JOINT USERS RESOURCE ALLOCATION PLANNING

(JURAP) MEETING

July 17, 2003

Jet Propulsion Laboratory
California Institute of Technology

4800 Oak Grove Drive
Pasadena, CA 91109-8099

(818) 354-4321

July 29, 2003
Refer to: 930-03-017-AEA:ESB:lc

TO: Distribution

FROM: Eugene S. Burke

SUBJECT: Minutes for the Joint Users Resource Allocation Planning Committee Meeting held July 17, 2003.

NEXT JURAP MEETING:
Thursday, September 19, 2003
JPL Bldg. 303, Room 411 1:00 p.m.
There will be no JURAP meeting held in August
Due to the Resource Allocation Review Board
On August 12, 2003.

Attendees:

Andujo, A.	Doody, D.	Khanampornpan, T.	Ryan, R.
Brymer, B.	Hall, J.	Kim, K.	Thompson, T.
Call, J.	Holmes, D.	Lacey, N	Yetter, B.

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 July 17, 2003 at the Jet Propulsion Laboratory.

Introductory Remarks / Conflict Resolutions – N. Lacey

The attendees were welcomed to the JURAP meeting by this month's chair, N. Lacey, who distributed a Viewperiod booklet that includes viewperiods for all missions from 2003 to 2006. The preliminary RARB Redbook has been posted and all missions are to review the material and respond no later than August 5th with their acceptance or rejection of RARB recommendations.

Special Reports

SOHO High Gain Antenna Keyhole Special Study – N. Lacey

Since June 19, 2003, SOHO's high-gain antenna (HGA), which transmits high-speed data to Earth, has been fixed in position following the discovery of a malfunction in its pointing mechanism. This resulted in a loss of signal through SOHO's usual 26m ground stations on June 27, 2003. However, 34m antennas continued to receive high-speed transmissions from the HGA until July 1, 2003.

Since then, astronomers have been relying primarily on a slower transmission rate signal, sent through SOHO's backup antenna. It can be picked up whenever a 34m antenna is available. However, this signal could not transmit all of SOHO's data. Some data was recorded on-board and downloaded using high-speed transmissions through the backup antenna when time on the 70m subnet could be spared.

SOHO itself orbits a point in space approximately 1.5 million km closer to the Sun than the Earth, once every 6 months. To reorient the HGA for the next half of this orbit, engineers rolled the spacecraft through a half-circle on July 8, 2003. On July10, the 34m antenna in Madrid reestablished contact with SOHO's HGA. Then on the morning of July 14, 2003, normal operations with the spacecraft resumed through its usual 26m ground stations.

With the HGA now static, the blackouts, lasting between 15 and 25 days, will continue to occur every 3 months. As a result the RAPSO Team has produced a loading assessment outlining the impact SOHO will have on the DSN and other missions during the HGA keyhole.

RARB Action Items – N. Lacey

There is one RARB Action Item remaining open. Multi-mission DSN Allocation and Planning (MDAP) has been providing a Mars Program-coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) at least 6 months prior to the schedule week.

Resource Analysis Team – K. Kim

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

- Rosetta has been added to the mission set with a launch of 02-26-04, and an End of Prime Mission date of 12-31-15.

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

There have been no changes to the DSN Resource Implementation Planning Matrix. For a complete listing of the DSN Resource Implementation visit the following link for the RAPSO website: http://rapweb.jpl.nasa.gov/tmodplns.pdf

The following special studies have been completed:

- SIRTF Impact Study – Launch Change
- SOHO HGA Keyhole Periods

RARB status – N. Lacey

The preliminary RARB Redbook has been published; project/user responses to the recommendations are due by August 5, 2003. This date gives projects/users an extra three weeks to review the material. The RARB timeline is available on the RAPSO website.

DSN Downtime Forecast – A. Andujo

A request was received for mid-range scheduling for Antenna Balancing at DSS-43 for 4 days. The request is now being presented in the August 2003 RARB, as it is proposed to occur in 2004.

A request was received to extend the approved DSS-14 Antenna Controller Replacement weeks 30 - 36 2004 by an additional two weeks. Final approval will be sought at the August 2003 RARB.

A request was received to change the approved DSS-45 Antenna Controller Replacement weeks 43 - 49 2004 to the Life Extension Task and add an additional ten weeks from week 33 – 49 of 2004. Final approval will be sought at the August 2003 RARB.

Approved DSS-27 downtime for NSP implementation task previously scheduled for week 14 - 17 of 2004, was requested to be rescheduled to week 01 - 04 of 2005. Formal presentation will be made at the August 2003 RARB.

A request has been made to change the approved DSS-43 Antenna Controller Replacement weeks 30 - 36 2005, to include the Hydrostatic Bearing task and extend the time by an additional 17 weeks, to occur between weeks 29 – 52 of 2005. Final approval will be sought at the August 2003 RARB.

The previously approved DSS-63 Antenna Controller Replacement in weeks 38 - 44 2005, has been rescinded and all projects and users previously moved have been reallocated back to DSS-63 during this period. This downtime task will be proposed to occur in weeks 21 – 35 of 2006. This request is currently being worked in to the August RARB. Final approval will be sought at the August 2003 RARB.

A request has been made to change the approved DSS-65 Antenna Controller Replacement weeks 08 – 14 2005, to include the Life extension and the Relocation task and extend by an additional 10 weeks and occur between weeks 05 – 21 of 2005. Final approval will be sought at the August 2003 RARB.

The previously approved DSS-45 Antenna Controller Replacement in weeks 43 - 49 2004 was proposed to occur in weeks 44 – 52 of 2006. This request is currently being worked in to the August RARB. Final approval will be sought at the August 2003 RARB.

Please see the attached Downtime report for complete listing of downtime 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
There was no presentation given at this month's JURAP, though presentation material is included with the Minutes.

Radio Astronomy / Special Activities – G. Martinez
There was no presentation given at this month's JURAP, though presentation material is included with the Minutes.

JURAP Science Advisor – E. Smith
There was no presentation given at this month's JURAP.

FLIGHT PROJECTS REPORTS

Mars Global Surveyor – J. Call for P. Poon
The MGS spacecraft is in good health and recent accomplishments and planned spacecraft operations were discussed. The project expects the spacecraft to fulfill most of the extended mission objectives. MER site coverage may become an E2 mission objective. The project expects to satisfy MER EDL requirements, and there are good chances of operation through 2008.

Mars Exploration Rover – B. Yetter for B. Compton
The MER-B spacecraft was successfully launched July 8, 2003. DSN support and all subsequent support were excellent. Initial acquisition was within 3 minutes of prediction. The first maneuver, TCM-1B was scheduled for July 18, 2003. The spacecraft is in good health with the exception of a temperature sensor on the pedestal that went bad, with no significant impact to the mission. MER-A continues in good health and operations are proceeding normally.

INTEGRAL – D. Holmes
Integral operations have been nominal with no outstanding problems and the spacecraft has been operating near flawlessly. TCP halts have not gone away completely and an occasional 26m hardware problem interrupts data collection. However, anomalies have been reduced to an acceptable level. The previously reported time tag issue has been resolved and ESA is satisfied with the accuracy between Goldstone and Redu. Science results have been very impressive and on track.

Mars Express – D. Holmes
The Mars Express spacecraft-commissioning checkout has been successfully completed. The spacecraft entered safe mode on July 13, 2003, due to a data-handling overload, but the root cause is still under investigation. The spacecraft recovered from safe mode within 24 hours by blind command to the Remote Terminal Unit to move to a nominal data path. The solar array is outputting only 70% of expected power; the cause is being investigated, but is not expected to impact the mission.

Ulysses – B. Brymer
Spacecraft operations are nominal and spacecraft power, thermal reconfigurations, and instrument

calibrations are performed as required. Spacecraft Earth-pointing maneuvers are being performed every 5 days. Although the NSP is providing excellent support, the Project has lost the ability to perform HUS Datation calibrations. A replacement procedure has been developed and tested. Analyses of the test results are pending.

Stardust - R. Ryan
The spacecraft is healthy and all operations are nominal. The spacecraft successfully completed Deep Space Maneuver 3 and 1 AU Tests. Mr. Ryan expressed concern over SOHO's requirement for 70-meter coverage in September, during an important phase of Stardust's post solar conjunction.

Chandra – K. Gage
There was no presentation given at this month's JURAP.

Voyager – J. Hall
It was reported that both Voyager spacecraft are healthy and all operations are nominal. Overall DSN support was reported as good.

Cassini – D. Doody
The Cassini Project completed the 30-day radio science experiment utilizing thrusters to rotate the spacecraft versus the failing reaction wheel. The experiments were not completely successful. The 40-day continuous coverage Gravity Wave Experiment 3 has been reduced to 20 days.

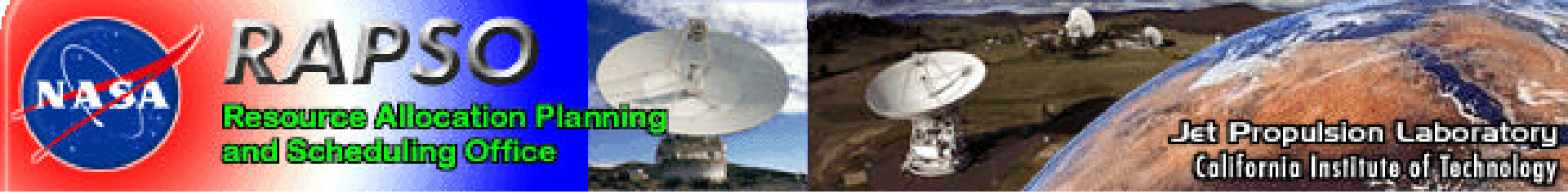
ISTP, WIND, POLAR, SOHO, GEOTAIL, Cluster II – S. Waldherr
There was no presentation given at this month's JURAP.

NOZOMI – M. Ryne
There was no presentation given at this month's JURAP, though presentation material is included with the Minutes.

Muses-C/Hayabusa – M. Ryne
There was no presentation given at this month's JURAP, though presentation material is included with the Minutes.

MAP, ACE, IMAGE and Genesis – S. Waldherr
There was no presentation given at this month's JURAP.

Mars Odyssey – P. Poon
There was no presentation given at this month's JURAP.



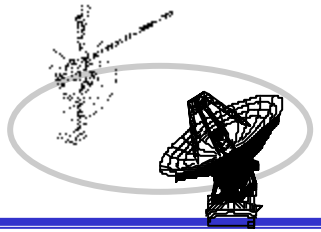
Joint Users Resource Allocation Planning (JURAP) Meeting

July 17, 2003

Action Item Status From August 13, 2002 and February 11, 2003 RARB

(Resource Allocation Review Board)

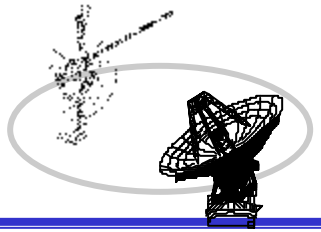
David G. Morris



Action Item Summary

- Action Item 1 Status:
  - The Multi-mission DSN Allocation and Planning (MDAP) team provided to Resource Allocation Planning Team (RAPT) an integrated Mars Program Schedule:

Mars Program Schedule Input Status:			
Week	Month	Date Received	Date Due
49	December	23-Jun-03	2-Jun-03
50	December	23-Jun-03	9-Jun-03
51	December	23-Jun-03	16-Jun-03
52	December	23-Jun-03	23-Jun-03
1	January	23-Jun-03	30-Jun-03
2	January	14-Jul-03	7-Jul-03
3	January	14-Jul-03	14-Jul-03
4	January		21-Jul-03
5	January		28-Jul-03



Action Item Summary

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

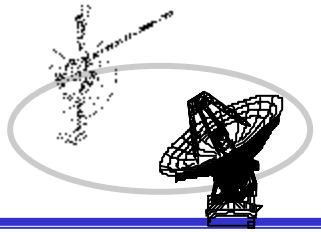
ACTION: (aka 8/13/02 RARB A.I. #7) Multi-mission DSN Allocation and Planning (MDAP) provide a Mars Program coordinated input to Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week per week at least 6 months prior to the schedule week. This action will use the result of Action Item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

RESPONSE: (7/17/03) Present status: Weeks in December plus first three weeks of January are delivered.

AI#	Year	Month(s)	System	Responsible	Due Date	Status
02	2004	October-December	RAPSO	S. Lineaweaver	04/20/2003	Closed

ACTION: Analyze proposed DSS-45 downtime (10/18/2004 – 12/05/2004) for Antenna Controller Replacement (ACR) and Microwave Switch Controller (USC).

RESPONSE: (3/20/03) Presentation of contention analysis approved at March 2003 JURAP meeting.



Action Item Summary

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
03	**2005**	**April-May**	**Cassini**	**D. Seal**	**02/25/2003**	**Closed**

ACTION: Provide Cassini Occultation Plans regarding DSS-25 planned downtime.

RESPONSE: (02/18/03) Information provided showed Cassini's need for DSS-25 prior to February 19 and after April 30.

AI#	*Year*	*Month(s)*	*System*	*Responsible*	*Due Date*	*Status*
04	**2005**	**July-August**	**Mars Express**	**T. Thompson**	**04/10/2003**	**Closed**

ACTION: Provide impact to Mars Express requested weekly Bi-Static Radio Science requirement during planned DSS-43 downtime.

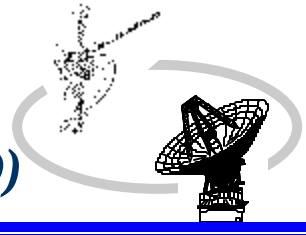
RESPONSE: (2/19/03) Mars Express requests that the Bi-Static experiments be moved to another 70M antenna in each week that DSS-43 is down. When using another 70M antenna, continue to use the same 70M antenna for several weeks versus having DSS-63 one week and DSS-14 the next

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

Resource Analysis Team

July 17, 2003

Kevin Kim



– Ongoing / Approved Projects –

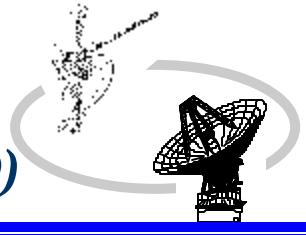
Project	Acronym	Launch or Start	EOPM	EOEM
DSN Antenna Calibration	DSN	--	--	--
DSS Maintenance	DSS	--	--	--
European VLBI Network	EVN	--	--	--
Ground Based Radio Astronomy	GBRA	--	--	--
Reference Frame Calibration	DSN	--	--	--
Space Geodesy	SGP	--	--	--
Voyager 2	VGR2	08/20/77	10/15/89	09/30/07
Voyager 1	VGR1	09/05/77	12/31/80	09/30/07
Goldstone Solar System Radar	GSSR	04/01/85	--	--
Galileo	GLLO	10/18/89	12/07/97	09/21/03
Ulysses	ULYS	10/06/90	09/11/95	09/30/04
ISTP - Geotail	GTL	07/24/92	07/24/95	09/30/07
ISTP - Wind	WIND	11/01/94	11/01/97	09/30/07
ISTP - SOHO	SOHO	12/02/95	05/02/98	09/30/07
ISTP - Polar	POLR	02/22/96	08/23/97	09/30/07
Gravity Probe B	GPB	06/01/96	05/30/05	TBD
Mars Global Surveyor	MGS	11/07/96	02/01/01	01/03/08

– Ongoing / Approved Projects (continued) –

Project	Acronym	Launch or Start	EOPM	EOEM
Advance Composition Explorer	ACE	08/25/97	02/01/01	09/30/07
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

– Ongoing / Approved Projects (continued) –

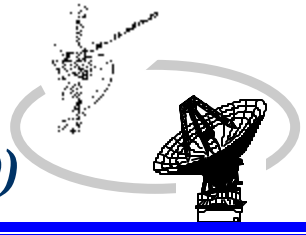
Project	Acronym	Launch or Start	EOPM	EOEM
Spirit (Mars Exploration Rover - A)	MER2	06/10/03	04/06/04	05/11/04
Opportunity (Mars Exploration Rover - B)	MER1	07/08/03	04/27/04	06/15/04
Space Infrared Telescope Facility	STF	08/23/03	10/12/08	- - -
Rosetta	ROSE	02/26/04	12/31/15	- - -
Messenger	MSGR	03/10/04	04/06/10	- - -
Lunar - A	LUNA	08/14/04	04/11/05	- - -
Space Technology 5	ST5	11/19/04	02/27/05	TBD
Deep Impact Flyby	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	- - -



– 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
Mars Competed Scout 2007	M07S	08/19/07	08/23/08	08/22/10
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
James Webb Space Telescope	JWST	08/01/11	07/31/16	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	- - -
Space Interferometry Mission	SIM	12/31/09	06/30/20	TBD
Mars Competed Scout 2011	M11S	10/30/11	09/10/14	TBD
Mars MSR Lander/Orbiter 2013	M13O	11/28/13	08/21/16	TBD

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	10/01/05	N/A	XXXX
DSS-25	34BWG2	XXXX	N/A	N/A	XXXX	XXXX	09/01/03	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	TBD
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	09/08/03	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

07/16/03

◆ RESOURCE NEGOTIATION STATUS

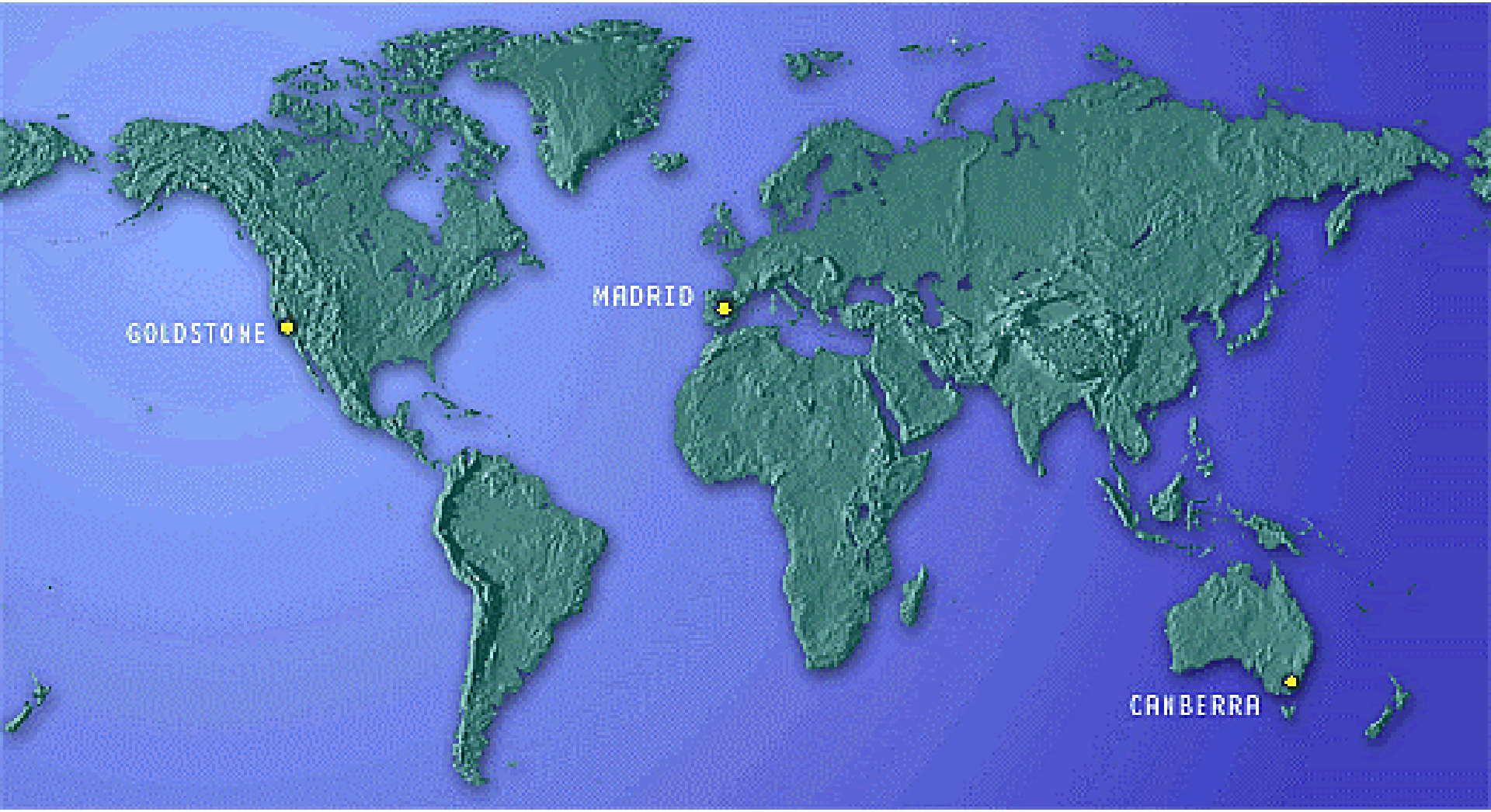
- 2003 WEEKS 36 – 37 (THRU 09/14/2003) RELEASED TO DSN ON 07/14/2003.
- 2003 WEEKS 38 – 40 (THRU 10/05/2003) DUE TO BE RELEASED ON 07/18/2003.
- 2003 WEEKS 45 – 48 (THRU 11/30/2003) WILL GO INTO NEGOTIATIONS STARTING 08/01/2003.

- **SPECIAL STUDIES/ACTIVITIES**
  - SIRTF IMPACT STUDY – LAUNCH CHANGE
  - SOHO HGA KEYHOLE PERIODS
- **ON-GOING ACTIVITIES**
  - MADB/TIGRAS TESTING AND TRAINING
  - DOWNTIME PLANNING
  - LUNAR-A LOAD STUDY – MISSION REPLAN
  - ROSETTA LOAD STUDY – MISSION REPLAN
  - ST5 LOAD STUDY

- **RARB - AUGUST 12, 2003**
  - LOADING PROFILE LETTER DISTRIBUTED
  - NEW TIMELINE POSTED
  - REQUIREMENTS AND EVENTS POSTED
  - ALL MISSION RESPONSES RECEIVED
  - HQ / NASA REVIEW 07/17/2003
  - PRELIMINARY REDBOOK POSTED ON WEB 07/17/2003

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

- Currently there is a request that has been processed to perform CCG Installation at DSS-27 for 4 days in week 36 of 2003. (September 3 1500z – September 6 1500z) This request has been scheduled by DSN scheduling, as week 36 has already been transferred from Mid-Range scheduling to the DSN.

- A request has been processed by mid-range scheduling at DSS-43. The Antenna Rebalancing task is scheduled to occur in weeks 42-43 of 2003. (2 week duration October 11- 24, 2003).

Antenna Downtime Status and Forecast

Changes to 2004 Downtime Schedule

- Currently there is a DSS-14 Antenna Controller Replacement/Hydrostatic Bearing task scheduled from weeks 28-47. It has been requested to extend the time by at least two weeks, to weeks 28-49 (22 week duration).

- Currently there is a DSS-45 Antenna Controller Replacement task scheduled from weeks 43-49. It has been requested that this task move to another year, and in its place schedule parts 1 and 2 of the DSS-45 Life Extension Task from week 33-49 (17 week duration) leaving the USC task currently scheduled in weeks 48-49.

The changes to the DSS-14 and DSS-45 tasks will be presented at the August 2003 RARB for approval

Antenna Downtime Status and Forecast

Changes to 2005 Downtime Schedule

- It has been requested that we add a new proposal to perform NSP Implementation task at DSS-27to be performed in weeks 01 – 04 of 2005.

- Currently there is a DSS-65 Antenna Controller Replacement task scheduled from weeks 08 - 14. It has been requested that we add the DSS-65 Relocation and DSS-65 Life Extension Tasks to the ACR task and add three weeks to the front and 7 weeks to the end, and perform all tasks in weeks 05 – 21 of 2005 (17 week duration). Duration is unaffected even if Life Extension is not included.

- Currently there is a DSS-43 Antenna Controller Replacement task scheduled from weeks 30 - 36. It has been requested that we add the DSS-43 Hydrostatic Bearing task to the ACR task and add one week to the front and 16 weeks to the end, and perform all tasks in weeks 29 – 52 of 2005 (24 week duration).

The addition of the DSS-27 NSP and Changes to the DSS-65 and DSS-43 tasks will be presented at the August 2003 RARB for approval.

Antenna Downtime Status and Forecast

Changes to 2005 Downtime Schedule (Continued)

- Currently there is a DSS-63 Antenna Controller Replacement task scheduled from weeks 38 - 44. Due to changes to the DSS-43 time in 2005 it necessary to move this downtime to another year, and return previously moved supports back to the projects/users that were affected by the downtime.

- Currently there is a DSS-63 USC (Microwave Switch Controller) Task approved as NIB in weeks 38 – 39 of 2005, this task now coincides with the DSS-43 Antenna Controller Replacement Task. As a rule, two 70 meter antennas cannot be down at the same time therefore it is proposed to place the USC task in weeks 03 – 04 of 2005

The changes to the DSS-63 tasks will be presented at the August 2003 RARB for approval.

Antenna Downtime Status and Forecast

Changes to 2006 Downtime Schedule

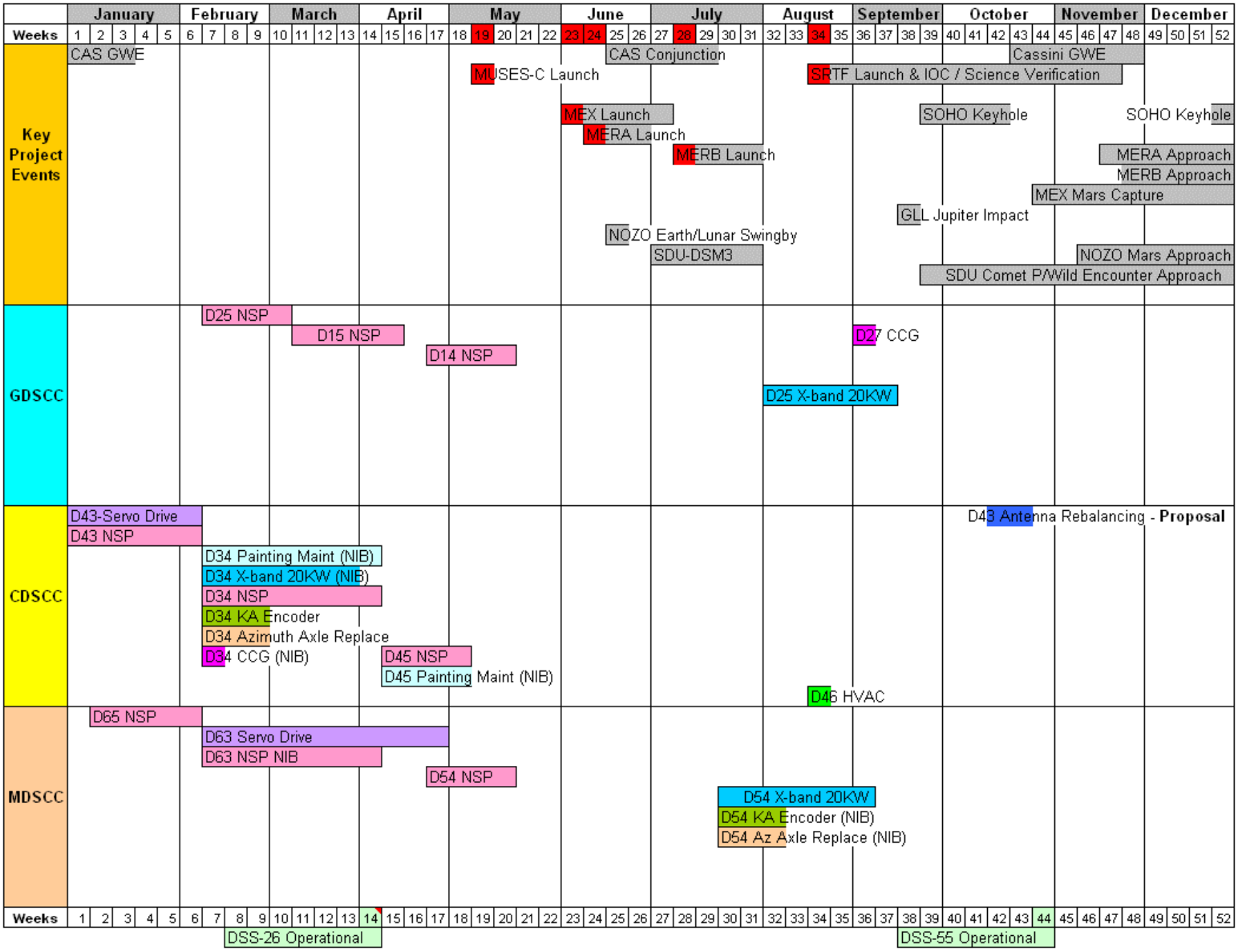
- Add new proposal for DSS-45 Antenna Controller Replacement task (previously approved for weeks 43 - 49 of 2004) to be performed in weeks 44 - 52 of 2006 (9 week duration)

- Add new proposal for DSS-63 Antenna Controller Replacement Task (previously approved in weeks 38 – 44 of 2005) to be performed in weeks 21 - 35 of 2006 (15 week duration)

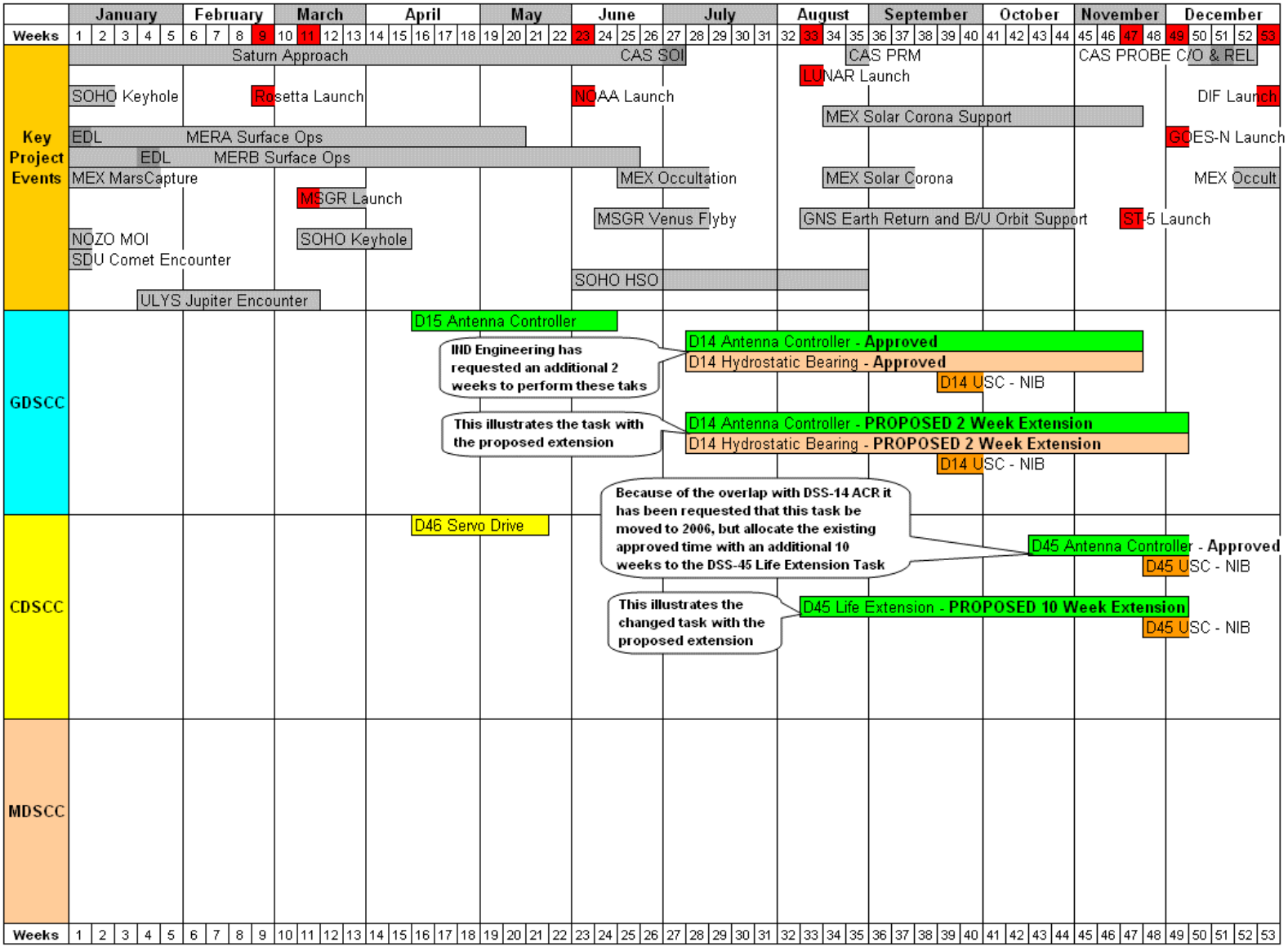
- Proposal for DSS-15 Life Extension in 2006 (weeks 25 - 35 and 43 - 52) has been rescinded

The addition of the DSS-45 and DSS-63 tasks will be presented at the August 2003 RARB for approval.

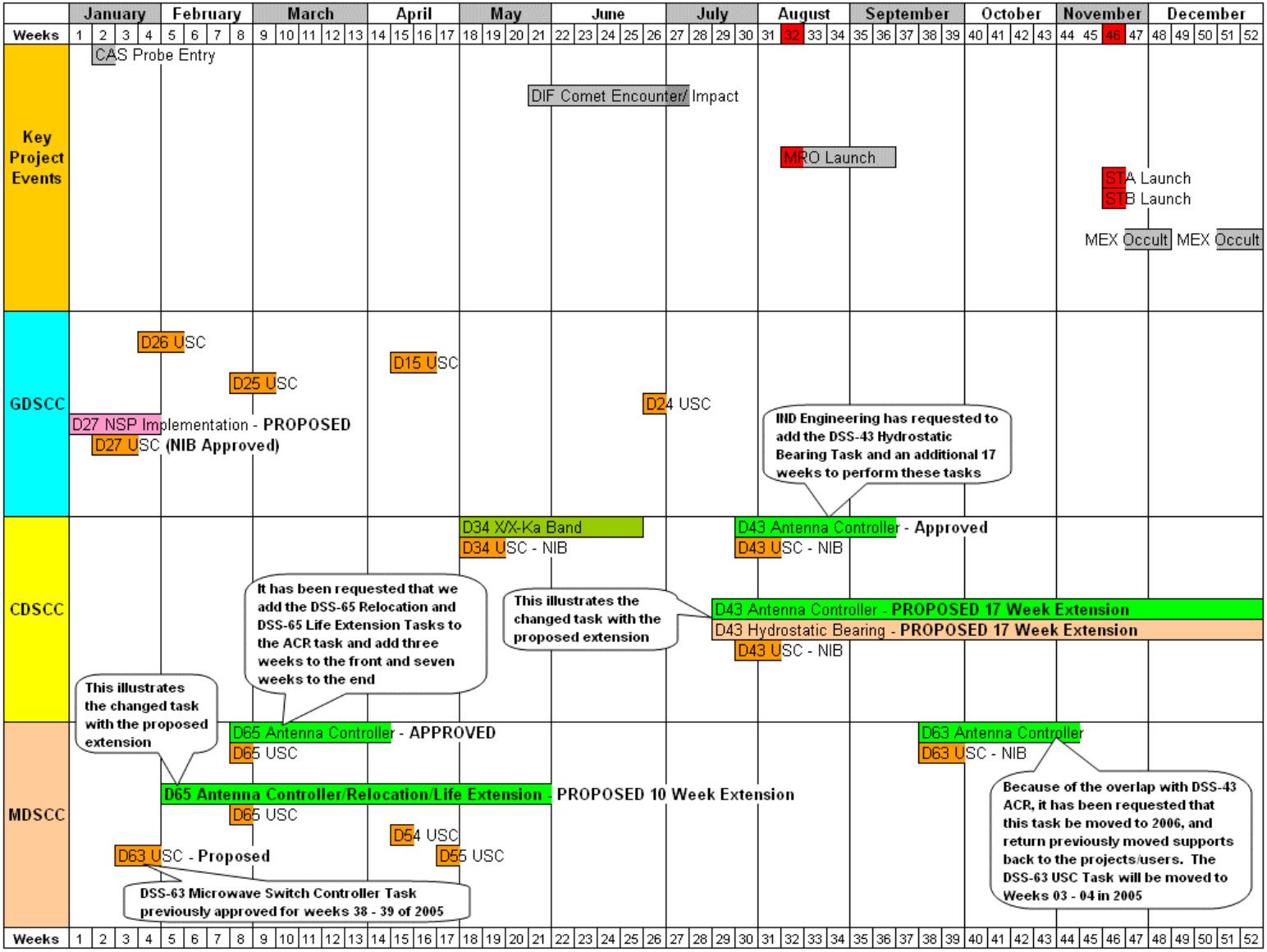
Antenna Downtime Status And Forecast 2003



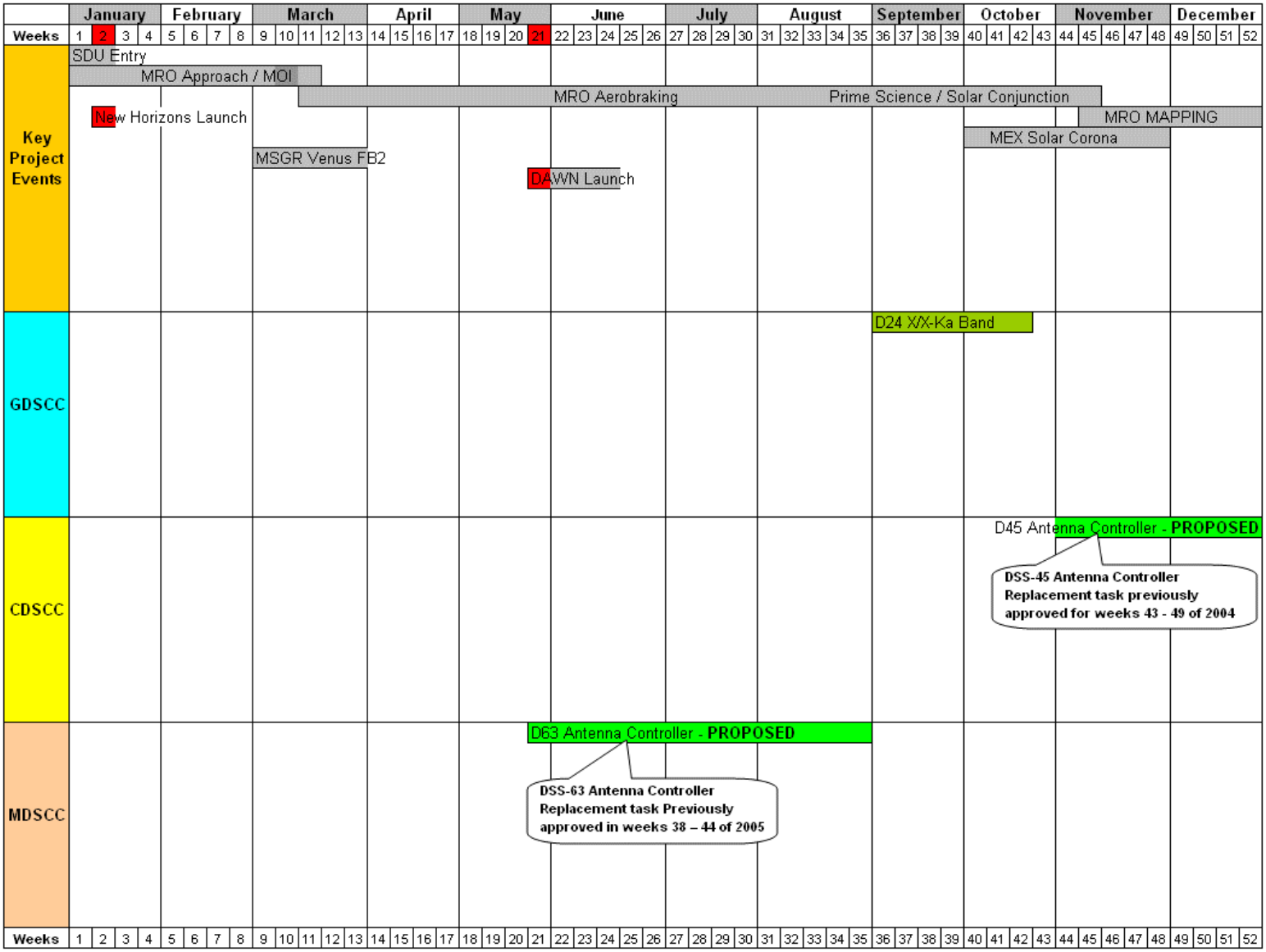
Antenna Downtime Status And Forecast 2004



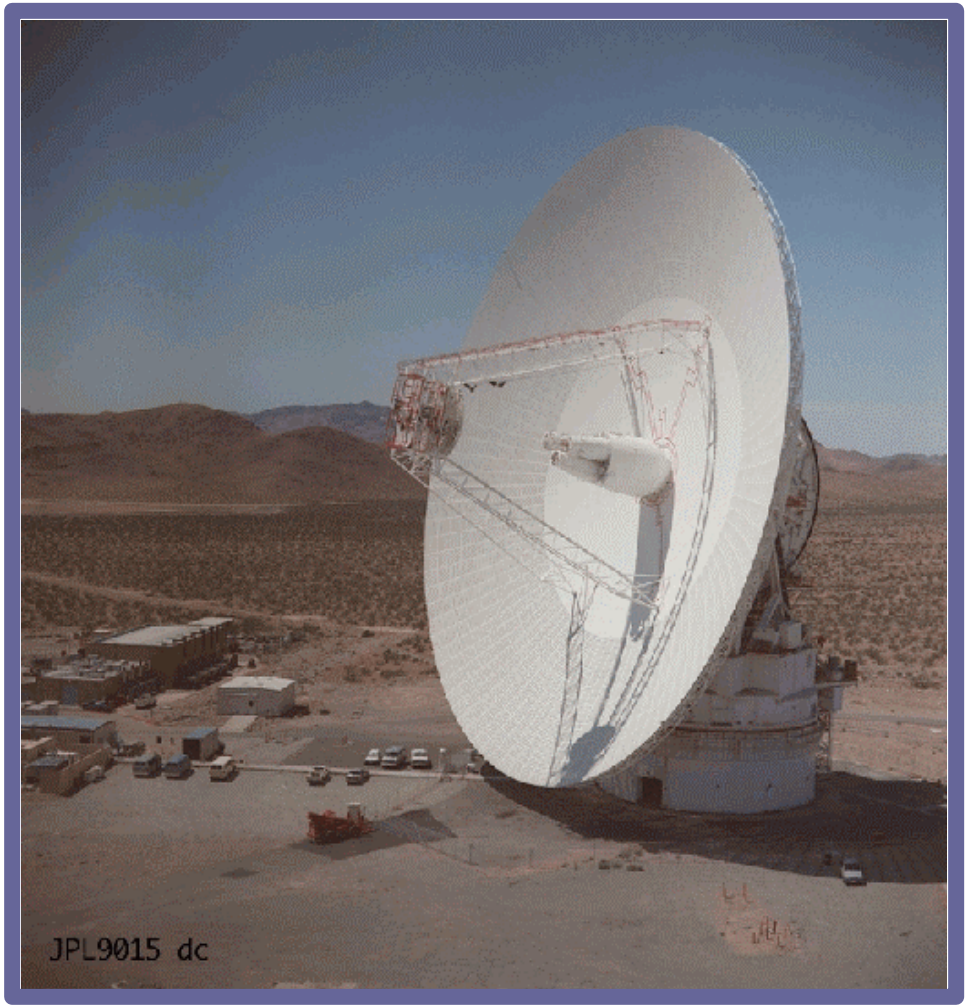
Antenna Downtime Status And Forecast 2005



Antenna Downtime Status And Forecast 2006



Goldstone Solar System Radar



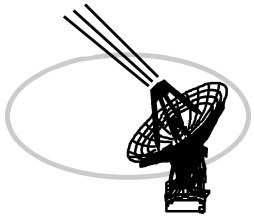
Martin A. Slade

July 17, 2003

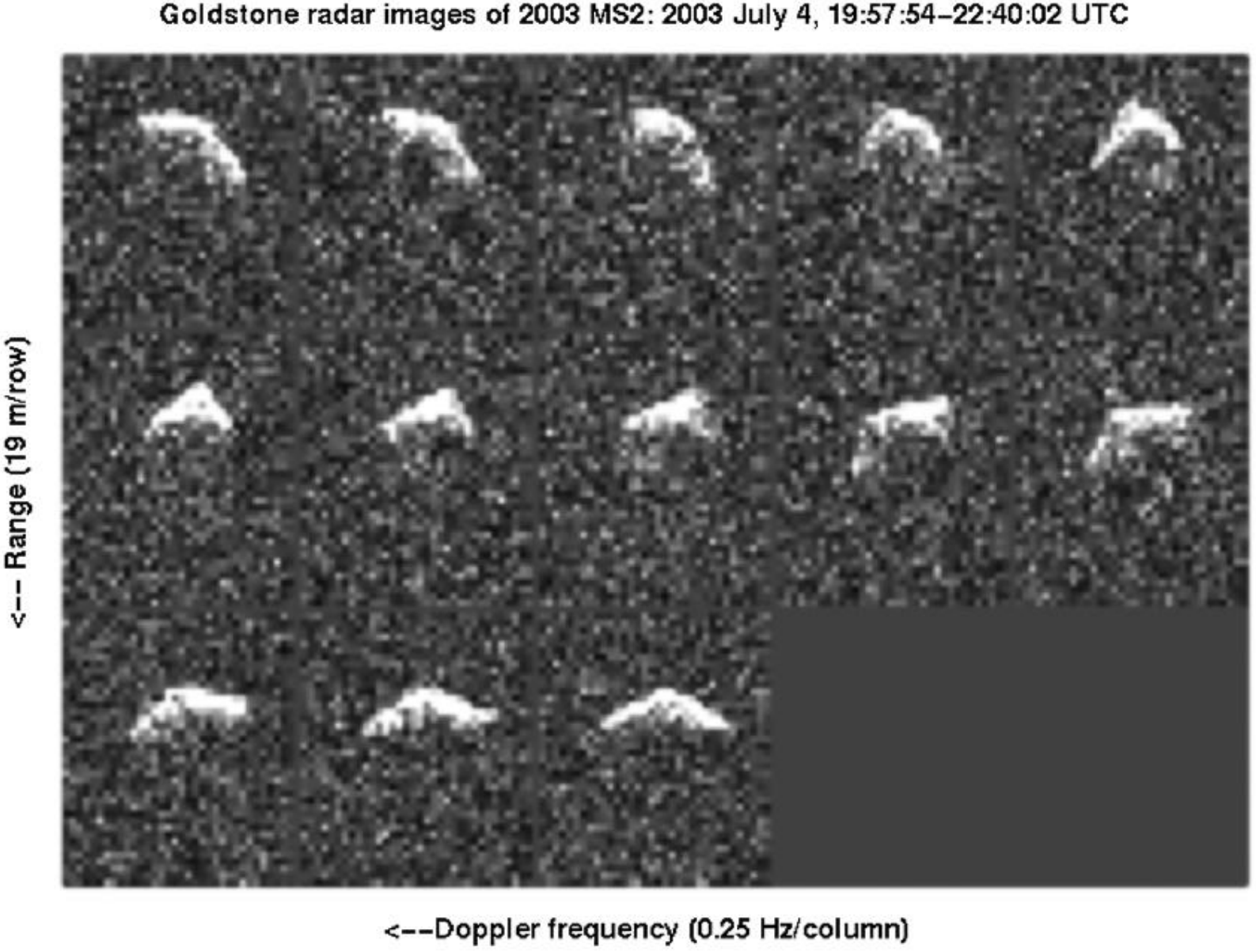
NASA Jet Propulsion Laboratory

Joint Users Resource Allocation Planning Committee Meeting

Goldstone Solar System Radar (GSSR)



On June 27, 28 and 29, 2003, Goldstone Solar System Radar carried out 3 successful tracks on near-Earth asteroid 1998 FH12 and 2 successful tracks on the newly-discovered potentially hazardous asteroid (PHA) 2003 MS2. Imaging at 40-meter range resolution was carried out on 1998 FH12 and imaging at 20-meter range resolution performed on 2003 MS2. On July 4, 2003, more imaging of 2003 MS2 was performed at a much higher signal-to noise ratio, at the limit of 20-meter range resolution. See next slide for a collage of 2003 MS2 images, thanks to Dr. Lance Benner.


Goldstone radar images of 2003 MS2: 2003 July 4, 19:57:54–22:40:02 UTC
<-- Range (19 m/row)
<--Doppler frequency (0.25 Hz/column)

Radio Astronomy

&

Special Activities

July 17, 2003

George Martinez

LOCKHEED MARTIN

TEMPO
(Time and Earth Motion Precision Observations)

- **Clock Sync DOY 160**
  - **No problems were reported by either DSS-15 or DSS-65.**
  - **Data tapes were sent to the JPL correlator for processing**

- **Clock Sync DOY 174**
  - **No problems were reported by either DSS-15 or DSS-65.**
  - **Data tapes were sent to the JPL correlator for processing**

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

Catalog Maintenance & Enhancement (Cat M&E)

- DOY 159
  - No problems were reported by either DSS-15 or DSS-65.
  - Data tapes were sent to the JPL correlator for processing

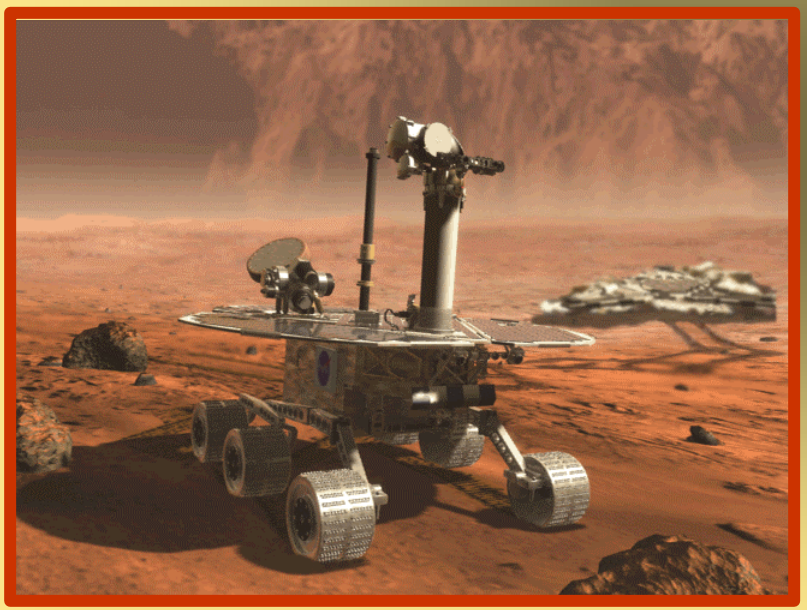
- DOY 166
  - DSS-15 reported a problem with the APA.
  - DSS-65 reported antenna problems.
  - Data tapes were sent to the JPL correlator for processing.

- Metrics
  - 97% of data time utilized.

Mars Exploration Rover

Presentation to the

Joint Users Resource Allocation Planning (JURAP) Meeting



Brad Compton

July 17, 2003

http://mars.jpl.nasa.gov/mer/

MER Report to the JURAP June '03

- MER-B launch time: 189T03:18:15.070 UTC
  - Theoretical Earliest Init Acq: 189T04:42:16
  - DSS-24 Carrier I/L 189T04:46:37, TLM I/L 189T04:47:01
  - DSS-25 Carrier I/L 189T04:45:11, TLM I/L 189T04:45:36
  - ***EXCELLENT!***
- First U/L, 2-way, CMD and ranging went fine
- TCM-1B scheduled for 7/18/03

MER Report to the JURAP June '03

	Spirit, MER-2A, S/C 254	Opportunity, MER-1B, S/C 253
S/C health	GOOD HEALTH FPGA SEUs Apparent Lander Petal Actuator (LPA #3) Temperature Sensor failure DOY 191	GOOD HEALTH FPGA SEUs
OWLT	31 seconds	11 seconds
Range	5.8 million miles	1.97 million miles

INTEGRAL

http://sci.esa.int/home/integral/index.cfm

Joint Users Resource Allocation Planning (JURAP) Committee Meeting

Dwight P. Holmes

July 17, 2003

NASA / Jet Propulsion Laboratory

INTEGRAL

OPERATIONS

- **DSN Status**
  - **Integral spacecraft is in the summer eclipse season**
  - **Integral operations have been nominal with no outstanding problems**
    - **Spacecraft has been operating near flawlessly**
  - **Weekly DSN/ESOC teleconferences have been significantly reduced.**
    - **TCP halts have not gone away completely and an occasional 26m hardware problem interrupts data collection.**
    - **However, anomalies have been reduced to an acceptable level**
      - **JPL/ESOC continue to track and close DRs weekly with a combined report.**
  - **Time tag issue has been resolved and ESA is satisfied with the accuracy between Goldstone and Redu. (diff error = 2 usec)**

INTEGRAL Science

Science Results:

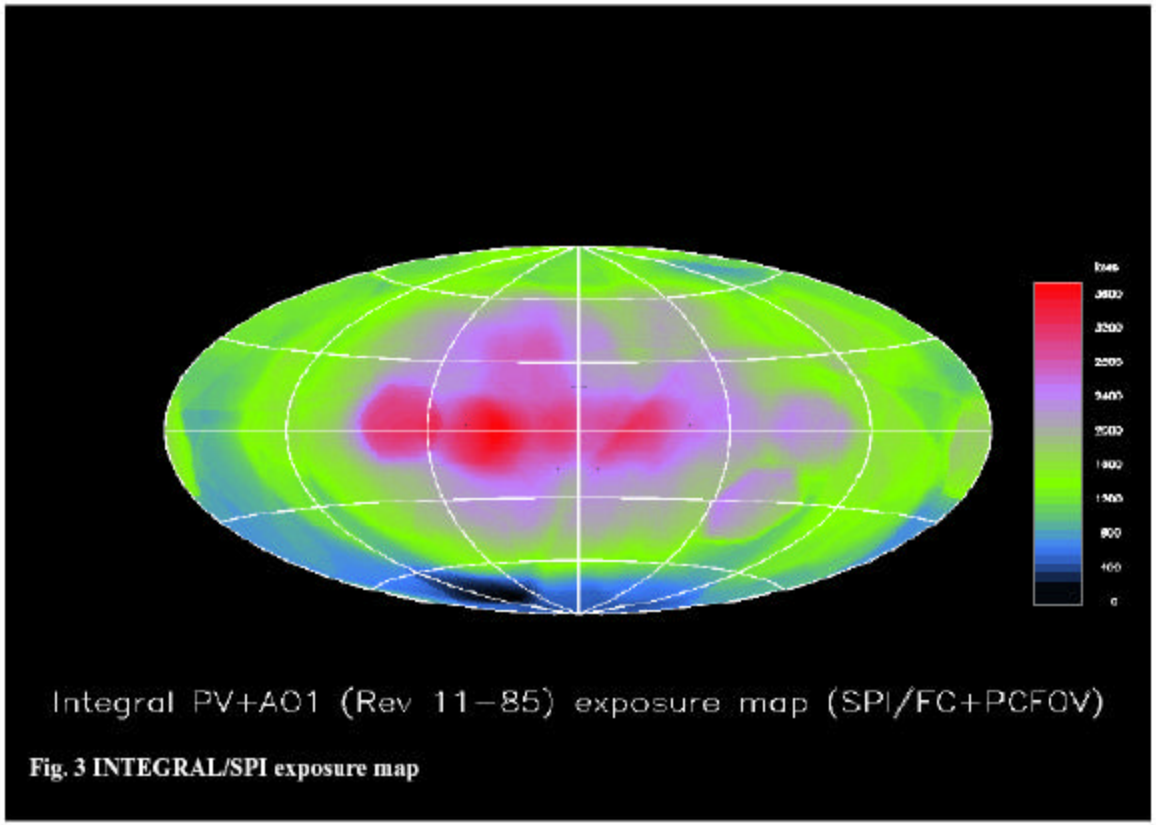


Fig. 3 INTEGRAL/SPI exposure map

INTEGRAL Science

- A large variety of observations have been made after 6 months of nominal mission operations
  - Five Target-of-Opportunity observations (four Black Hole candidates and one neutron star, Aql X-1)
  - During Spring visibility window observations were made of the Galactic Center as part of the Galactic Centre Deep Exposure (GCDE) program, (See figure previous page
  - As of the June Science report, six Gamma Ray Bursts sources have been recorded
    - GRB021125, GRB021219, GRB030131, GRB030227, GRB030320, and GRB030501. (note number pattern is the date of discovery, I.E yymmdd)
  - Integral has also discovered variable Gamma Ray sources as well
    - IGR J16318-4848 on January 20, 2003 was the first
    - A total of nine variable sources have been reported to date.

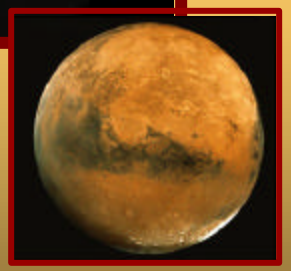
U.S. Participation in Europe's

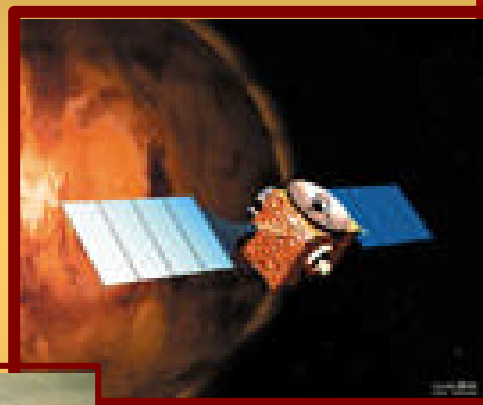
Mars Express

Jet Propulsion Laboratory
California Institute of Technology

Presentation to the

Joint Users Resource Allocation Planning (JURAP) Meeting





Dwight P. Holmes

July 17, 2003

http://www.sci.esa.int/marsexpress/

Commissioning and Checkout

- **Significant Operational Events**
  - **Payload commissioning has essentially been completed**
  - **Radio Science system checkout has been completed with DSN stations at Canberra and Goldstone**
  - **Beagle II check-out has been completed**
    - **Note: Reports of a failed Beagle II connection have been grossly exaggerated**
    - **Earth-moon pictures taken with the optical instruments on 3 July**

Operations

- **Spacecraft entered safe mode on 13 July**
  - **First indications point to a data handling overload, but root cause is still under investigation.**
  - **Recovered from safe mode within 24 hours by blind command to the Remote Terminal Unit (RTO) to move to a nominal data path.**
- **Solar array anomaly – 70% of capability**
  - **Under investigation with spacecraft contractor – will not impact mission**
- **Near Earth verification phase was completed with Star Calibration on 13 July**
- **On 13 July Mars-Express passed 10 million km distance from Earth (OWLT=33 secs)**

Operations

- **Next major events:**
  - **DDOR standalone passes on DOY 200/201 and 208**
    - **DDOR #1 - DSS-54 & 26**
    - **DDOR #2 – DSS-26 & 45**
  - **DDOR campaign to begin on 4 August**
  - **L+50 TCM (TCM-2) scheduled for DOY 203/204 will not require support from the DSN**

ulysses

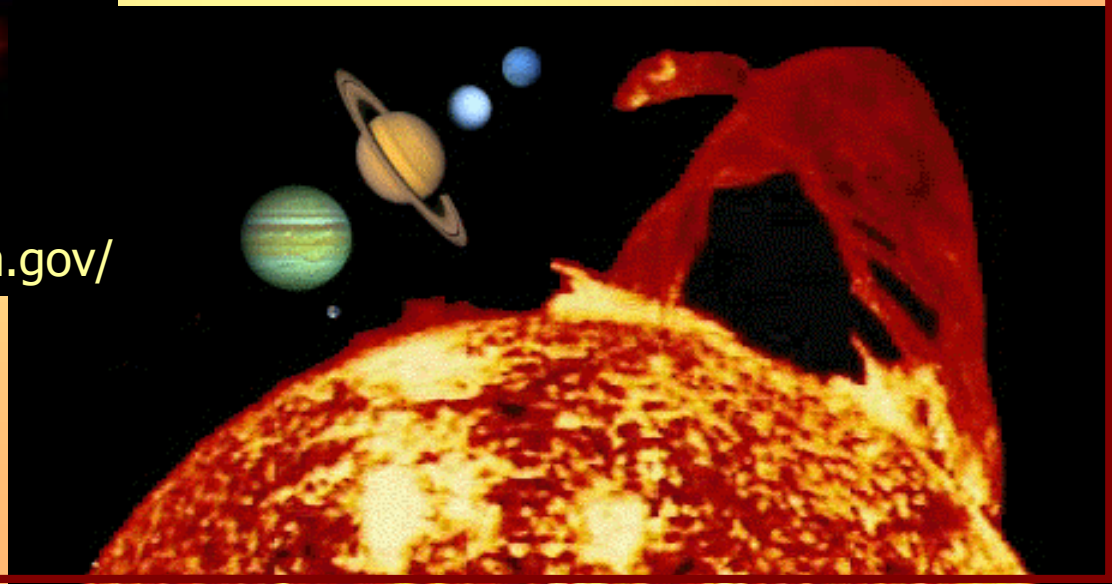
JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

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

B. Brymer

July 17, 2003

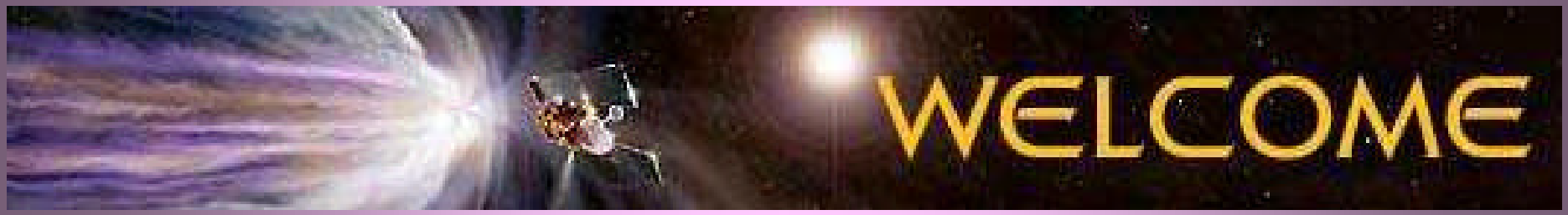
NASA Jet Propulsion Laboratory

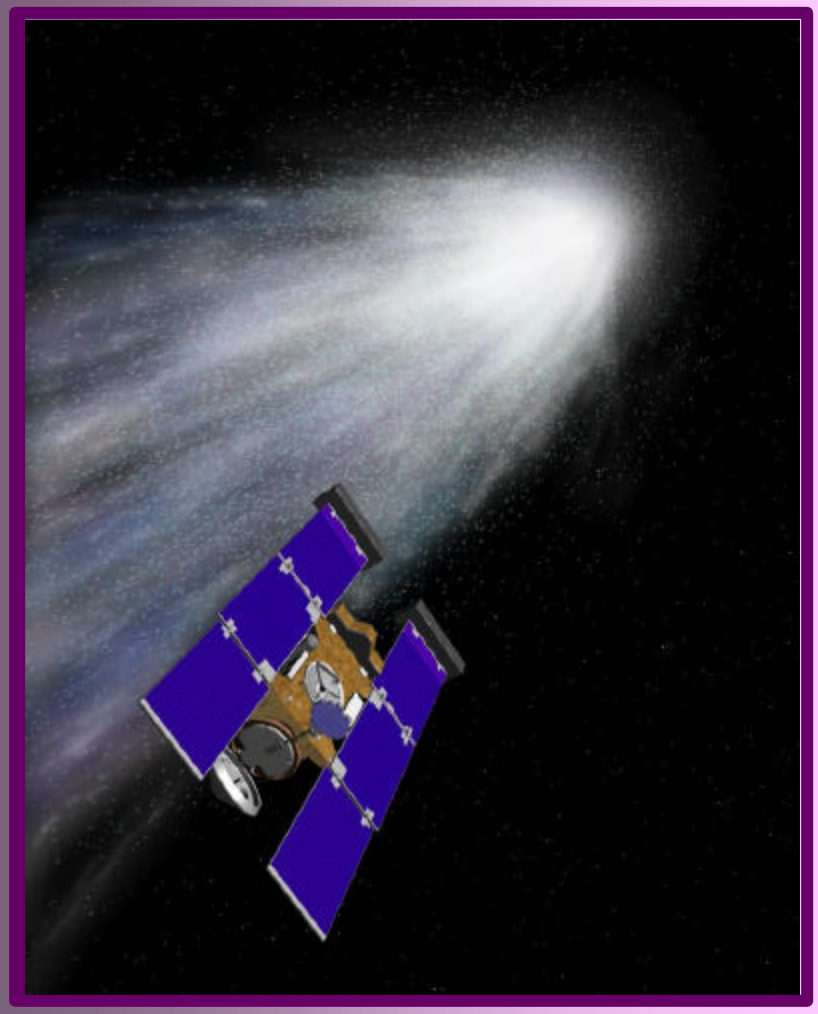


ULYSSES

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 PROVIDING GOOD SUPPORT
- **LOST HUS DATATION CALIBRATION CAPABILITY WITH NSP**
  A REPLACEMENT PROCEDURE WAS TESTED TODAY AT DTF-21 AND THE ANALYSIS IS PENDING.





STARDUST

JOINT USERS
RESOURCE ALLOCATION
PLANNING COMMITTEE

R. E. Ryan

JULY 17, 2003

NASA Jet Propulsion Laboratory

http://stardust.jpl.nasa.gov

STATUS

SPACECRAFT IS HEALTHY (7/17/03)

PRESENTLY 2.0 AU from EARTH

00:33:12 RTLT

0.99 AU from SUN

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

BETWEEN SUPERIOR CONJUNCTIONS

SEP (approx) 4 degrees

CURRENT ACTIVITIES

- DEEP SPACE MANEUVER-3 SUCCESFULLY COMPLETED
  - TWO EQUAL PARTS ON JUNE 17 AND 18
  - 25 MINUTE BURN EACH DAY, (approx) 35 M/S EACH
- 1 AU TESTS SUCCESSFULLY COMPLETED, JUNE 23 TO JULY 3
  - A SERIES OF SMALL TURNS AND MANEUVERS TO IMPROVE MODELING ACCURACY OF THE SMALL FORCES TO ACHIEVE ENTRY DESCENT AND LANDING AT EARTH RETURN
- TCM-9 (DSM-3 CLEANUP)
  - CONVERTED INTO ADDITIONAL EDL MANEUVER TEST
  - 41 Sec BURN SUCCESSFULLY COMPLETED ON JULY 16
- DSMS SUPPORT SATISFACTORY THIS PAST PERIOD
  - GOOD SUPPORT FOR THE SPECIAL EVENTS

http://stardust.jpl.nasa.gov

UPCOMING EVENTS

SUPERIOR CONJUNCTION ON AUGUST 17 (0.9 DEGREES)

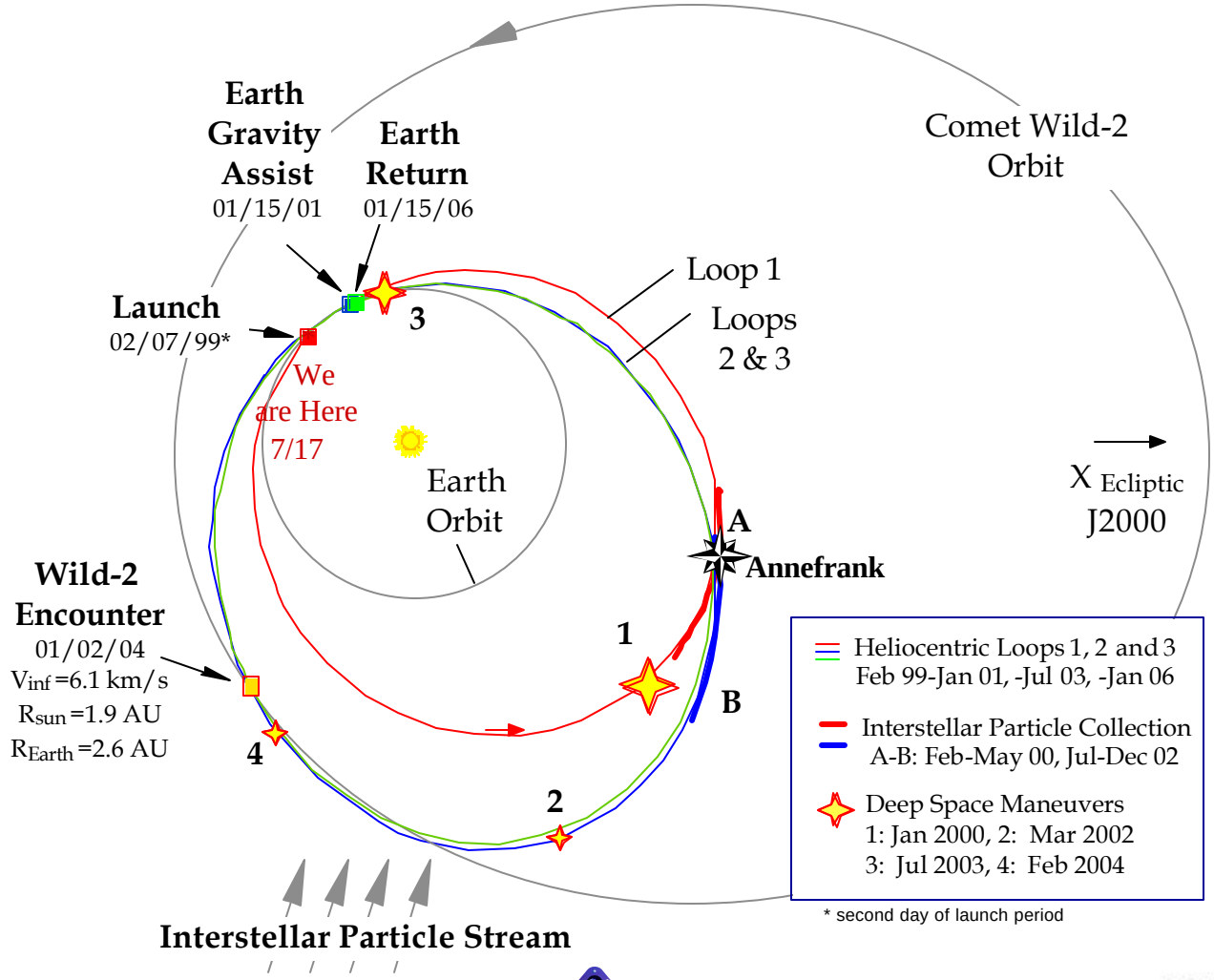
SOLAR RANGE MINIMUM WILL BE 0.98 AU ABOUT 7/22

EARTH RANGE WILL BE 2.0 AU

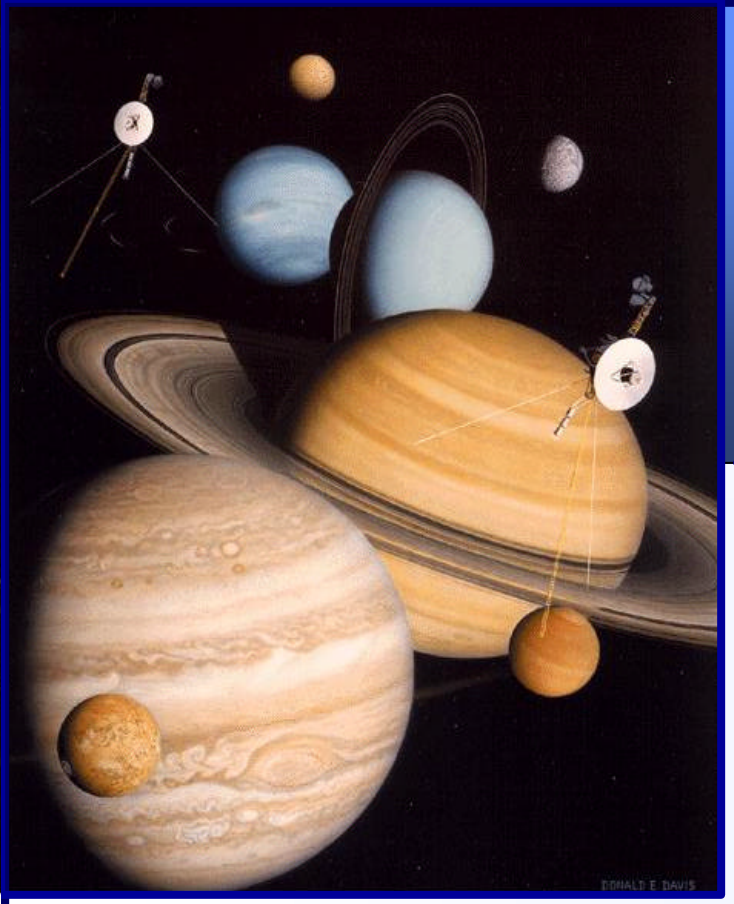
BELOW 2 DEGREES SEP FROM AUGUST 2 THROUGH OCTOBER 2

CONCERN

NEAR-TERM NEGOTIATION IN MID-RANGE
IS IMPACTING SEQUENCES AND DATA RETURN



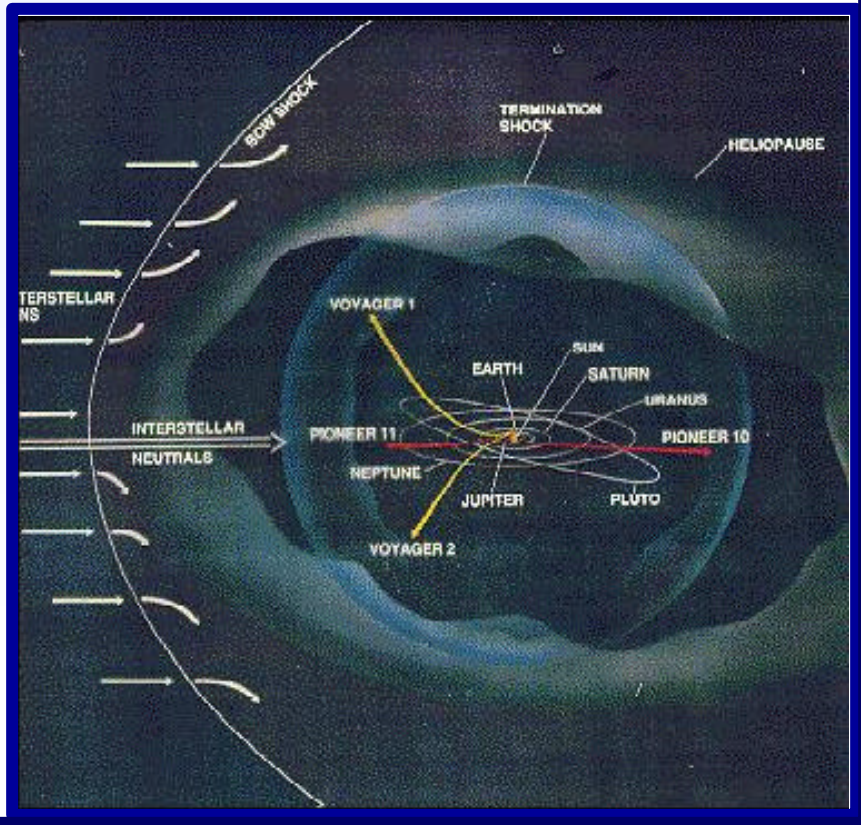
* second day of launch period



VOYAGER

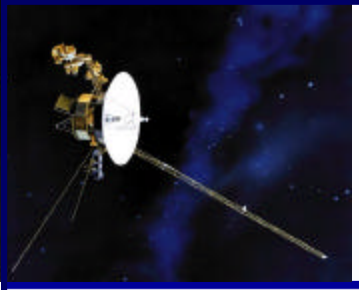
FLIGHT OPERATIONS

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE



Jefferson Hall
July 17, 2003
NASA Jet Propulsion Laboratory

http://voyager.jpl.nasa.gov



VOYAGER

FLIGHT OPERATIONS

JPL

FLIGHT SYSTEM STATUS

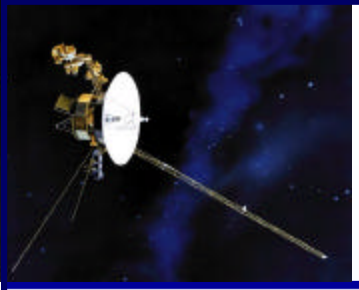
MISSION STATUS

VOYAGER 1

* HELIOCENTRIC DISTANCE – 88.9 AU, RTLT – 24h28m54s
* SPACECRAFT REMAINS HEALTHY
* MAJOR ACTIVITY: PMPCAL, & ASCAL

VOYAGER 2

* HELIOCENTRIC DISTANCE – 70.9 AU, RTLT – 19h22m06s
* SPACECRAFT REMAINS HEALTHY
* MAJOR ACTIVIT: MAGROL, PMPCAL



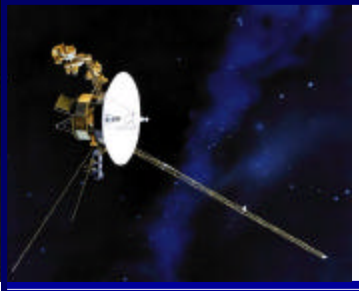
VOYAGER

FLIGHT OPERATIONS

GROUND SYSTEM STATUS

(JUNE 14, 2003 - JULY 11, 2003)

- DSN - OVERALL SUPPORT – GOOD
- DATA OUTAGE INFORMATION NOT AVAILABLE
- NUMEROUS DSN SUPPORT CHANGES CAUSED BY LAUNCH OF MER A & B



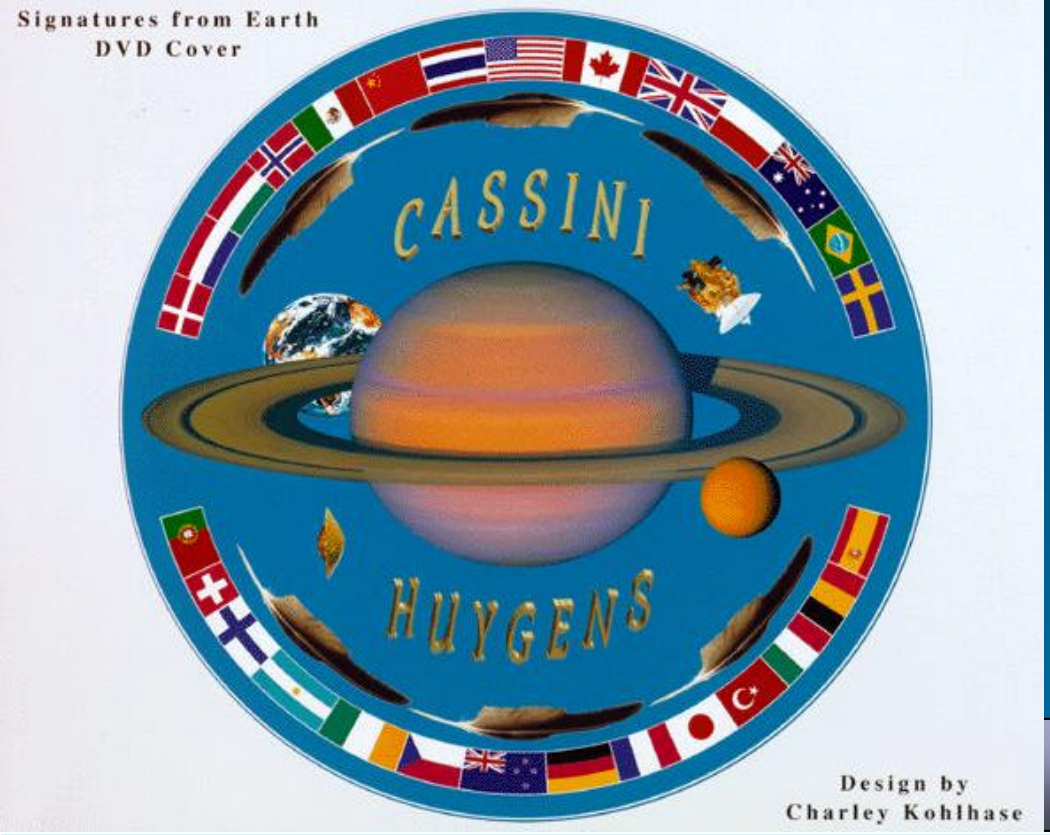
VOYAGER

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	384.7	373.3	128.4	N/A	N/A
32	275.7	281.4	62.7	N/A	N/A

VOYAGER HOMEPAGE - http://voyager,jpl.nasa.gov



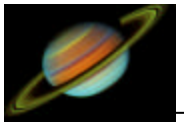
http://saturn.jpl.nasa.gov/cassini/index.shtml

Joint Users Resource Allocation Planning (JURAP) Committee Meeting

Dave Doody

July 17, 2003

NASA / Jet Propulsion Laboratory



Cassini / Huygens

- **Space Science Phase Observations Continue**
  - Superior Conjunction Radio Science (RS) Experiment (SCE#2), 30 days, completed yesterday.
    - Reduced science objectives and DSN coverage, because of required use of thrusters vs reaction wheels
      - Minimizing use of RWA-3 which has exhibited friction problem.
    - RS Ka Translator (KaT) exhibited its “bad frequency region” problem throughout, unable to lock on the U/L.
      - RS used SCE opportunity to characterize, and attempt solutions. Additional work continues, with DSN’s help.
      - Usable X-band and Ka-band data was acquired for SCE#2
        - Ka-1 D/L signal coherent with the X-band U/L
        - X-up / X-down coherent
    - S/C Engineering CMD Link Experiment repeated, uplinking hundreds of NO-OP CMDs to characterize CMD performance at low SEP. Superior Conjunction follows Saturn Orbit Insertion (SOI) by 7 days next July
  - Approach Science mission phase begins in January
  - GWE#3 Being descoped from 40 days to 20 days of 24X7 DSN coverage
  - Tour advanced science planning continues
- **Daily Ops Going Well**
  - Worked minor S/C anomaly involving polarity of RWA-4 articulation
    - RWA-4 has now been articulated into position to take over from RWA-3, checks ok.
    - SOI Demonstration Critical CMD Sequence loaded aboard, being run through DOY 217 (No DSN impact)
  - Excellent DSN support and good NOPE support
    - Corrections to the Network Operations Plan are STILL in progress.
  - Cassini is exercising the Emergency Control Center today
  - Various minor S/C instrument adjustments, cals, and anomalies being worked near real time.
  - Working Huygens Mission Data Delivery plans for the ‘05 Titan mission
  - DSMS still considering Cassini’s request for replacement of NOCC-R/T display system with a single NMC instance to be used in evaluation of Project DSN display solutions for the long term.

Nozomi/Planet-B

Presentation to:
Joint Users Resource Allocation Planning Committee

Mark Ryne

July 17, 2003

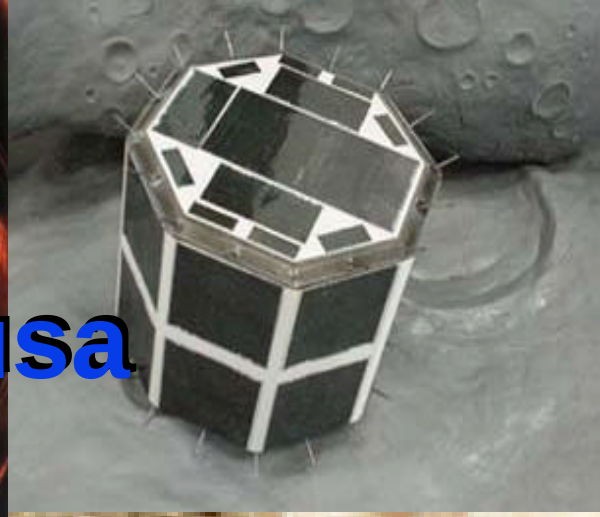
http://www.isas.ac.jp/e/enterp/missions/nozomi/cont.html

Status

Nozomi/Planet-B

- Earth swingby 2 successfully executed on June 19, 2003
  - Altitude = 11,023 km
  - Delivery error approximately 8 km in B-Plane
- Post swingby DSN tracking campaign between June 23 and July 3, 2003 including ?DOR data
- Post swingby trajectory correction maneuvers canceled
- Japanese begin to repair spacecraft on July 3, 2003
  - Spacecraft off Earth point for duration of repair
  - Doppler and SRA range not valid in this attitude
  - DSN support suspended during repair activity (1-3 months)
- Mars arrival for current trajectory on December 13, 2003
  - Altitude of closest approach approximately 360 km





Muses-C/Hayabusa

Presentation to:
Joint Users Resource Allocation Planning Committee

Mark Ryne

July 17, 2003

http://www.isas.ac.jp/e/enterp/missions/nozomi/cont.html

Mission Overview

MUSES-C/Hayabusa

- MUSES-C is a technology demonstration with scientific purposes by Japans Institute for Space and Astronautical Sciences (ISAS)
  - Technology
    - Ion propulsion
    - Autonomous two-body navigation
    - Sample return
  - Science
    - Asteroid rendezvous
    - Asteroid sample return
  - Post launch name is Hayabusa (Falcon)

- NASA is a supporting partner in the ISAS MUSES-C mission
  - Review and testing of re-entry heat shield
  - Support ISAS with navigation and tracking
  - Support mission instrumentation teams
  - U.S participation in Joint Science Team (sample analysis)

Mission Scenario

MUSES-C/Hayabusa

- Launch on 09-MAY-2003
  - M-V launch vehicle from Kagoshima, Japan
- Earth swingby on 18-MAY-2004
  - Altitude ~3500 km
- Asteroid arrival on 15-JUN-2005
  - 1998 SF36 (S-Type)
  - 22 cm/sec escape velocity
  - Surface contact in September/October
- Asteroid departure on 02-NOV-2005
- Earth re-entry on 10-JUN-2007
  - Capsule recovery in Western Austrailia

Mission Concept

MUSES-C/Hayabusa

ISAS Flight Support Responsibilities

MUSES-C/Hayabusa

- Mission design and all spacecraft operations
  - Trajectory design
  - Low thrust plan and operation
  - Chemical maneuver planning
  - Navigation for all mission phases
    - ISAS ground based radiometric tracking
    - Earth swingby
    - Optical navigation for asteroid rendezvous
    - Asteroid mapping and touchdown
    - Earth return

JPL Navigation Responsibilities

MUSES-C/Hayabusa

- Provide orbit estimates to ISAS navigation for:
  - Launch support
  - Maneuver planning and assessment
  - Earth return and re-entry (at upper atmosphere boundary)
- Perform orbit determination ONLY when DSN provides tracking support
  - Only during ballistic phases of mission
  - Exchange radiometric tracking data with ISAS
  - ?DOR campaigns support maneuver design
  - Orbit estimates based on combination of DSN and ISAS data
  - No orbit determination during approach, in proximity of asteroid, or when ion thrusters are in operation
- MUSES-C support analogous to support for Nozomi
  - Maneuver planning and assessment
  - Earth swingby

Current Status and Upcoming Events

MUSES-C/Hayabusa

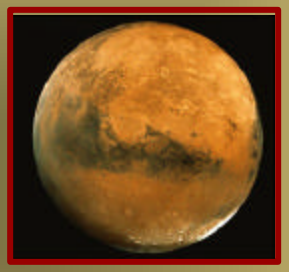
- Successfully launched on 09-MAY-2003
  - Three days of DSN radiometric tracking
  - JPL Multi-mission navigation provided 6 orbit solutions
  - No post launch contingency trajectory correction maneuver required
- Ion engine operation underway
- Planning underway for DSN ?DOR tracking campaigns support:
  - Trim maneuver in late September, 2003
  - Additional trim maneuver in late December, 2003
  - Trajectory correction maneuver in April, 2004
  - Earth swingby in May 2004

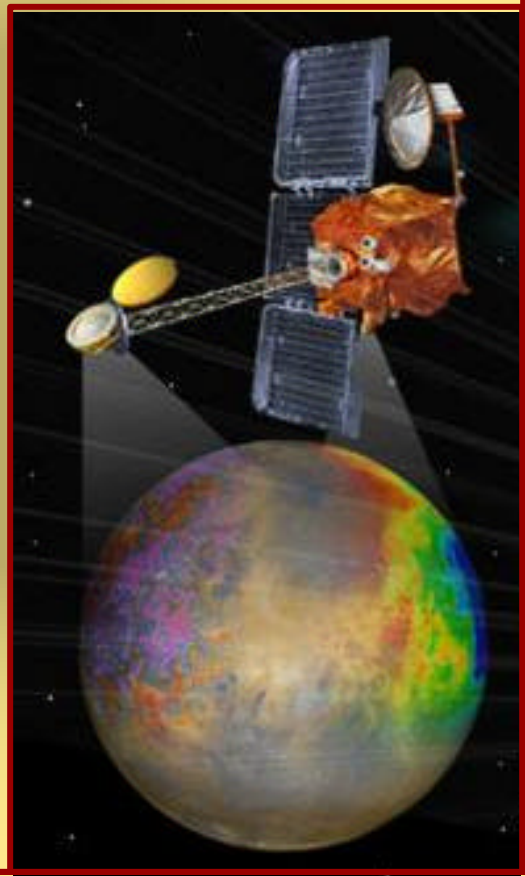
Mars Global Surveyor

Flight Operations Status

Presentation to the

Joint Users Resource Allocation Planning (JURAP) Meeting





E. E. Brower

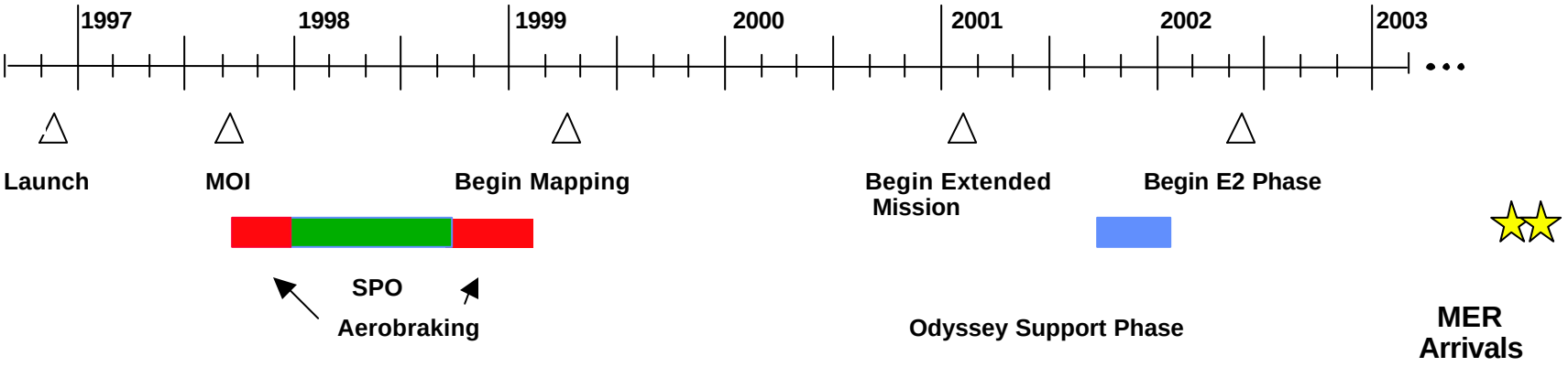
July 16, 2003

http://mars.jpl.nasa.gov/missions/present/globalsurveyor.html

AGENDA

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

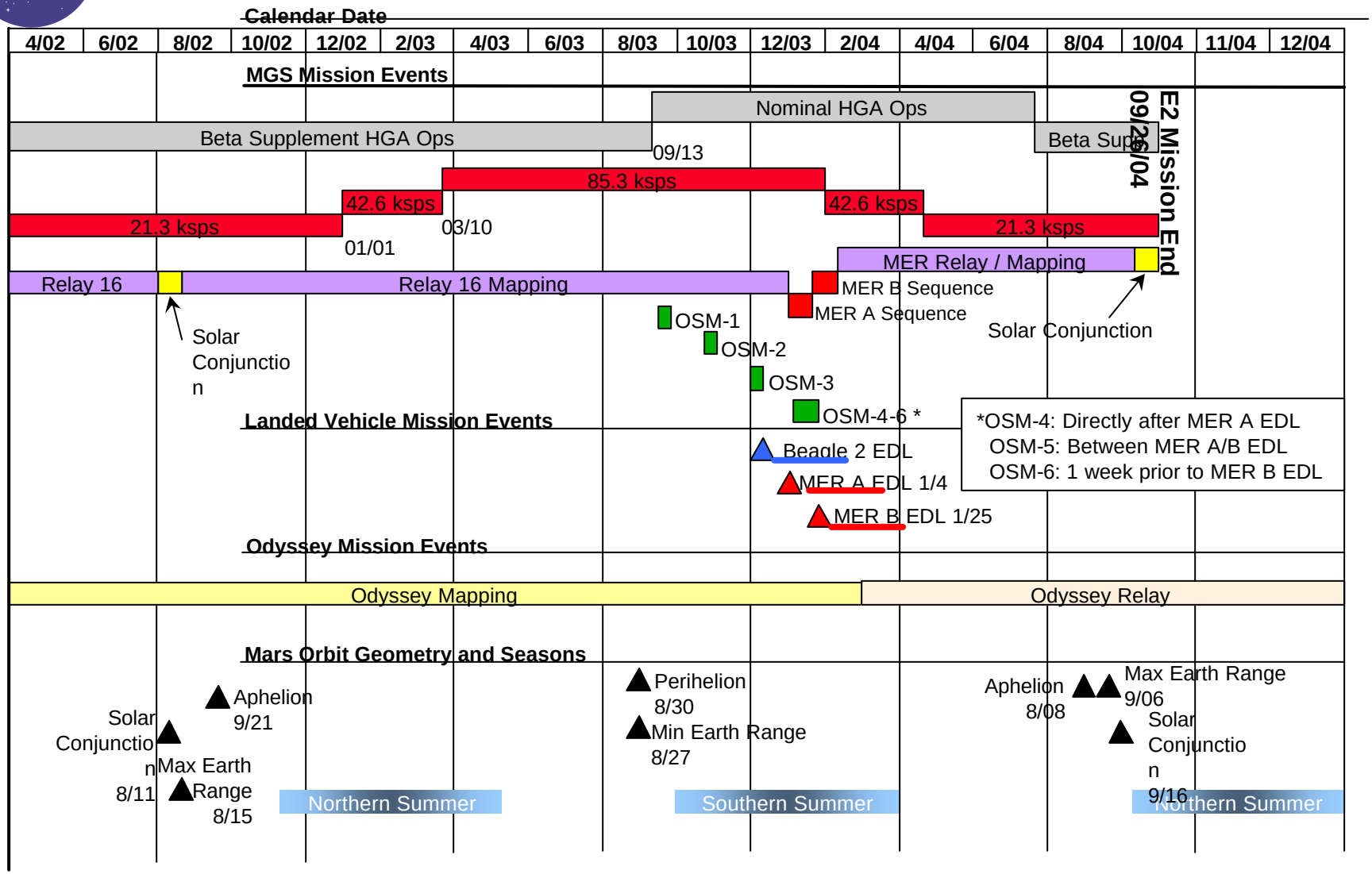
Mars Global Surveyor
Project Snapshot



PHASE NAME	START DATE	END DATE	ORBITS	ORBITE
PRELAUNCH PHASE	**1994-10-12**	**1996-11-06**		
LAUNCH PHASE	**1996-11-06**	**1996-11-07**		
CRUISE PHASE	**1996-11-07**	**1997-09-12**		
INSERTION PHASE	**1997-09-12**	**1999-03-09**	**1**	**1683**
MAPPING PHASE(687DAYS)	**1999-03-09**	**2001-01-31**	**1**	**8505**
EXTENDED MISSION PHASE	**2001-02-01**	**2002-04-22**	**8506**	**13960**
EXTENDED EXTENDED (E2)	**2002-04-22**	**2004-08-19**	**13961**	**29416**

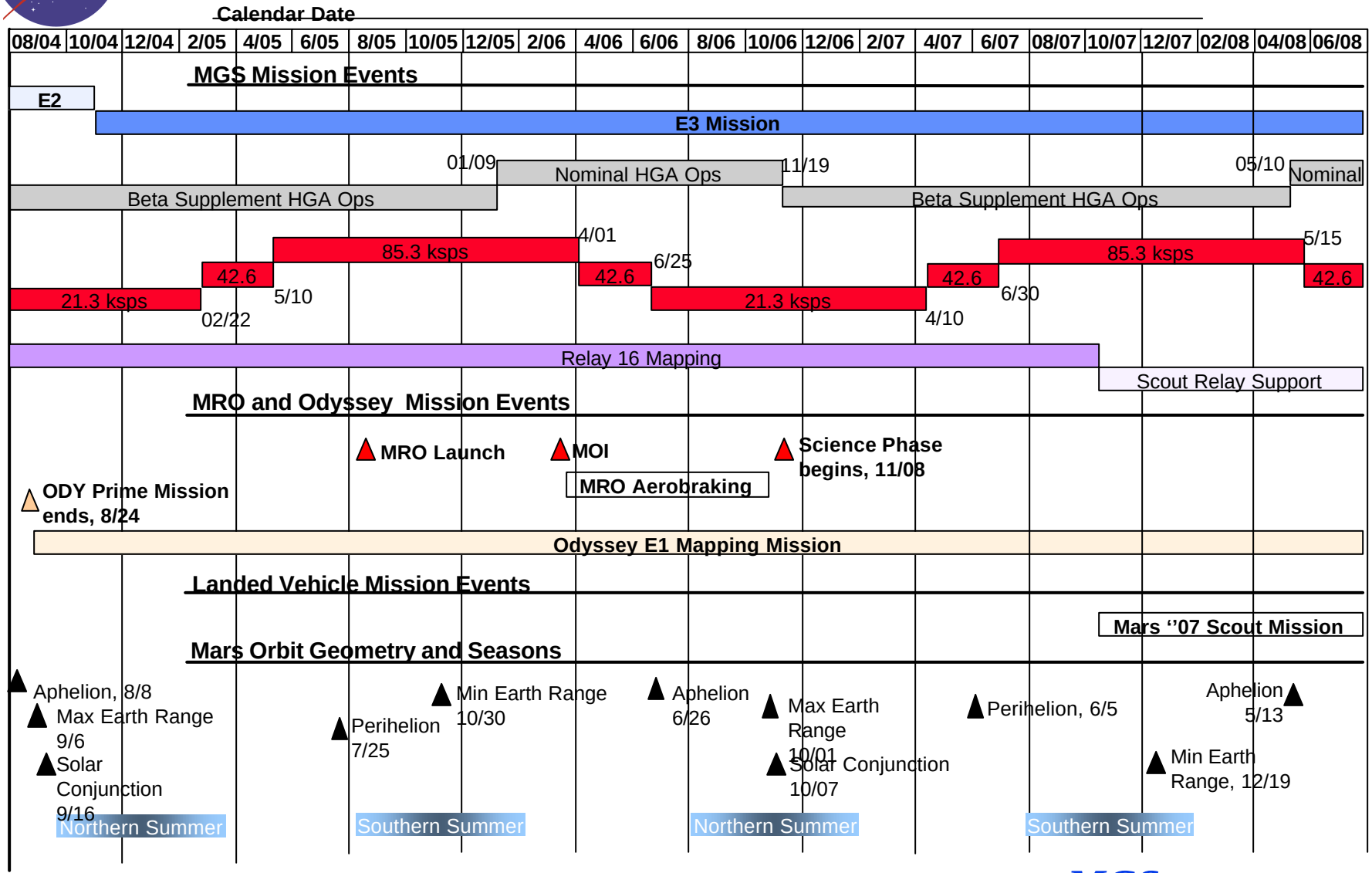
MGS

Mars Global Surveyor
E2 Mission Timeline



MGS

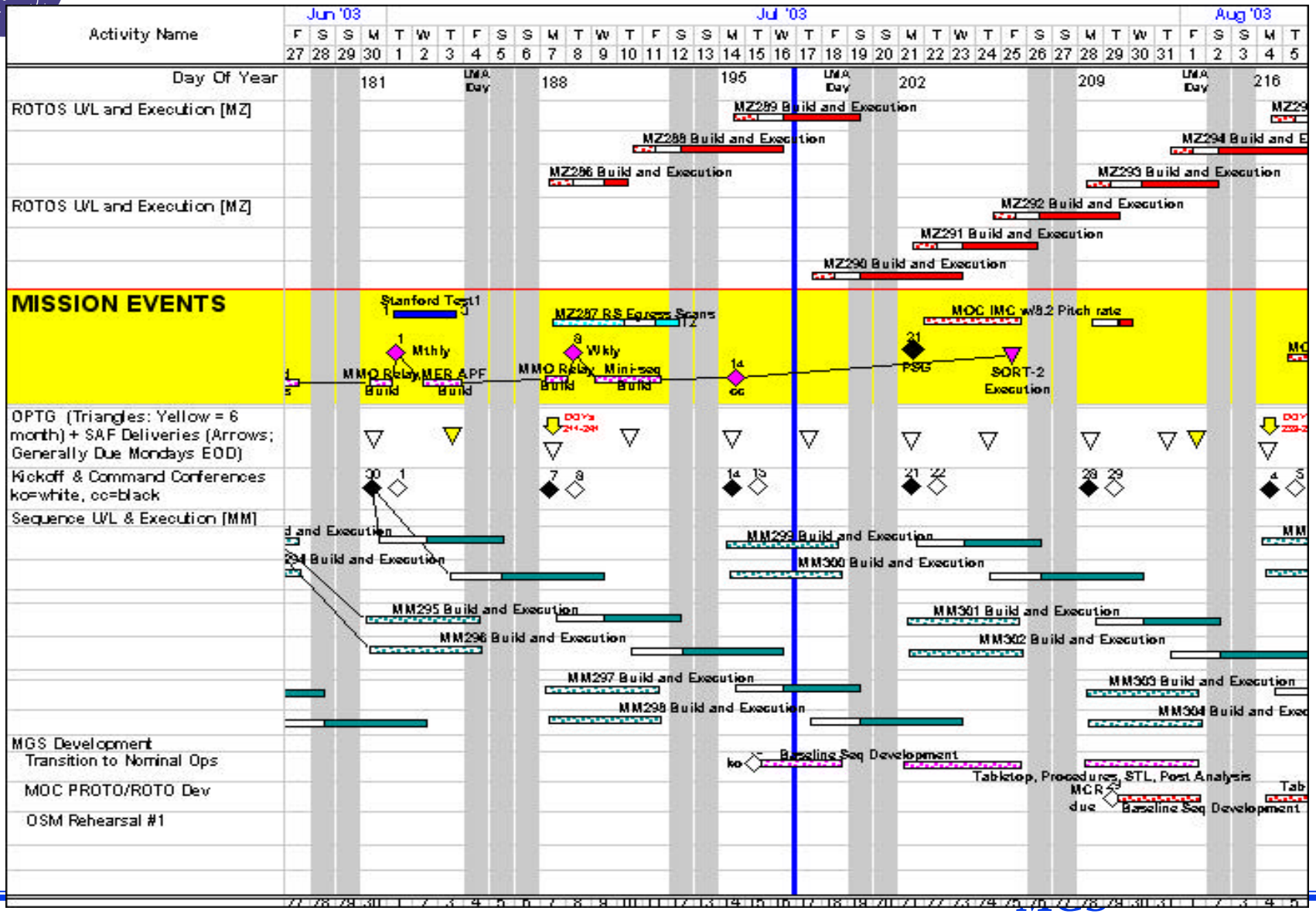
Mars Global Surveyor
Proposed E3 Mission Timeline

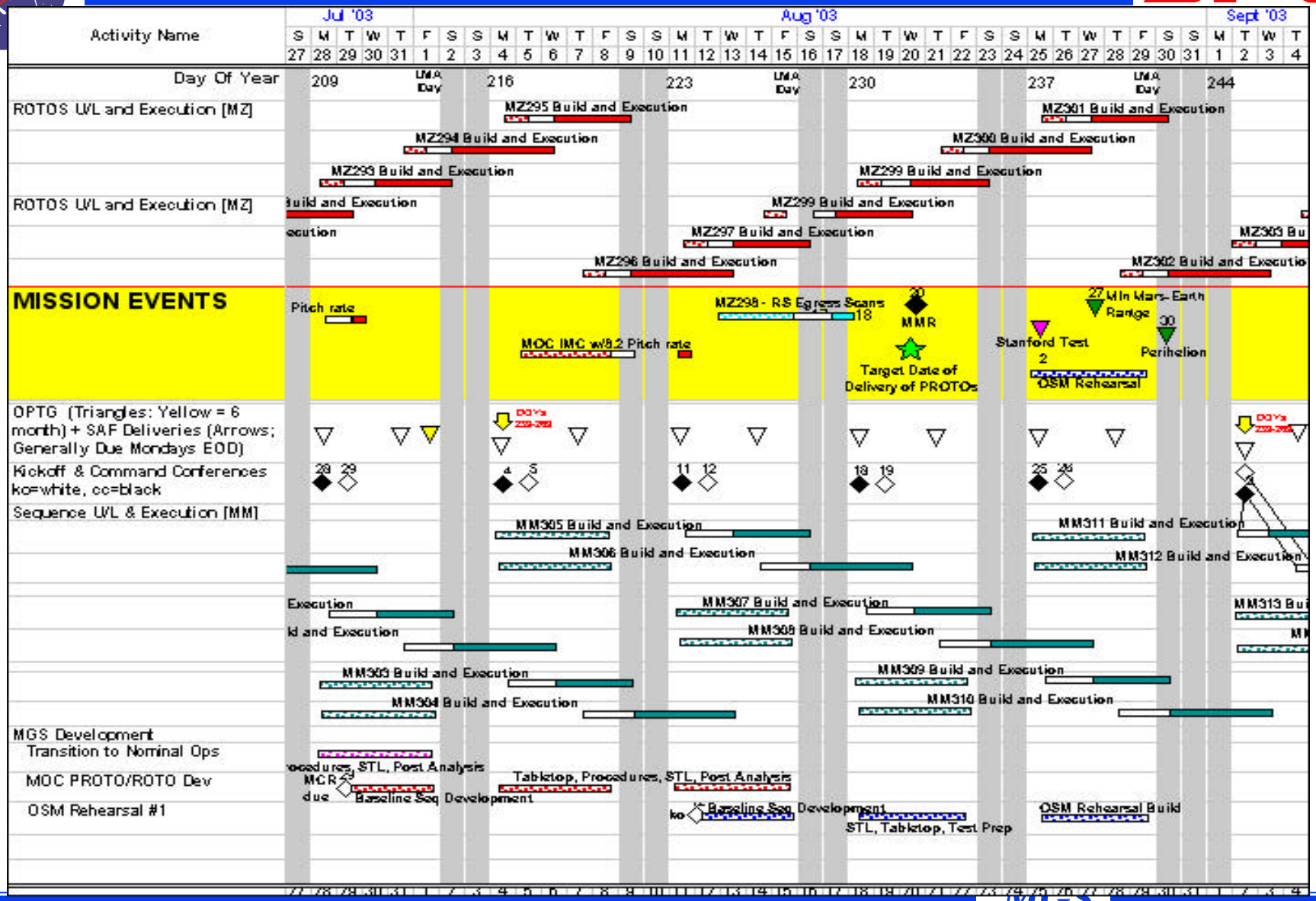


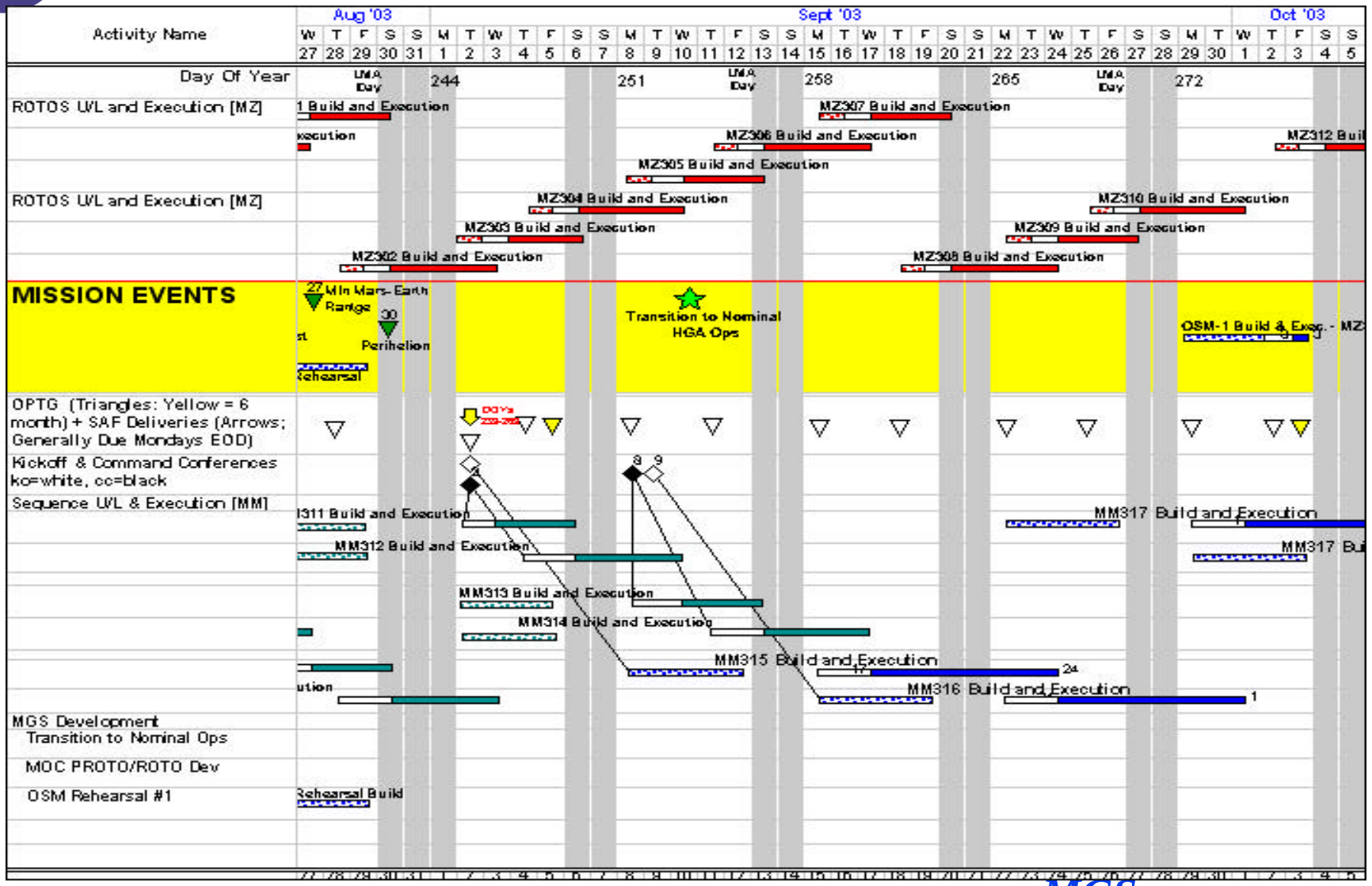
MGS

Mars Global Surveyor

Upcoming Events




Activity Name
Jul '03
Aug '03
Sept '03
Day Of Year
209
216
223
230
237
244
ROTOS L/L and Execution [MZ]
MZ295 Build and Execution
MZ294 Build and Execution
MZ300 Build and Execution
MZ293 Build and Execution
MZ299 Build and Execution
ROTOS L/L and Execution [MZ]
MZ297 Build and Execution
MZ296 Build and Execution
MZ302 Build and Execution
MISSION EVENTS
Pitch rate
MZ298 - RS Egress Scans
MMR
MOC IMC w/8.2 Pitch rate
Target Date of Delivery of PROTOs
Stanford Test
OSM Rehearsal
Min Mars-Earth Range
Perihelion
OPTG (Triangles: Yellow = 6 month) + SAF Deliveries (Arrows; Generally Due Mondays EOD)
Kickoff & Command Conferences ko=white, cc=black
Sequence L/L & Execution [MM]
MM305 Build and Execution
MM311 Build and Execution
MM306 Build and Execution
MM312 Build and Execution
MM307 Build and Execution
MM313 Bui
MM308 Build and Execution
MM303 Build and Execution
MM309 Build and Execution
MM304 Build and Execution
MM310 Build and Execution
MGS Development
Transition to Nominal Ops
MOC PROTO/ROTO Dev
Tabletop, Procedures, STL, Post Analysis
MCR
Baseline Seq Development
OSM Rehearsal #1
OSM Rehearsal Build
STL, Tabletop, Test Prep


Activity Name
Aug '03
Sept '03
Oct '03
Day Of Year
244
251
258
265
272
ROTOS U/L and Execution [MZ]
MZ307 Build and Execution
MZ306 Build and Execution
MZ305 Build and Execution
MZ304 Build and Execution
MZ303 Build and Execution
MZ302 Build and Execution
MZ310 Build and Execution
MZ309 Build and Execution
MZ308 Build and Execution
MISSION EVENTS
Min Mars-Earth Range
Perihelion
Transition to Nominal HGA Ops
OSM-1 Build & Exec
OPTG (Triangles: Yellow = 6 month) + SAF Deliveries (Arrows; Generally Due Mondays EOD)
Kickoff & Command Conferences ko=white, cc=black
Sequence U/L & Execution [MM]
MM312 Build and Execution
MM313 Build and Execution
MM314 Build and Execution
MM315 Build and Execution
MM316 Build and Execution
MM317 Build and Execution
MGS Development
Transition to Nominal Ops
MOC PROTO/ROTO Dev
OSM Rehearsal #1
Rehearsal Build

- Last 3 Months:
  - **Orbit #20,000** — **APR 14**
  - **MOC Focus test** — **APR 23-26**
  - **EDF/PDS synchronization loss** — **May 4**
  - **Earth Jupiter Image** — **MAY 8**
  - **Final DDOR observation** — **May 10**
  - **IMC Demonstration** — **MAY 11, 17**
  - **Phobos image** — **JUN 9**

- Next 12 Months:
  - **IMC Demonstration** — **August**
  - **R/S Egress Scans** — **August 17,18**
  - **Stanford UHF** — **August**
  - **Transition to Nominal HGA Ops** — **Sept 10**
  - **MGS OSM#1,2,3** — **OCT 5, NOV, DEC25**

- **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.**

- **None**