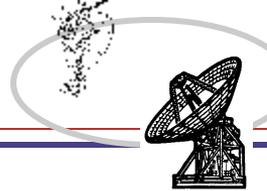
ACTION: Evaluate whether Mars Reconnaissance Orbiter (MRO) could utilize Multiple Spacecraft per Aperture (MSPA) while in orbit around Mars prior to achieving their final science orbit. What affects this is the MRO orbit apogee, transmitting frequency, antenna beamwidth (34m and 70m) and Mars range.

RESPONSE:

<i>AI#</i>	<i>Year</i>	<i>Month(s)</i>	<i>System</i>	<i>Responsible</i>	<i>Due Date</i>	<i>Status</i>
04	2006	July & Sept.	RFC	C. Jacobs	09/12/2003	Pending

ACTION: Investigate and propose alternative support versus the recommended deletion of Reference Frame Calibration (RFC) Catalog Enhancement and Maintenance (Cat M&E) support.

RESPONSE:



Action Item Summary

<i>AI#</i>	<i>Year</i>	<i>Month(s)</i>	<i>System</i>	<i>Responsible</i>	<i>Due Date</i>	<i>Status</i>
05	2004-5		DSMS Engineering	J. Osman J. Cucchissi	01/15/2004	Open

ACTION: Distribute plan for 26m subnet antenna hydraulic system refurbishment. This will then be worked by the Resource Analysis Team to coordinate DSS-16, 46 and 66 downtimes with Operations and Flight Projects.

RESPONSE: (9/10/2003) Changed due date as it will take extended time to plan new implementation dates.

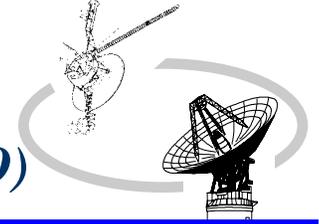
<i>AI#</i>	<i>Year</i>	<i>Month(s)</i>	<i>System</i>	<i>Responsible</i>	<i>Due Date</i>	<i>Status</i>
06	2005	October	Polar	N. Lacey	09/12/2003	Closed

ACTION: Update mission set to show that Polar will end their mission as of October 1, 2005.

RESPONSE: (9/10/2003) Mission Set reflects this new date.



Interplanetary Network Directorate
DEEP SPACE MISSION SYSTEMS (DSMS)



JPL

Resource Allocation Planning & Scheduling Office (RAPSO)

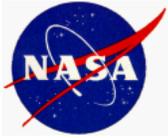
JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE



Resource Analysis Team

October 16, 2003

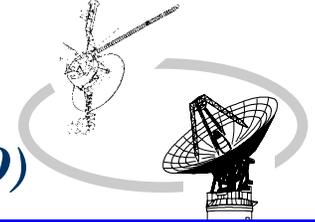
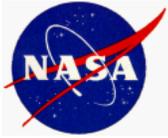
Kevin Kim



Resource Allocation Planning & Scheduling Office (RAPSO)

– Ongoing / Approved Projects –

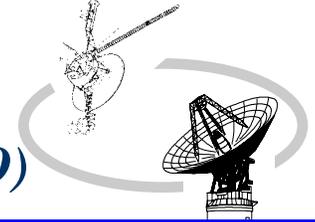
Project	Acronym	Launch or Start	EOPM	EOEM
DSN Antenna Calibration	DSN	--	--	--
DSS Maintenance	DSS	--	--	--
European VLBI Network	EVN	--	--	--
Ground Based Radio Astronomy	GBRA	--	--	--
Reference Frame Calibration	DSN	--	--	--
Space Geodesy	SGP	--	--	--
Voyager 2	VGR2	08/20/77	10/15/89	09/30/07
Voyager 1	VGR1	09/05/77	12/31/80	09/30/07
Goldstone Solar System Radar	GSSR	04/01/85	--	--
Ulysses	ULYS	10/06/90	09/11/95	03/31/08
Geotail	GTL	07/24/92	07/24/95	09/30/07
Wind	WIND	11/01/94	11/01/97	09/30/07
SOHO	SOHO	12/02/95	05/02/98	09/30/07
Polar	POLR	02/22/96	08/23/97	09/30/05
Gravity Probe B	GPB	06/01/96	05/30/05	TBD
Mars Global Surveyor	MGS	11/07/96	02/01/01	01/03/08
Advance Composition Explorer	ACE	08/25/97	02/01/01	09/30/07



Resource Allocation Planning & Scheduling Office (RAPSO)

– Ongoing / Approved Projects (continued) –

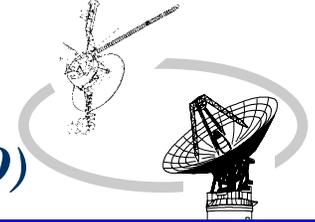
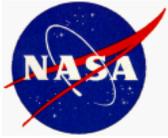
Project	Acronym	Launch or Start	EOPM	EOEM
Cassini	CAS	10/15/97	06/30/08	06/30/10
Nozomi (Planet-B)	NOZO	07/03/98	12/31/05	TBD
Stardust	SDU	02/07/99	01/14/06	---
Chandra X-ray Observatory	CHDR	07/23/99	07/24/09	07/24/14
Imager for Magnetopause-to-Aurora Global Exploration	IMAG	03/25/00	05/30/02	09/30/07
Cluster 2 - S/C #2 (Samba)	CLU2	07/16/00	02/15/03	09/30/07
Cluster 2 - S/C #3 (Rumba)	CLU3	07/16/00	02/15/03	09/30/07
Cluster 2 - S/C #1 (Salsa)	CLU1	08/09/00	02/15/03	09/30/07
Cluster 2 - S/C #4 (Tango)	CLU4	08/09/00	02/15/03	09/30/07
2001 Mars Odyssey	M01O	04/07/01	08/24/04	05/29/08
Wilkinson Microwave Anisotropy Probe	WMAP	06/30/01	10/01/03	10/01/06
Genesis	GNS	08/08/01	09/08/04	---
Mission Enhancement by Ground-based Astronomy	MEGA	02/01/02	12/31/08	---
International Gamma Ray Astrophysics Lab	INTG	10/17/02	12/18/04	12/18/07
Hayabusa (MUSES - C)	MUSC	05/09/03	06/05/07	---
Mars Express Orbiter	MEX	06/02/03	02/11/06	08/03/08
Spirit (Mars Exploration Rover - A)	MER2	06/10/03	04/06/04	05/11/04



Resource Allocation Planning & Scheduling Office (RAPSO)

– Ongoing / Approved Projects (continued) –

Project	Acronym	Launch or Start	EOPM	EOEM
Opportunity (Mars Exploration Rover - B)	MER1	07/07/03	04/27/04	06/15/04
Space Infrared Telescope Facility	STF	08/25/03	10/12/08	---
Rosetta	ROSE	02/26/04	12/31/15	---
Messenger	MSGR	05/11/04	04/06/10	---
Lunar - A	LUNA	08/30/04	04/11/05	---
Space Technology 5	ST5	11/19/04	02/27/05	TBD
Deep Impact	DIF	12/30/04	08/05/05	---
RadioAstron	RADA	03/15/05	06/15/10	TBD
Mars Reconnaissance Orbiter	MRO	08/10/05	12/31/10	12/31/15
Stereo Ahead	STA	11/15/05	02/15/08	---
Stereo Behind	STB	11/15/05	02/15/08	---



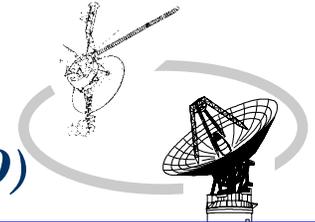
Resource Allocation Planning & Scheduling Office (RAPSO)

– Advanced / Planning Projects –

Project	Acronym	Launch or Start	EOPM	EOEM
New Horizons	NHPC	01/10/06	03/18/17	TBD
Dawn	DAWN	05/27/06	07/26/15	TBD
Phoenix Scout	M07S	08/09/07	11/04/08	TBD
Kepler	KPLR	10/01/07	09/26/11	TBD
Mars Telecommunications Orbiter 2009	M09T	09/07/09	09/07/16	09/07/20
Mars Science Laboratory 2009	M09L	10/25/09	03/04/12	TBD
Space Interferometry Mission	SIM	12/31/09	06/30/20	TBD
Advanced Radio Interferometry between Space and Earth (ARISE)	ARSE	06/15/10	06/15/15	---
VLBI Space Observatory Programme (VSOP-2)	VSP2	06/15/10	06/15/15	---
James Webb Space Telescope	JWST	08/01/11	07/31/16	TBD
Mars Placeholder 2011	M11S	10/30/11	09/10/14	TBD
Mars Placeholder 2013	M13O	11/28/13	08/21/16	TBD



Interplanetary Network Directorate
DEEP SPACE MISSION SYSTEMS (DSMS)



Resource Allocation Planning & Scheduling Office (RAPSO)

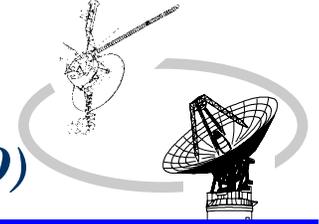
Station	Subnet	Delivery Date	S-Band Down	S-Band Up	X-Band Down	X-Band Up	20 kW X-Band	Ka-Band Down	Ka-Band Up	NSP
DSS-14	70M	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	XXXX
DSS-15	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	XXXX	TBD	N/A	XXXX
DSS-16	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A
DSS-24	34BWG1	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	10/23/05	N/A	XXXX
DSS-25	34BWG2	XXXX	N/A	N/A	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
DSS-26	34BWG2	XXXX	N/A	N/A	XXXX	XXXX	XXXX	XXXX	N/A	XXXX
DSS-27	34HSB	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	01/31/05
DSS-34	34BWG1	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	06/27/05	N/A	XXXX
DSS-43	70M	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	XXXX
DSS-45	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	XXXX	TBD	N/A	XXXX
DSS-46	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A
DSS-54	34BWG1	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	08/01/06	N/A	XXXX
DSS-55	34BWG2	11/01/03	N/A	N/A	11/01/03	11/01/03	11/01/03	11/01/03	N/A	11/01/03
DSS-63	70M	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	XXXX
DSS-65	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	XXXX	TBD	N/A	XXXX
DSS-66	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A

XXXX = Capability Currently Exists
N/A = Capability Not Planned

09/17/03

10/16/2003

KK - 5

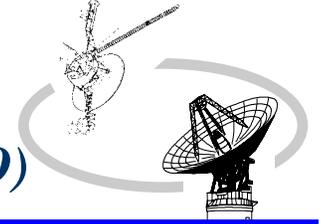
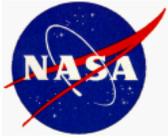


◆ RESOURCE NEGOTIATION STATUS

- 2004 WEEKS 01 – 04 (THRU 01/25/2004) DUE TO BE RELEASED TO DSN ON 11/07/2003.

- NEGOTIATIONS FOR 2004 WEEKS 16 – 17 (THRU 04/25/2004) WILL BEGIN 10/17/2003.
 - ◆ The mid-range scheduling process will have negotiated 27 weeks of schedules ahead of real-time. Currently, there are 18 weeks of conflict-free schedules ahead of real-time.

- PREVIEW FOR 2004 WEEKS 18 – 19 (THRU 05/09/2004) POSTED ON RAPWEB 10/09/2003, TO BE NEGOTIATED ON 10/31/2003.

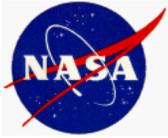


◆ **SPECIAL STUDIES/ACTIVITIES**

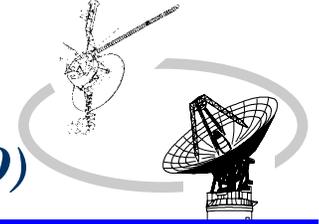
- INTEGRAL DSN REQUIREMENTS REVIEW

◆ **ON-GOING ACTIVITIES**

- MADB/TIGRAS TESTING AND TRAINING
- DOWNTIME PLANNING
- LUNAR-A LOAD STUDY – MISSION REPLAN
- MESSENGER SPECIAL STUDY – LAUNCH CHANGE
- PHOENIX LOAD STUDY
- ROSETTA LOAD STUDY – MISSION REPLAN
- ST-5 SPECIAL STUDY – LAUNCH CHANGE
- ULYSSES EXTENDED MISSION STUDY



Interplanetary Network Directorate
DEEP SPACE MISSION SYSTEMS (DSMS)



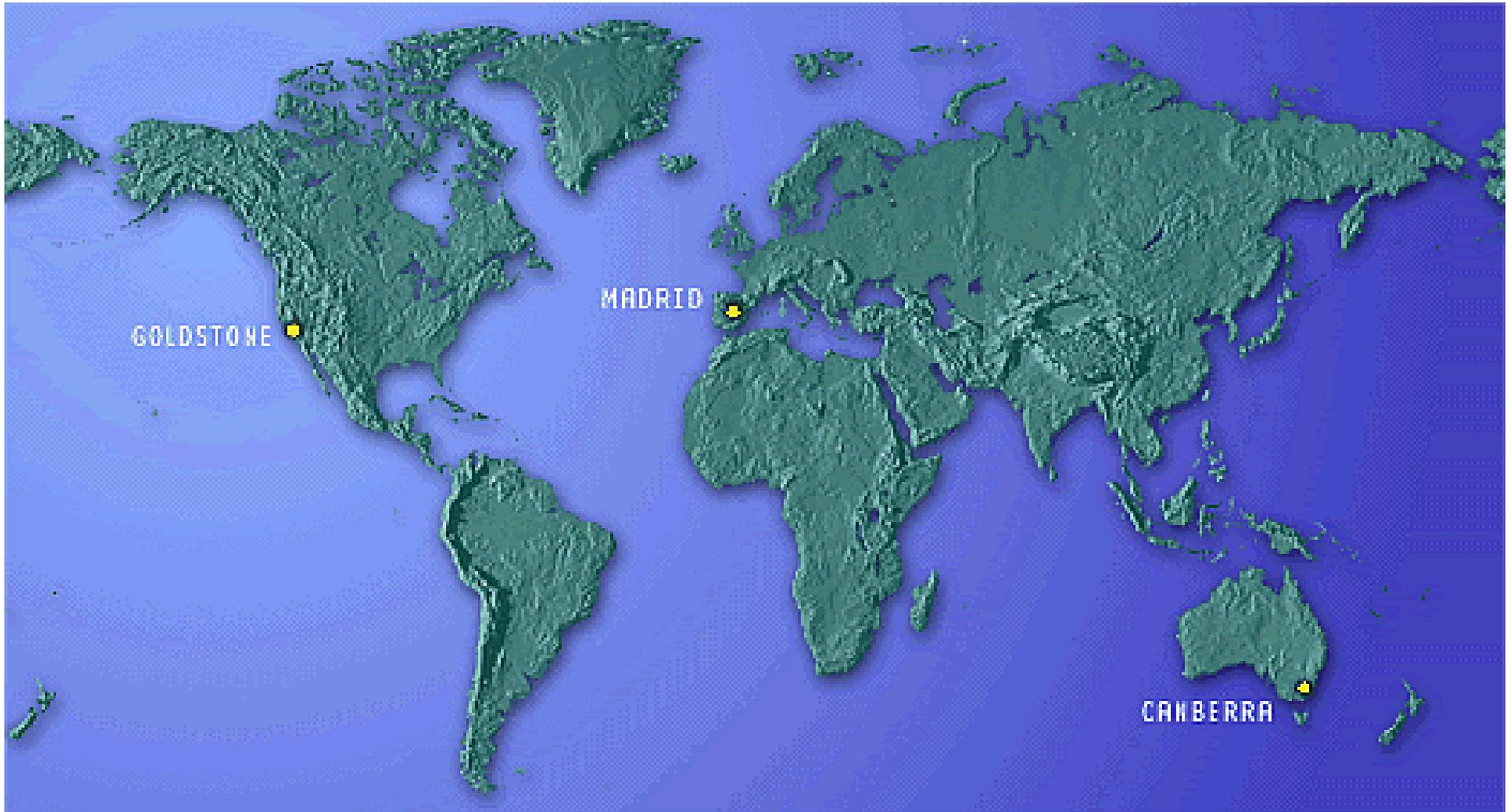
JPL *Resource Allocation Planning & Scheduling Office (RAPSO)*

◆ **RARB – February 10, 2004**

- LOADING DISTRIBUTION LETTER SENT OUT 10/13/2003
- TIMELINE POSTED ON RAPWEB 10/10/2003
- UPDATED USER LOADING PROFILES AND EVENTS POSTED ON RAPWEB 10/10/2003

[HTTP://RAPWEB.JPL.NASA.GOV](http://rapweb.jpl.nasa.gov)

DSN Antenna Downtime Status and Forecast



<http://rapweb.jpl.nasa.gov/planning>

Antenna Downtime Status and Forecast

Changes to 2003 Downtime Schedule

- ❑ The DSS-43 XHMT Replacement task has been scheduled to occur October 13 – 15, 2003 (DOY 286/1700 – 288/0750). This request was processed and resolved during the DSN negotiation process.
- ❑ There are no outstanding downtime requests for 2003. All previous requests have been negotiated and approved, either through the RARB, JURAP or Mid-Range Scheduling processes. No requests will be processed during the Antenna Contention period (ACP) of November 2003 – March 2004, without approval from JPL/DSN Management.

Antenna Downtime Status and Forecast

Changes to 2004 Downtime Schedule

- ❑ The DSS-14 Antenna Controller Replacement/Hydrostatic Bearing task scheduled from weeks 28-47 has been extended as requested by two weeks, to weeks 28-49 (22 week duration). This downtime has been approved during the August 2003 RARB.
- ❑ The DSS-45 Antenna Controller Replacement task scheduled from weeks 43-49 has been moved to another year, and in its place parts 1 and 2 of the DSS-45 Life Extension Task has been approved from week 33-49 (17 week duration) leaving the USC task previously scheduled in weeks 48-49 NIB. This downtime has been approved during the August 2003 RARB.
- ❑ The DSS-43 Antenna Rebalancing task was approved to occur in weeks 25-26 of 2004. This proposal was presented at the August 2003 RARB for approval by all board members but was contested by the Cassini project representatives. The task times have been reanalyzed and is proposed to occur in weeks 22-23 of 2004 (May 29 –June 06, 2004)

The changes to the DSS-14 and DSS-45 tasks will be presented at the August 2003 RARB and approved by all board members and were uncontested by any project representatives.

Antenna Downtime Status and Forecast

Changes to 2005 Downtime Schedule

- ❑ NSP Implementation task at DSS-27 has been approved to occur in weeks 01 – 04 of 2005.
- ❑ The addition of the DSS-65 Relocation and DSS-65 Life Extension tasks to the previously approved DSS-65 Antenna Controller Replacement task scheduled from weeks 08 – 14 has been approved as well as the additional three weeks to the front and 7 weeks to the end. The tasks are now scheduled to occur in weeks 05 – 21 of 2005 (17 week duration).
- ❑ The addition of the DSS-43 Hydrostatic Bearing task to the DSS-43 Antenna Controller Replacement task scheduled from weeks 30 – 36 has been approved, as well as the additional one week to the front and 16 weeks to the end. The tasks are now scheduled to occur in weeks 29 – 52 of 2005 (24 week duration).
- ❑ The previously approved DSS-63 Antenna Controller Replacement task scheduled from weeks 38 – 44 has been moved to 2006 due to changes to the DSS-43 time in 2005. All supports moved or modified by the task have been restored to their original request.

Antenna Downtime Status and Forecast

Changes to 2005 Downtime Schedule (Continued)

- The previously approved DSS-63 USC (Microwave Switch Controller) task scheduled in weeks 38 – 39 of 2005, has been approved to move to weeks 03 – 04 of 2005. This change was made due to the DSS-63 ACR change.

The addition of the DSS-27 NSP and changes to the DSS-65, DSS-43 and DSS-63 tasks were presented at the August 2003 RARB and approved by all board members and were uncontested by any project representatives.

Antenna Downtime Status and Forecast

Changes to 2006 Downtime Schedule

- ❑ The previously approved DSS-45 Antenna Controller Replacement task scheduled in weeks 43 - 49 of 2004 has been approved to move to weeks 44 - 52 of 2006 (9 week duration)
- ❑ The previously approved DSS-63 Antenna Controller Replacement task scheduled in weeks 38 – 44 of 2005 has been approved to occur in weeks 21 - 35 of 2006 (15 week duration)

The addition of the DSS-45 and DSS-63 tasks were presented at the August 2003 RARB and approved by all board members and were uncontested by any project representatives.

Antenna Downtime Status And Forecast Schedule

DSN Antenna Downtime Report

Revised: October 13, 2003

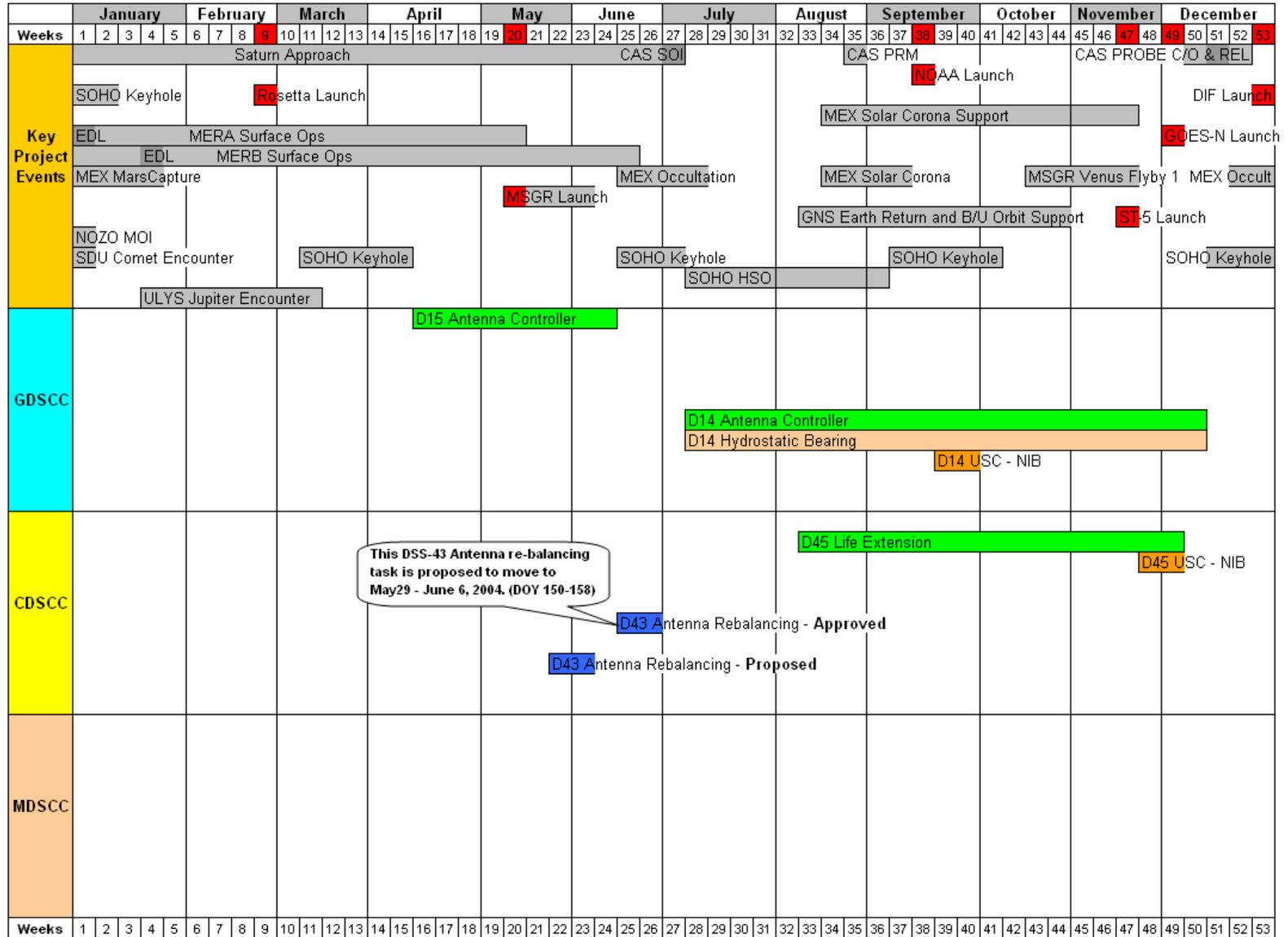
2003							
Site	Description	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 43	XHMT Service	10/13/2003 17:00	10/15/2003 07:50	2	42 - 42	286	287

2004							
Site	Description	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 15	Antenna Controller Replacement	04/12/2004 00:00	06/13/2004 23:59	63	16 - 24	103	165
DSS 43	Antenna Rebalance (Proposed)	05/29/2004 00:00	06/06/2004 23:59	9	22 - 23	150	158
DSS 43	Antenna Rebalance	06/19/2004 00:00	06/27/2004 23:59	9	25 - 26	171	179
DSS 14	Antenna Controller Replacement	07/07/2004 00:00	12/07/2004 23:59	154	28 - 50	189	342
DSS 14	Hydrostatic Bearing	07/07/2004 00:00	12/07/2004 23:59	154	28 - 50	189	342
DSS 45	Life Extension	08/09/2004 00:00	12/05/2004 23:59	119	33 - 49	222	340
DSS 14	NIB - USC Installation	09/20/2004 00:00	10/03/2004 23:59	14	39 - 40	264	277
DSS 45	NIB - USC Installation	11/22/2004 00:00	12/05/2004 23:59	14	48 - 49	327	340

2005							
Site	Description	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 27	NSP Implementation	01/03/2005 00:00	01/30/2005 23:59	28	01 - 04	003	030
DSS 27	NIB - USC Installation	01/10/2005 00:00	01/23/2005 23:59	14	02 - 03	010	023
DSS 63	USC Installation	01/17/2005 00:00	01/30/2005 23:59	14	03 - 04	017	030
DSS 26	USC Installation	01/24/2005 00:00	02/06/2005 23:59	14	04 - 05	024	037
DSS 65	Antenna Controller Replacement	01/31/2005 00:00	05/29/2005 23:59	119	05 - 21	031	149
DSS 65	NIB - USC Installation	01/31/2005 00:00	02/06/2005 23:59	7	05 - 05	031	037
DSS 65	Relocation	01/31/2005 00:00	05/29/2005 23:59	119	05 - 21	031	149
DSS 65	Life Extension	01/31/2005 00:00	05/29/2005 23:59	119	05 - 21	031	149
DSS 25	USC Installation	02/21/2005 00:00	03/06/2005 23:59	14	08 - 09	052	065
DSS 15	USC Installation	04/11/2005 00:00	04/24/2005 23:59	14	15 - 16	101	114
DSS 54	USC Installation	04/11/2005 00:00	04/17/2005 23:59	7	15 - 15	101	107
DSS 55	USC Installation	04/25/2005 00:00	05/01/2005 23:59	7	17 - 17	115	121
DSS 34	X/X-Ka Band	05/02/2005 00:00	06/26/2005 23:59	56	18 - 25	122	177
DSS 34	NIB - USC Installation	06/13/2005 00:00	06/26/2005 23:59	14	24 - 25	164	177
DSS 24	USC Installation	06/27/2005 00:00	07/03/2005 23:59	7	26 - 26	178	184
DSS 43	Antenna Controller Replacement	07/18/2005 00:00	01/01/2006 23:59	168	29 - 52	199	001
DSS 43	NIB - USC Installation	07/18/2005 00:00	07/31/2005 23:59	14	29 - 30	199	212
DSS 43	Hydrostatic Bearing	07/18/2005 00:00	01/01/2006 23:59	168	29 - 52	199	001

2006							
Site	Description	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
DSS 63	Antenna Controller Replacement	05/22/2006 00:00	09/03/2006 23:59	105	21 - 35	142	246
DSS 24	X/X-Ka Band	09/04/2006 00:00	10/22/2006 23:59	49	36 - 42	247	295
DSS 45	Antenna Controller Replacement	10/30/2006 00:00	12/31/2006 23:59	63	44 - 52	303	365

Antenna Downtime Status And Forecast 2004



Revised: October 16, 2003

Goldstone Solar System Radar

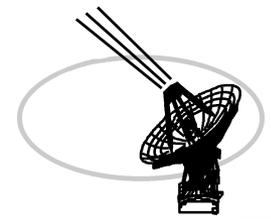


Martin A. Slade

October 16, 2003

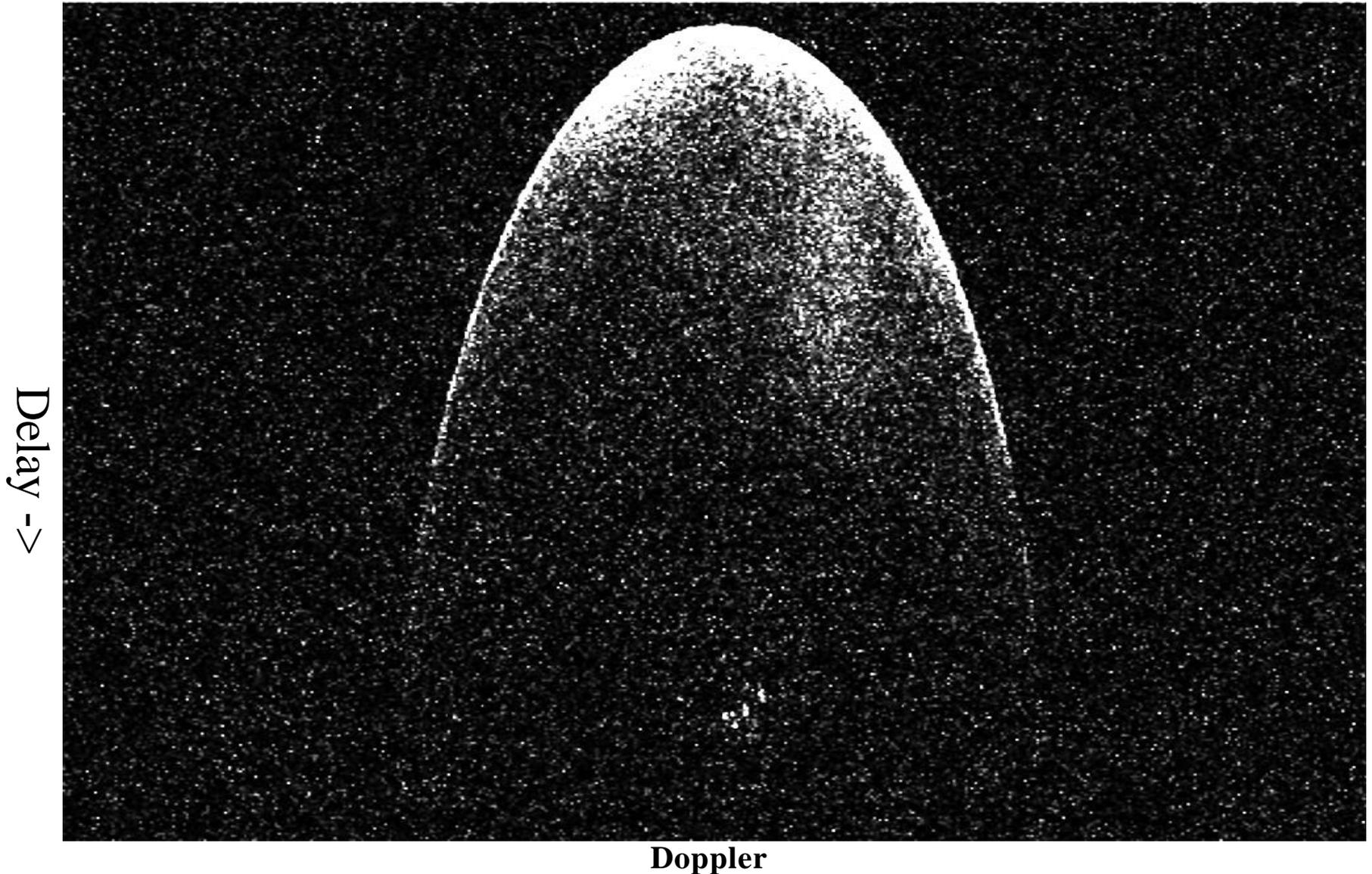
NASA Jet Propulsion Laboratory

Joint Users Resource Allocation Planning Committee Meeting

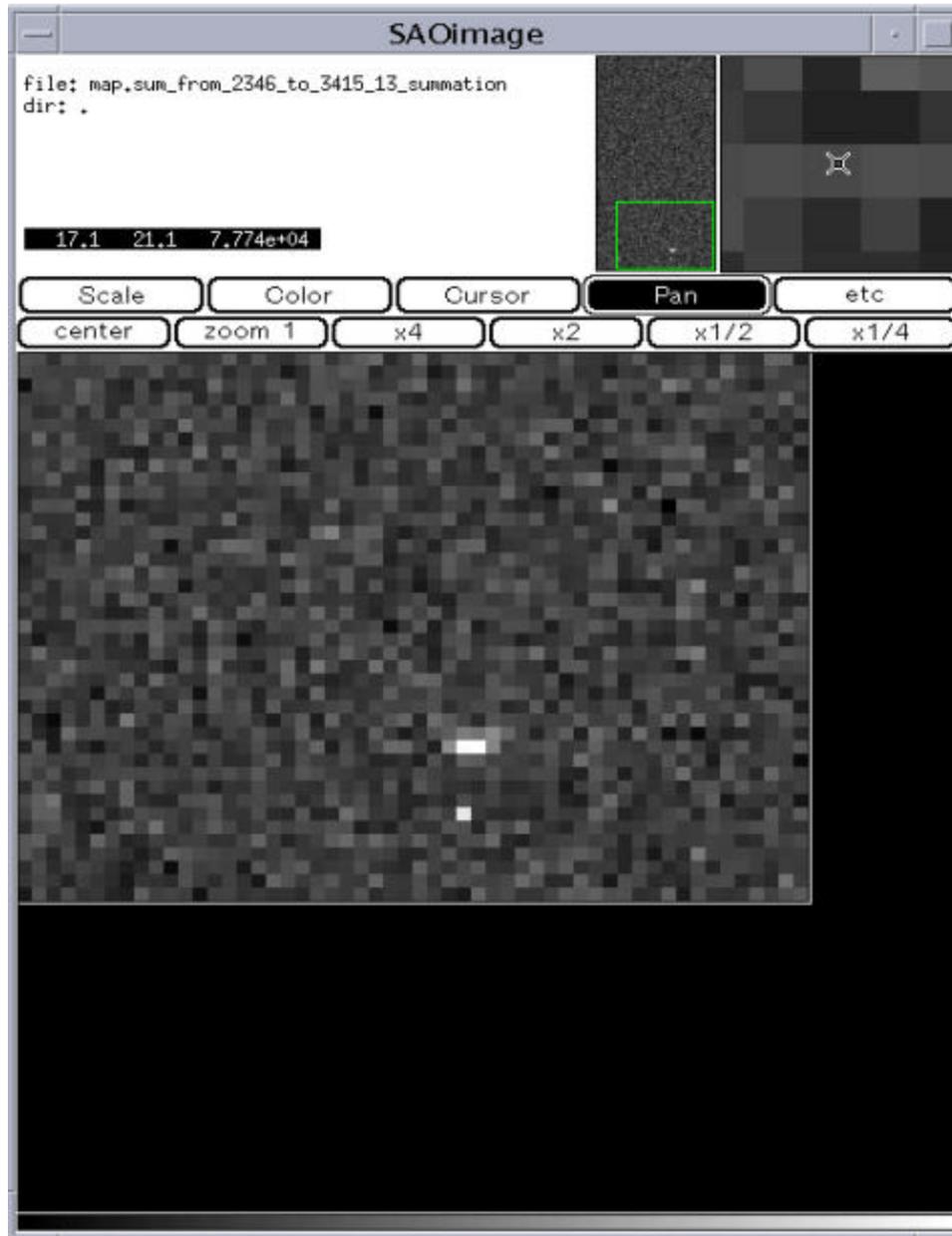


- On DOY's 259, 264, and 270, GSSR successfully carried out Mars 4-station interferometry, in support of Mars landing site investigations for the Mars Program Office. The stations involved were DSS-14, DSS-25, DSS-13, and GAVRT.
- On DOY 251, a final Mars DSS-14 to VLA track was successfully supported.
- On DOY's 260, 262, 263, 264, and 265, GSSR support for NEA 1999 CU3 observations in conjunction with Arecibo were successful. On DOY 271, GSSR support of 2003 SR84 observations was successful.
- On DOY's 254, 255, 256, 257, and 258, DSS-14 to Arecibo X-band observations of Mercury's North Pole were carried out. DOY 255 had no echo, for reasons that remain unclear. On DOY 256, DSS-14 recorded no outgoing phase to synch up the Random Long Code. No significant problems on other 3 days.
- In addition, Arecibo to Goldstone S-band Radar Speckle Displacement tracks on Mercury (DOY's 259-264) (MESSENGER support), and Venus (DOY's 251 to 254) (Venus Express) were successful.
- Observations of binary Near-Earth Asteroid 2003 SS84 were successful on DOY's 283 and 285

**Delay-Doppler image of Mercury observed at 3.5-cm by Arecibo Observatory with transmission from DSS-14 on Sept. 14, 2003
(30 minutes integrated of 144 minutes of data).**



Radar image of binary NEA 2003 SS84 on Oct. 12, 2003



INCOMING!



The killer-asteroid movies are almost forgotten, but the threat is real and unquantified. Will it fall to hobbyists to save the world?

by Gregory Mone

September 2003

1 | 2 | 3

Its name is 1950DA, it's the size of a small mountain, and it's headed for Earth. According to one grim scenario, 1950DA will hit its target—most likely water, since there is more water than land on our planet—and plunge to the seabed in a fraction of a second. When the asteroid meets the ocean floor, it will explode, excavating a crater 11 miles wide. A column of water and debris will shoot a few miles into the sky—to the height of a low-flying jetliner. Then skyscraper-high walls of water will head for shore, eventually breaking in the shallows and flooding the coast. The rest you know, if you saw the weepy 1998 asteroid movie *Deep Impact*.

Worse things may already have happened: One theory credits an 11-kilometer-wide asteroid with roasting dinosaurs alive 65 million years ago. The enormous impact sent debris flying back into space—some of it halfway to the Moon. When the asteroid bits reentered the atmosphere, the heat that was generated flash-baked plant and animal life. (Had that not happened, mind you, we probably wouldn't be here today.) 1950DA is minuscule by comparison, though even a still smaller asteroid could take out an entire city with a direct hit. And make no mistake, there are plenty of space rocks out there; one missed Earth by only 75,000 miles in June 2002—and wasn't spotted until after it had whizzed by.

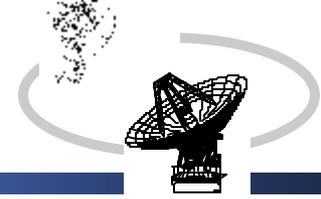
Now for the good news. First, 1950DA is 877 years away and a 300-to-1 long shot for actually striking the planet and doing the damage in the scenario above, which is part of a simulation recently created by planetary scientists Steven Ward and Erik Asphaug of the University of California, Santa Cruz. And although there are more 1950DAs out there—maybe bigger, maybe due to arrive much sooner—the search for potential killer asteroids is at least under way, though sorely underfunded. Furthermore, a small band of scientists, many of them fueled more by passion than by actual government grants, is working on novel methods to deal with asteroids before they get too close to be diverted or destroyed. (The time spans involved give a new definition to advance thinking: As the foldout on the previous pages shows, some diversion operations would require centuries to work.)

From "Popular Science", Sept. 2003

URL: <http://www.popsci.com/popsci/aviation/article/0,12543,473545,00.html>

RAP Scheduling is ahead of our “strategic partners” due dates, e.g., observations in April 2004 were due 10/01/03

- Problem? RAP needs to plan for the Mars Missions and the 03-04 overload, but for GSSR, we now can not get antenna time for our Observing Principal Investigators’ requests, since their due dates at NRAO (GBT, VLA) and Arecibo were Oct. 1, 2003.**
- Possible Solutions? Move due dates 6 month ahead of Arecibo’s and NRAO’s due dates? Since this would double the work of applying for each two-station observation, this is not a popular option with P.I.’s!**
- Place liens on time which is booked but may not be used (e.g., extended Missions which may not happen)? Downside: Greatly complicates greatly the already overburdened RAPvscheduling process.**



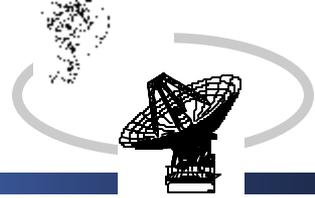
Radio Astronomy & Special Activities

October 16, 2003
George Martinez



TEMPO

(Time and Earth Motion Precision Observations)



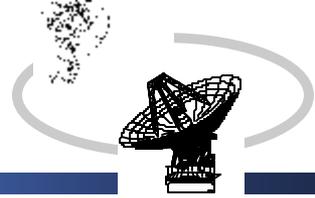
- **Clock Sync DOY 258**
 - No problems were reported by DSS-15.
 - DSS-65 reported a problem with starting up the antenna
 - Data tapes sent to the JPL correlator for processing.

- **Clock Sync DOY 272**
 - No problems were reported by by either DSS-15 or DSS-65.
 - Data tapes sent to the JPL correlator for processing.

- **Metrics**
 - 90% of data time utilized



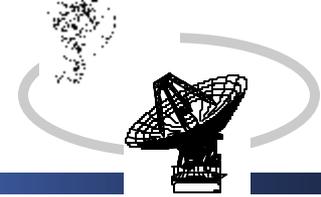
Catalog Maintenance & Enhancement



- **DOY 194**
 - No problems were reported by DSS-15.
 - DSS-65 reported a cable wrap problem.
 - Data tapes were sent to the JPL correlator for processing.

- **Metrics**
 - 100% of data time utilized

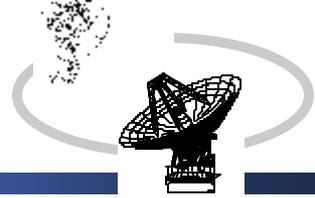




- **IVS-T2021**
 - The objective of the International VLBI Service (IVS) T2 sessions is to monitor the Terrestrial Reference Frame (TRF) via monthly sessions. All geodetic stations participate in at least three T2 sessions each year. These sessions replace the IRIS-S sessions observed in previous years.
 - No data loss was reported by DSS-45 in spite of confusion about removing UGC from the EAC link.
 - Data tapes sent to the Bonn correlator for processing.
- **Europe-69**
 - The purpose of the Europe sessions is to determine station coordinates and their evolution in the European geodetic VLBI network with the highest precision possible.
 - No problems were reported by DSS-65.
 - Data tapes sent to the Bonn correlator for processing.
- **Metrics**
 - 100% of data time utilized



Beam Wave Guide Ties (BWG Ties)



- **DSS-55 BWG Ties**

- **These passes are intended to tie DSS-55 to the International Terrestrial Reference Frame, which the DSN is already connected to. These passes will also verify the usability of DSS-55 for radiometric observations, especially VLBI observations such as delta DOR.**
 - **Test the ability of DSS-55 to acquire natural radio sources using an open loop receiver.**
 - **Test the ability of DSS-55 to record a signal to the VSRs.**
 - **Test the ability of DSS-55 to acquire sources with blind pointing over the full sky.**
 - **Tie together the SPC-60 BWG station locations in order to meet the DSN station location requirement of 3cm (or better) accuracy.**
- **The first experiment was on DOY 263 with DSS-54.**
- **No data loss was reported by either station.**
- **The first VLBI fringes from DSS-55 were detected for all sources observed.**





Mars Exploration Rover

MER Report to the JURAP

October 16, 2003



Activities



Mars Exploration Rover

- 7-station MER-A EDL COMM Dress Rehearsal 10/12-10/13
- PORT4/5 9/12 - 9/26
 - MER-A EDL/ITE/Surface (Testbed)
- PORT6 10/14 - 10/27
 - MER-B EDL/ITE/Surface (Testbed)
 - MER-A Surface (Testbed)
- Meanwhile, back in the real world:
 - Standard stationkeeping and housekeeping
 - Delta DORs
 - Calibrations & checkouts
 - Both S/C on MGA



Status



Mars Exploration Rover

- **MER-A**
 - 39.0 million miles from Earth
 - 10.9 million miles from Mars
 - OWLT = 3 min 29 sec
 - **Mission Managers Summary**
 - The Spirit (MER-A) spacecraft is in celestial mode, power positive, batteries charged to 80% (as planned), with all subsystems reporting nominal conditions. Spin rate is 1.95 rpm (nominal for cruise). Off-Sun angle is 17.7 degrees.

- **MER-B**
 - 36.7 million miles from Earth
 - 13.5 million miles from Mars
 - OWLT = 3 min 17 sec
 - **Mission Managers Summary**
 - The Opportunity (MER-B) spacecraft is in celestial mode, power positive, batteries at 80% (as expected), with all subsystems reporting nominal conditions. Spin rate is 1.96 rpm (nominal for cruise). Off-Sun angle is 25.8 degrees.



Telemetric Issues



Mars Exploration Rover

- On-going discussions on use of CONSCAN and SNT
- First use of 3555 bps in flight
 - >20 min bit rate change lock-up time
 - Lost Mossbauer checkout data
 - Subsequently retransmitted and all recovered
- RSR problems at Goldstone during EDL M-FSK Dress Rehearsal
- TSSs continue to be very value-added



ulysses

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

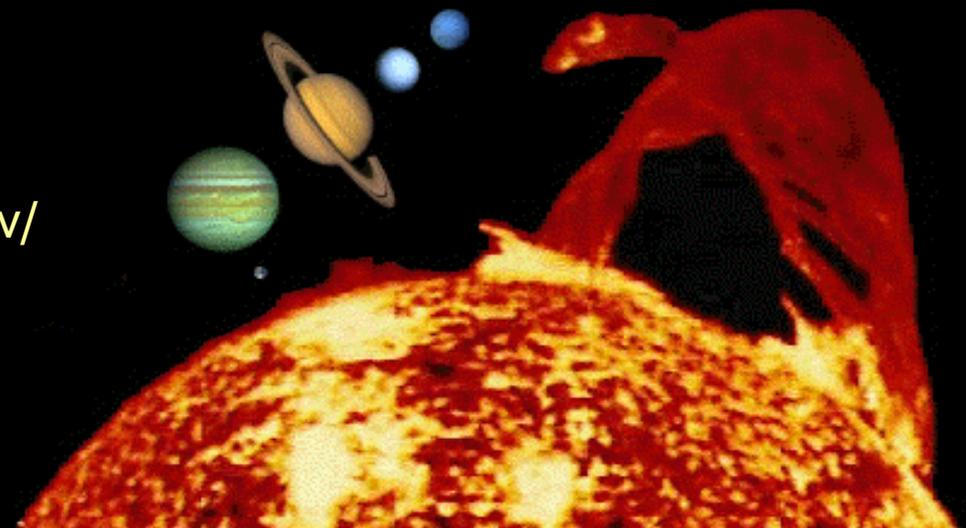
B. Brymer

October 16, 2003

NASA Jet Propulsion Laboratory



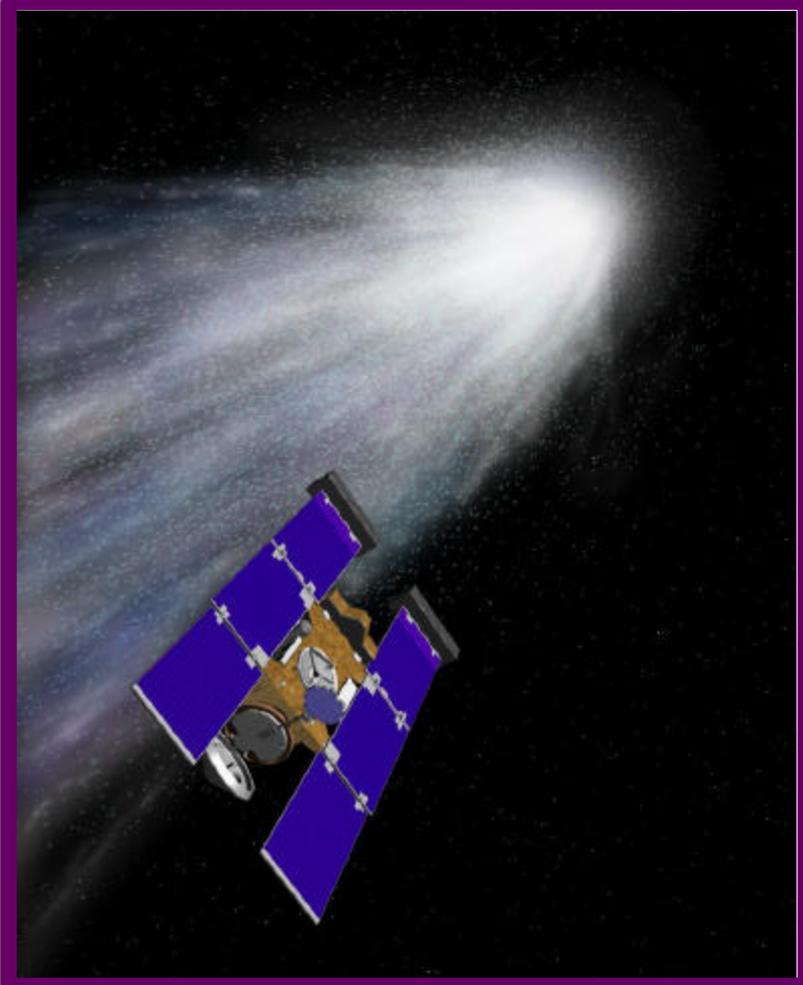
<http://ulysses.jpl.nasa.gov/>



ULYSSES

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

- NOMINAL SPACECRAFT OPERATIONS CONTINUE
- SPACECRAFT POWER AND THERMAL RECONFIGURATIONS AND INSTRUMENT CALIBRATIONS ARE PERFORMED AS REQUIRED
- SPACECRAFT EARTH POINTING MANEUVERS ARE BEING PERFORMED EVERY 4 DAYS
- DSN IS PROVIDING GOOD SUPPORT



STARDUST

JOINT USERS

RESOURCE ALLOCATION

PLANNING COMMITTEE

R. E. Ryan

OCTOBER 16, 2003

NASA Jet Propulsion Laboratory

<http://stardust.jpl.nasa.gov>

STATUS

SPACECRAFT IS HEALTHY (10/16/03)

PRESENTLY 2.3 AU from EARTH

00:39:08 RTL

1.4 AU from SUN

**EXIT FROM THE LONG SUPERIOR CONJUNCTION
STARTING ENCOUNTER ACTIVITIES**

TELEMETRY BIT RATE IS 504 bps (on HGA/34 METER)

DSMS SUPPORT SATISFACTORY THIS PAST PERIOD

– GOOD SUPPORT THROUGH SUPERIOR CONJUNCTION

- DSS 14 HAVING DIFFICULTY WITH STARDUST**

CURRENT ACTIVITIES

- **EXIT SUPERIOR CONJUNCTION**
 - ENCOUNTER PERIOD STARTED SEPTEMBER 24
 - BELOW 2 DEGREES SEP FROM AUGUST 2 THROUGH OCTOBER 2
(COMMAND UPLINK MORATORIUM)
 - SPACECRAFT RE-CONFIGURED FOR CRUISE
 - COMMAND LOSS TIMER FROM 80 DAYS TO NORMAL 17 DAYS
- **NAVCAM CONTAMINATION CALIBRATION ON OCTOBER 8**
 - THE CAL LAMP IS JUST A BLURRY GLOW
 - THE RELATIVE WARMUP DURING 1 AU PERIOD IN JUNE RESULTED IN RE-CONTAMINATION OF THE CAMERA OPTICS
 - CCD HEATERS HAVE BEEN TURNED ON FOR ONE WEEK
 - CALIBRATION WILL BE REPEATED

<http://stardust.jpl.nasa.gov>

UPCOMING EVENTS

TODAY IS WILD-2 ENCOUNTER MINUS 78 DAYS

CONTAMINATION CALIBRATION ON 10/8

CAMERA GEOMETRIC CALIBRATION ON 10/21

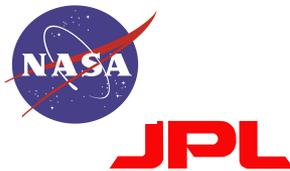
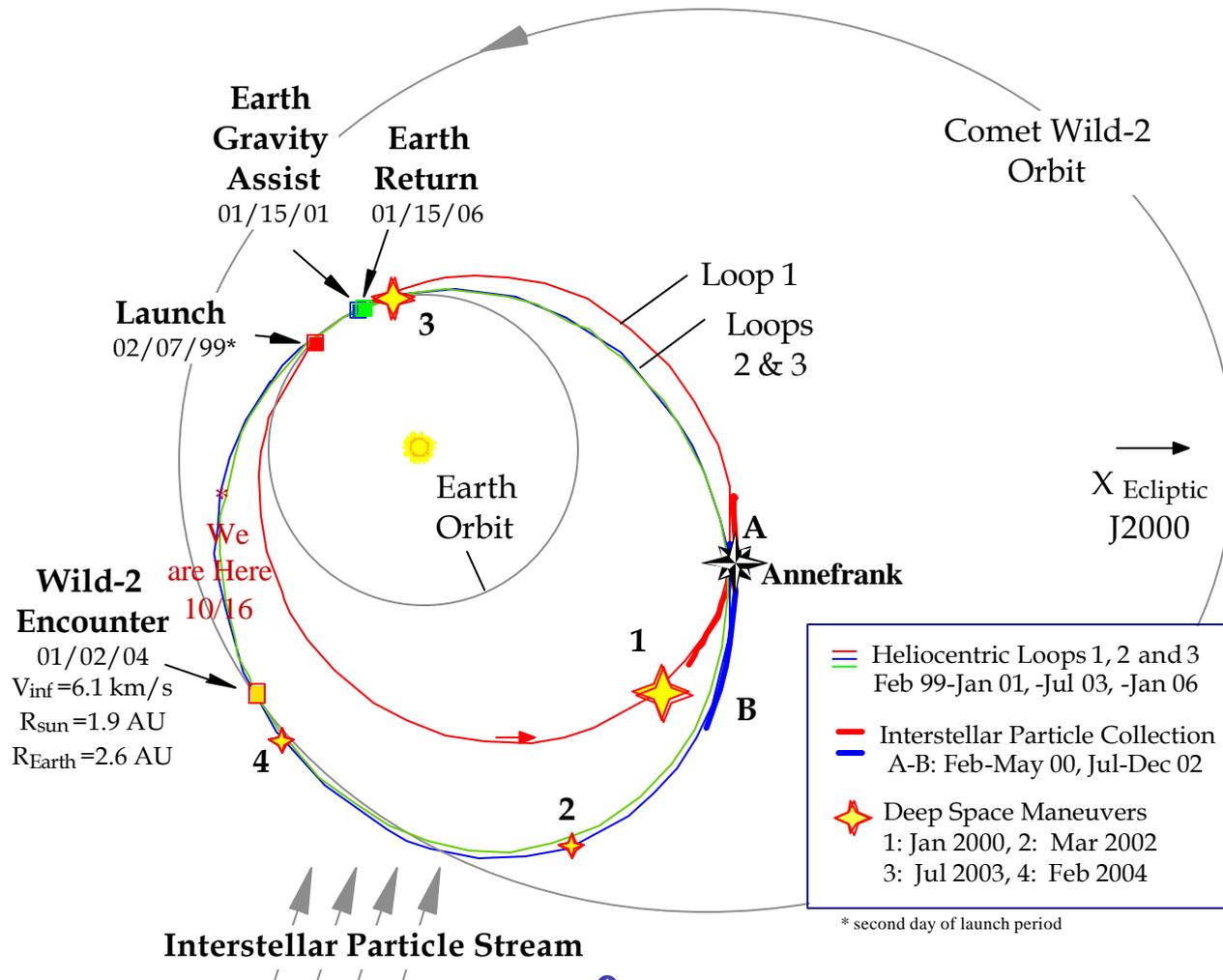
CAMERA PHOTOMETRIC CALIBRATION ON 10/30

ENCOUNTER ORT ON NOVEMBER 3 THROUGH 6

FIRST OPNAVCOMET OBSERVATION PLANNED FOR NOVEMBER 13

STARDUST

Report to JURAP



October 16, 2003





VOYAGER

FLIGHT OPERATIONS

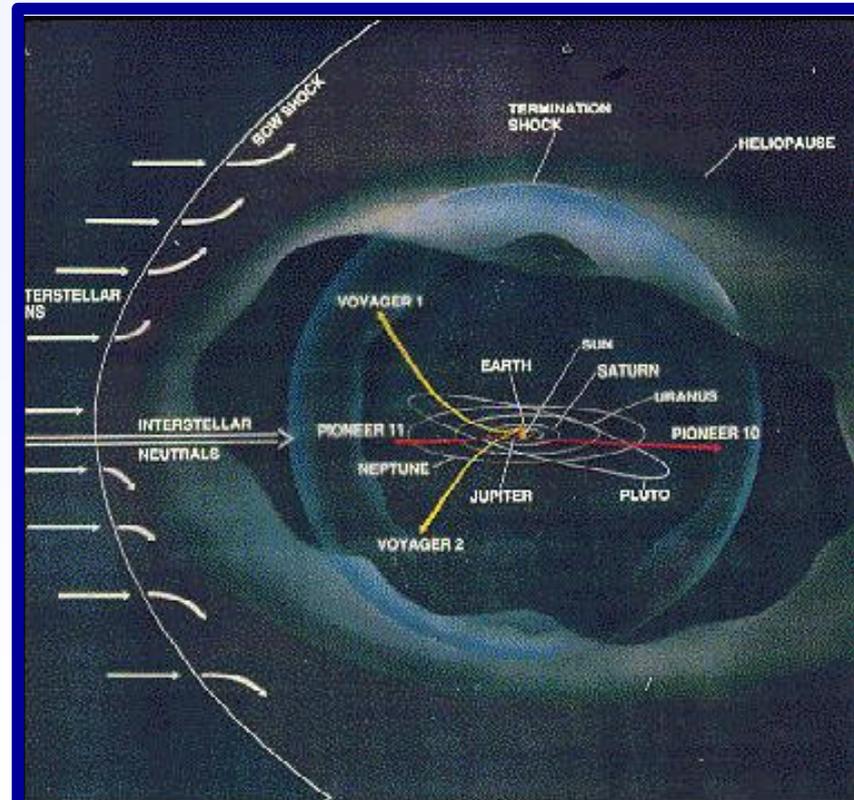
JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

**Jefferson Hall
October 16, 2003**

NASA Jet Propulsion Laboratory



<http://voyager.jpl.nasa.gov>





VOYAGER

FLIGHT OPERATIONS



FLIGHT SYSTEM STATUS

MISSION STATUS

VOYAGER 1

- * HELIOCENTRIC DISTANCE – 89.8 AU, RTLT – 25h2m58s
- * SPACECRAFT REMAINS HEALTHY
- * MAJOR ACTIVITY: ASCAL AND PMPCAL

VOYAGER 2

- * HELIOCENTRIC DISTANCE – 71.5 AU, RTLT – 19h51m12s
- * SPACECRAFT REMAINS HEALTHY
- * MAJOR ACTIVITY: ASCAL, MAGROL, & PMPCAL



VOYAGER

FLIGHT OPERATIONS



JPL

GROUND SYSTEM STATUS

(SEPTEMBER 13, 2003 - OCTOBER 10, 2003)

- DSN - OVERALL SUPPORT – GOOD
- NUMEROUS OUTAGES ON VOYAGER 1 DUE TO WEATHER AND ANTENNA POINTING PROBLEMS AT DSS-54 [all documented on DRs]. ONE OUTAGE ON VOYAGER 2 AT DSS-34 DUE TO RAIN.
- TWO SUCCESSFUL PARKES (DSS-49) PROFICIENCY TRACKS, ON 10/6 [DOY 279] AND 10/7 [DOY 280], PROVIDED GOOD TELEMETRY AND MONITOR DATA TO THE PROJECT.



VOYAGER

FLIGHT OPERATIONS

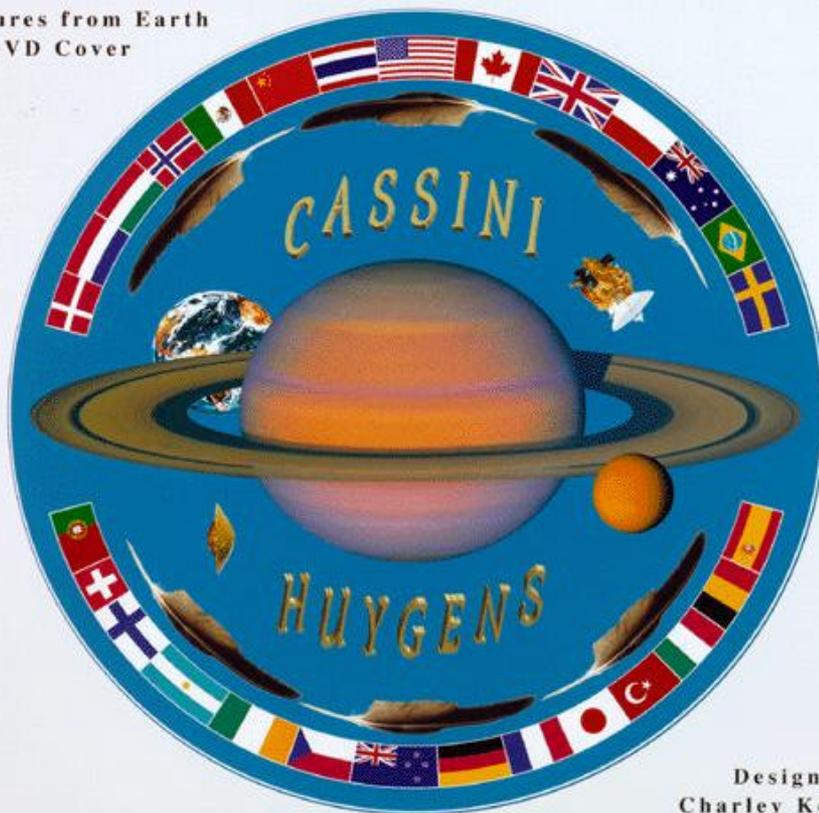


TOTAL SUPPORT TIME, OUTAGE TIME, % OF OUTAGE TIME

S/C	SCHED. SUPPORT	ACTUAL SUPPORT	70M TIME	SIGNIFICANT OUTAGE TIME	% OF OUTAGE TIME
31	323.7	320.0	56.8	14.1 (0.7)	4.6
32	284.4	284.4	75.3	1.0 (0.7)	0.6

VOYAGER HOMEPAGE - <http://voyager.jpl.nasa.gov>

Signatures from Earth
DVD Cover



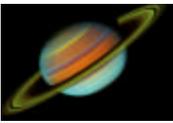
Design by
Charley Kohlhase

Cassini

<http://saturn.jpl.nasa.gov/cassini/index.shtml>

Joint Users Resource Allocation Planning (JURAP) Committee Meeting

Dave Doody
October 16, 2003



Cassini / Huygens

• Space Science Phase

- Routine science observations continue
- PSG at JPL this week
- IAU Resolution passed at Sydney meeting supporting Cassini/Huygens science investigations
- RS SCE Results published in Nature 425, 374 - 376 (25 September 2003): [A test of general relativity using radio links with the Cassini spacecraft](http://www.nature.com/cgi-taf/DynaPage.taf?file=/nature/journal/v425/n6956/abs/nature01997_fs.html) Abstract: http://www.nature.com/cgi-taf/DynaPage.taf?file=/nature/journal/v425/n6956/abs/nature01997_fs.html
- GWE#3, 20 days of 24X7 DSN coverage near opposition, executes 2003 DOY 314 through DOY 334
 - Continuous coherent X-band link
 - Ka-band link over GDSCC, coherent with Ka-up depends on recovering Ka Klystron as well as spacecraft's Ka Translator, else Ka D/L coherent to X-U/L will be the prime Ka link.
- Approach Science mission phase begins in January
- Tour advanced science planning continues, as well as Huygens Playback data delivery planning

• Daily ops going well

- TCM-19B successfully demonstrated SOI burn cutoff algorithm based on energy determination on-board (DOY 274).
- Approach Science / Tour Operations Readiness Review completed last week, October 7 and 8
- DSN and NOPE support:
 - Corrections to the Network Operations Plan are STILL in progress.
 - Multiple OPDs are in effect to address NOP shortcomings
 - High-rate TLM Lockup seems it might be problematic. Keeping a close eye on the situation. Key DSMS/DSN players are watching.
 - Unique, critical opnav images of Phoebe were all lost in the 17-min TLM outage DSS14 DOY 285
 - Station had to eventually refer to an expired OPD to achieve TLM lock.
- Exercising continuing FSPA Array supports as they can be scheduled
- Working various minor S/C instrument adjustments, calcs, and anomalies near real time.
- Uplinking and installing the occasional flight software updates for instruments
- DSMS statement of requirements for replacement of NOCC-R/T display system are under project evaluation.
 - Project's visibility into DSN is currently problematic, risking degraded realtime support during GWE#3 Approach Science, and Saturn Tour.



Mars Global Surveyor
**Flight Operations
Status**

E. E. Brower, MGS Mission Manager

October 16, 2003

Presented by P. T. Poon, TMS Manager



AGENDA

- Project Snapshot
- Recent Events/Accomplishments
- Mission Assessment
- Comments

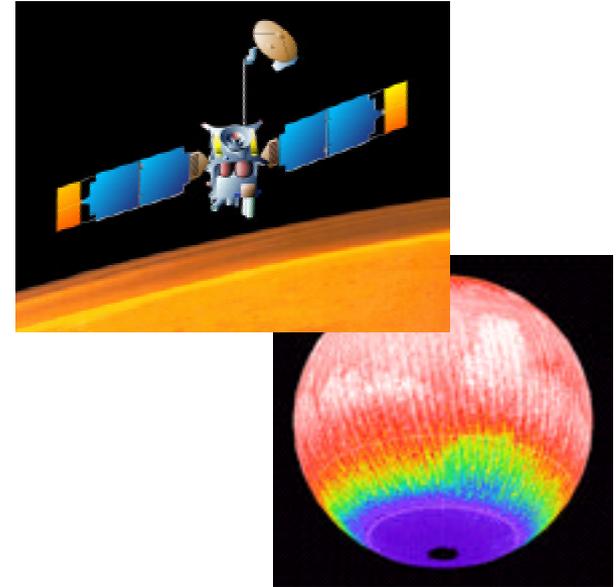


Project Snapshot

Mars Global Surveyor

Salient Features

- **Global mapping of Martian atmosphere, surface, magnetic field**
- **Nadir pointed spacecraft**
- **5 instruments (MOC imager, MOLA laser altimeter, TES - IR spectrometer, MAG magnetometer, RS radio science)**
- **Launch date: November 1996**
- **Mapping lifetime: One Mars year (687 days)**
- **Provides relay capability for surface assets (Relay lifetime: 5 years)**

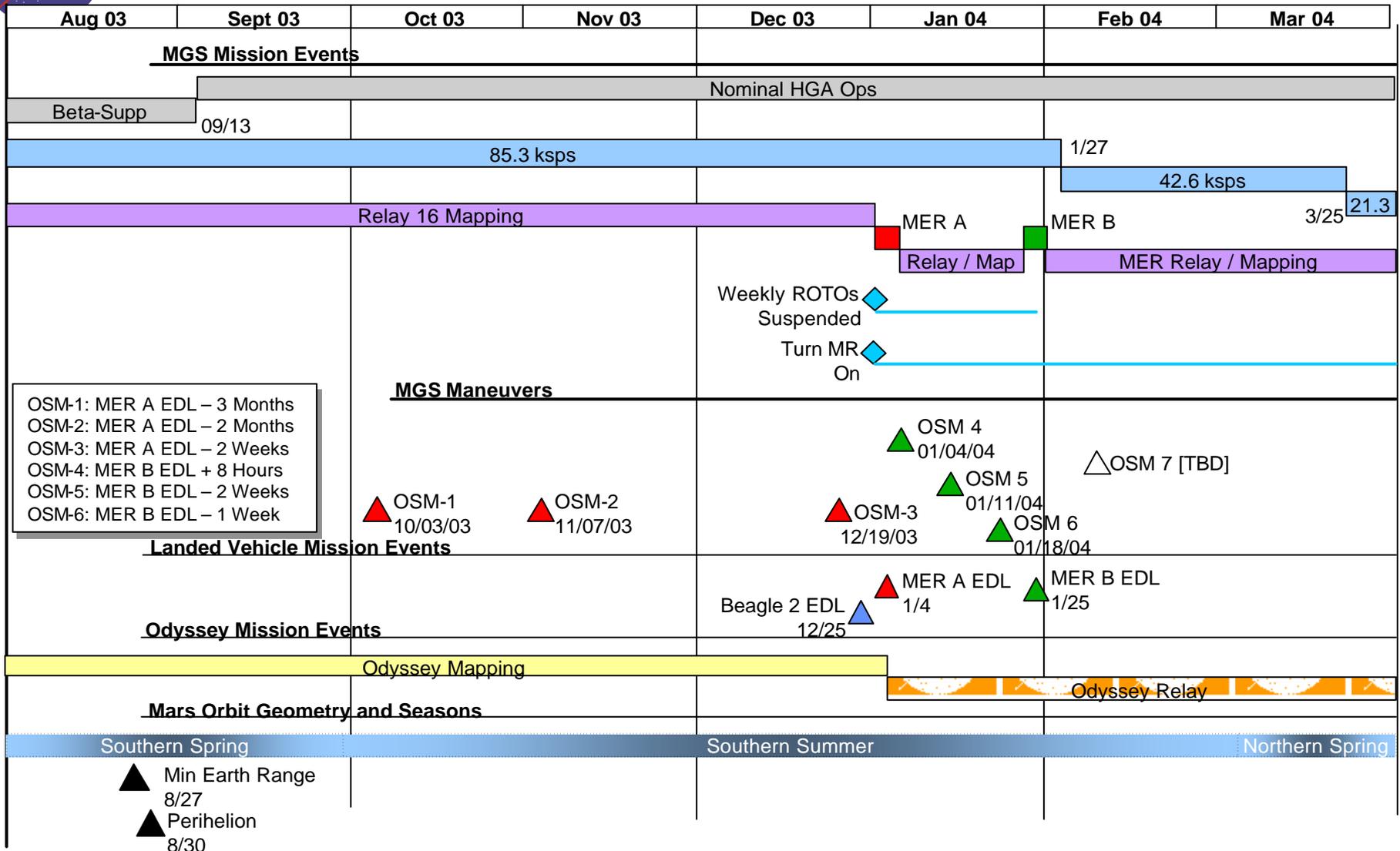


Science

- **To characterize surface morphology at high spatial resolution to quantify surface characteristics and geological processes**
- **To determine the composition and map the distribution of surface minerals, rocks, and ices; measure the surface thermophysical properties;**
- **To determine globally the topography, geodetic figure, and gravitational field;**
- **To establish the nature of the magnetic field and map the crustal remnant field;**
- **To monitor global weather and thermal structure of the atmosphere;**
- **To study surface-atmosphere interaction by monitoring surface features, polar caps, atmospheric dust, and condensate clouds over a seasonal cycle.**



Mars Global Surveyor Upcoming Events



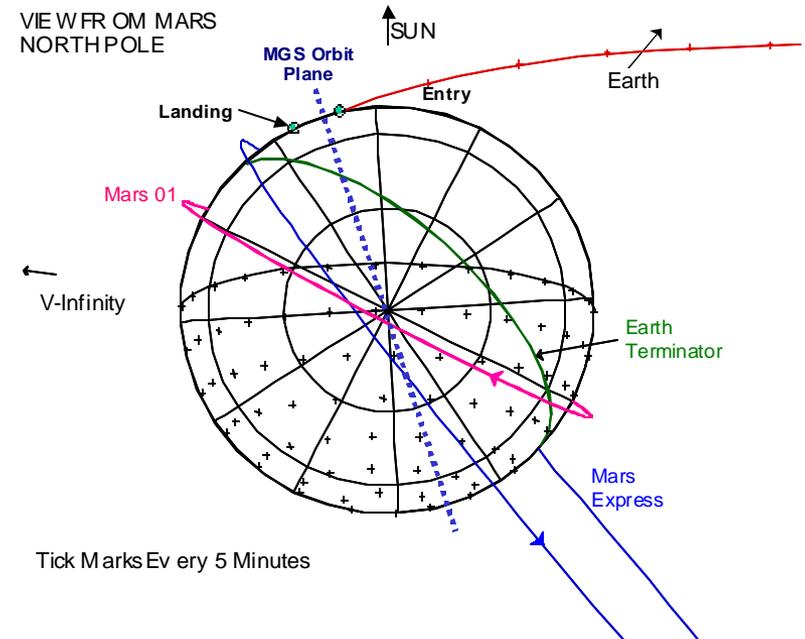
MGS



Mars Global Surveyor Phasing MGS for MER EDL



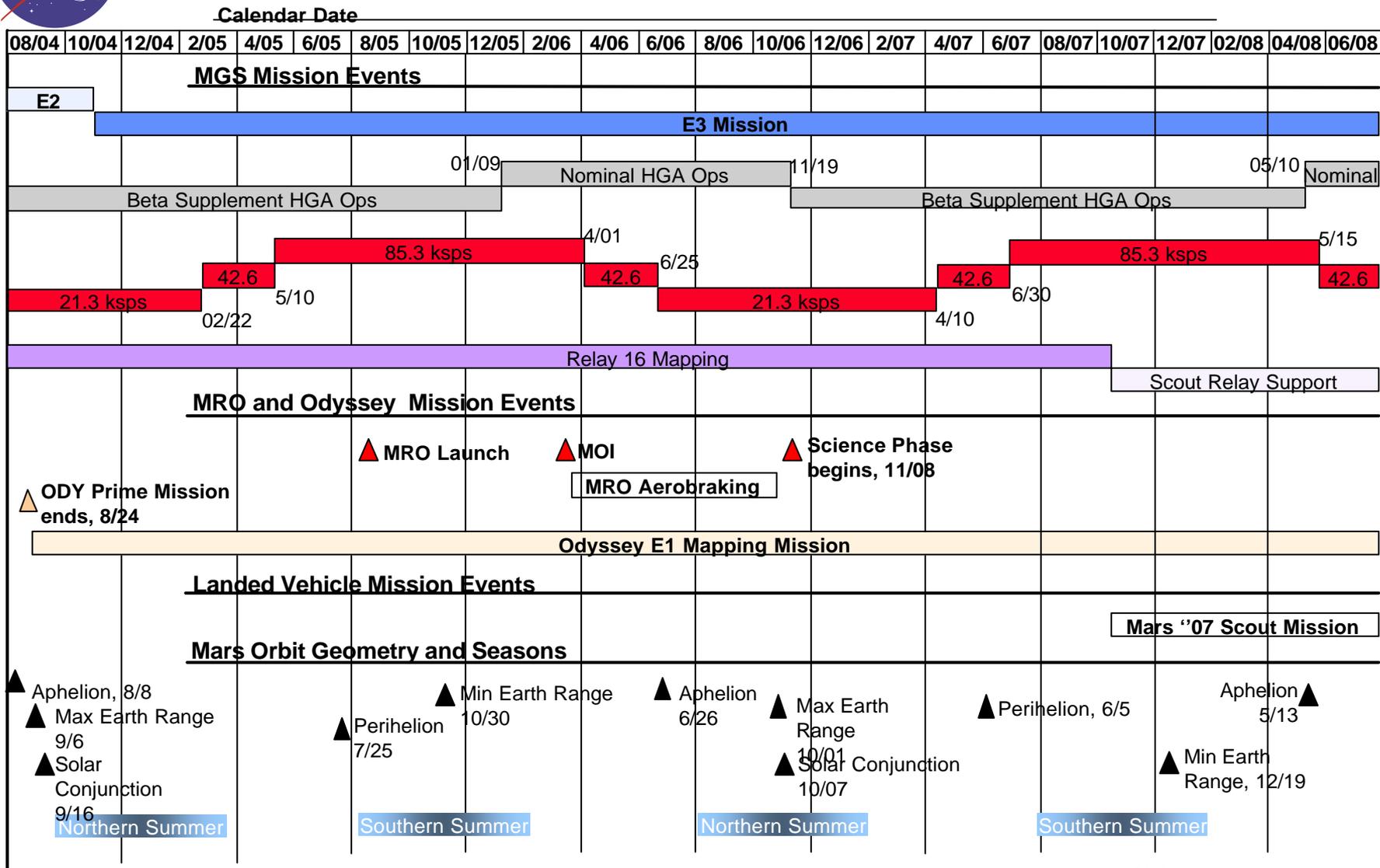
- 6 Maneuvers are planned (3 per MER), enabling MGS to have the most accurate over-flight times for each EDL
- **OSM-1 occurs 3 months before MER-A EDL**
 - After the MGS transition to Nominal HGA Mapping (Sept. 10)
 - Due to orbit perturbations, navigation predictions > 3 months out degrade
- **OSM 2 and 3 are placed between OSM-1 and MER-A EDL**
- **OSM-4, 5, & 6 are placed in the 21 day interval between MER-A EDL and MER-B EDL**
- **OSM-4 is planned for MER-A EDL + ~10 hours to stay within the 4 m/s Delta V allocation**



MGS



Mars Global Surveyor Proposed E3 Mission Timeline



MGS



- **Spacecraft Transition to Nominal Mapping configuration Successfully**
- **OSM1/Plume Imaging Review September 17**
 - **OSM1 executed October 3 successfully**
- **Continue MER interface planning per MGS UHF Working group**
 - **SORT preparation**
 - **Contingency OSM strategies**
 - **OSM execution on 10/3**
 - **Special observations planning e.g. image lander sites**
- **Develop PROTO operations for 3x MOC high resolution capability/MER site coverage**
- **Finish Single Gyro Attitude Determination Development for MER EDL**



Mission Assessment

- **Spacecraft is in good health.**
- **Expect to fulfill most extended mission objectives (complete MER site coverage may become E2 mission objective).**
- **Expect to satisfy MER EDL Requirements.**
- **Chances of operation through 2008 are good.**



Comments

- **None**