

A large satellite dish antenna is the central focus, mounted on a complex metal structure. The scene is set at sunset or sunrise, with a vibrant orange and yellow sky transitioning into a darker blue. In the background, there are silhouettes of mountains and some industrial or utility structures with lights. The overall atmosphere is one of a remote, high-tech facility.

**JOINT USERS  
RESOURCE ALLOCATION  
PLANNING (JURAP) MEETING**

**APRIL 17, 2003**

**Jet Propulsion Laboratory**  
California Institute of Technology

4800 Oak Grove Drive  
Pasadena, CA 91109-8099

(818) 354-4321



May 13, 2003

Refer to: 930-03-013-ESB:lc

TO: Distribution

FROM: Eugene S. Burke

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

**NEXT JURAP MEETING:  
Thursday, May 15, 2003  
JPL Bldg. 303, Room 411B at 1:00 p.m.**

Attendees:

Andujo, A.	Call, J.	Lacey, N.	Slade, M.
Angrum, A.	Doody, D.	Ludwig, R.	Stone, E.
Baldwin, J.	Hall, J.	Martinez, G.	Tham, L.
Brymer, B.	Holmes, D.	Martinez, K.	Waldherr, S.
Burke, G.	Iovu, T.	Massey, E.	Yetter, K.

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 April 17, 2002, at the Jet Propulsion Laboratory.

***Introductory Remarks / Conflict Resolutions – G. Burke***

Mr. Burke welcomed the attendees to the JURAP meeting. Up-to-date launch dates for the Mars Exploration Rovers (MER A and B), are June 6, and June 25, respectively. The MER-A mission, originally scheduled for May 30, was recently rescheduled to June 6, due to a potential problem with cabling on the spacecraft. Mars Express will now launch no earlier than June 2, 2003. The SIRTf launch was also delayed to no earlier than April 28, 2003. MUSES-C is now scheduled for launch on May 9, 2003. Also discussed were DSS-63 and DSS-34 return to service delays each may be delayed between 2 to 4 days. Mr. Burke introduced Dr. Ed Stone who will be presenting findings of the interstellar science data collected by the Voyager missions.

Note: During the preparation of these minutes the SIRTf launch has been delayed to mid-August 2003.

### **Special Reports**

#### ***Voyager Interstellar Science Data – Dr. E. Stone***

Dr. Stone gave a very passionate presentation on the data and its interpretations from the Voyager 1 and 2 spacecraft as they travel through interstellar space. Dr. Stone explained the unique opportunities for learning more about the heliosphere that surrounds our solar system and other cosmic phenomenon and the opportunity the Voyager spacecraft has to collect data as it reaches and passes through the heliosphere and its many layers. The Voyager mission is in the process of creating a proposal to extend the missions during and beyond this phase.

For more information please visit the link below on the Space.com website. This article describes in more detail the presentation given by Dr. Ed Stone:

[http://www.space.com/missionlaunches/missions/heliosphere\\_shock\\_010706.html](http://www.space.com/missionlaunches/missions/heliosphere_shock_010706.html)

#### ***RARB Action Items – N. Lacey for D. Morris***

Only one Action Item from the February 2003 RARB remains open. Multi-mission DSN Allocation and Planning (MDAP) is to provide a Mars Program coordinated input to the Resource Allocation (Mid-Range) Planning Team (RAPT) of at least one week of schedule, at least 6 months prior to the schedule week.

#### ***Resource Analysis Team – N. Lacey***

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

- Launch date for MUSES-C has been changed to 05-09-03
- Launch date for MERA has changed to 06-06-03
- Launch date for Mars Express has changed to 06-02-03
- Launch date for SIRTf has changed to 04-28-03

Note: During the preparation of these minutes the SIRTf launch has been delayed to mid-August 2003.

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:

- DSS-15 NSP installation completed 04-10-03
- DSS-25 NSP installation completed 03-09-03
- DSS-26 Operational 04-02-03
- DSS-34 NSP and 20 kW X-Band installation completed 04-07-03

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:

- 70m Life Extension Downtime Assessment
- DSS-15 Out-Of-Service Assessment Report
- Lunar-A Load Study - Changed Launch
- Messenger Load Study
- MRO Extended Mission Load Study

***DSS Downtime Forecast – A. Andujo***

The approved DSS-27 downtime for CCG installation task scheduled for week 21 of 2003 (May 21 – May 23, 2003) has been deleted from the schedule and is in re-planning.

The following is a list of new downtime requests currently in planning, which will be presented for approval at the August 2003 Resource Allocation Review Board Meeting:

<b>Requested Activity</b>	<b>Length</b>	<b>Timeframe</b>
DSS-65 Relocation and Revitalization	9 Wks	08-30-04 - 05-30-05
DSS-65 Life Extension (NIB to above)		08-30-04 - 05-30-05
DSS-45 Life Extension (Part 1)	12 Wks	05-24-04 - 03-30-05
DSS-45 Life Extension (Part 2)	5 Wks	05-24-04 - 03-30-05
DSS-15 Life Extension (Should be split)	20 Wks	07-30-06 - 03-30-07

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***

Dr. Slade reported that the GSSR MSPA DEMO test track on DOY 081 with Mars Odyssey was successful and that there were no problems with the spacecraft and no RFI noted at DSS-25.

The MSPA DEMO with MGS on DOY 087 had no GSSR transmissions due to a power generator failure and T-Bus failure to switch to commercial power. The MSPA DEMO with MGS has been rescheduled for DOY 146 (May 26, 2003). Deep concern was expressed about the power failure at SPC10 and at how long it took to switch to commercial power.

Mercury Relativity radar observations on April 4 and 5 were successfully supported. Transmitter pointing tests show that pointing has improved, but still has some problems at low elevation angles between 20 and 30 degrees.

***Radio Astronomy / Special Activities – G. Martinez***

It was reported that two Clock Sync activities during the last month yielded 97.1% data capture, due to one suffering from a Master Equatorial reset.

There was a successful Space Geodesy activity (Europe 67), which determined station coordinates with the highest precision possible and their evolution in the European geodetic VLBI network.

There was a Guest Observing activity, BG134. This was a K-band dual polarization experiment to study water megamasers, in an attempt to map sub-parsec accretion disks of supermassive black holes. One of the two K-band receivers were taken from DSS-13 and installed just before the experiment. The PI reported that pointing at Goldstone was very bad and doubts that the antenna was on the source for the first hour of the 10-hour experiment.

***JURAP Science Advisor – E. Smith***

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

**FLIGHT PROJECTS REPORTS**

***Stardust - R. Ryan***

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

***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. The Voyager 2 spacecraft suffered an Autonomous Gyro Swap while turning on the A-Gyro in preparation for conditioning. When the gyro fault test was initiated, a gyro fault was detected and the spacecraft automatically switched from the "A-C" gyro pair to the "B-C" gyro pair without any indications of any problems with the "A" gyro. The project is investigating the cause for the autonomous switch at this time. Overall DSN support was reported as good.

***Cassini – D. Doody***

It was reported that the spacecraft and Huygens Probe are in good health. All Space Science observations were on hold during Flight software installation and checkout, as well as CDS Flight software for the Saturn Tour. A new safing response was successfully tested that uses the High Gain Antenna. The mission will be conducting a 30-day Superior Conjunction RS Experiment starting in June.

DSN and NOPE support has been excellent. NSP-configured support is going well, with minor issues. Minor spacecraft instrument adjustments, calibrations, and anomalies are being worked in near-real-time. The Project is planning the Huygens Mission Data Delivery for the '05 Titan mission.

NOCC Hierarchical Display System is inoperative with NSP (as expected) and the Cassini. The Project is requesting a replacement system to complement DMD MON displays for real time DSN visibility.

***ISTP, WIND, POLAR, SOHO, GEOTAIL, Cluster II – A. Chang***

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

***NOZOMI – M. Ryne***

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

***MAP, ACE, and IMAGE, Genesis – S. Waldherr***

All spacecraft are in good health and are on mission. The ACE spacecraft is approaching a solar conjunction. The SEV angle will require the need for 34-meter antenna support. The IMAGE

project declared a spacecraft emergency. They reported the spacecraft was in an eclipse and encountering a loss of spacecraft power, but were able to restore spacecraft power to nominal level. The Genesis spacecraft performed a successful TCM for station keeping. The burn was within 1% of the error budget.

***Mars Global Surveyor – E. Brower***

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

***Mars Odyssey – B. Mase / P. Poon***

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

***INTEGRAL – D. Holmes***

Operations have suffered from several issues related to data delivery to the Project, particularly at Goldstone. Handover between ESA and JPL stations create data duplication during overlap which is erroneously identified as a gap. This has been identified as a problem at ESOC and is being addressed by the Integral operations team.

Single frame data loss has been occurring during command sequence verifications at Goldstone. It has been verified that most issues can be attributed to RFI from military operations at Fort Irwin. In order to prevent RFI during commanding, Goldstone has been coordinating with the military when RFI will occur and then informs the Project.

Other issues with data loss have been addressed and significantly reduced the number of lost blocks. Network Infrastructure Services implemented two important changes in the Central Communications Terminal (CCT): a Class-Based Weighted Fair Queuing, which reserves bandwidth during periods of congestion; and a new network switch has been installed in the CCT. The results so far have been very positive not only for Integral - most Projects report that data capture has improved.

***Ulysses – B. Brymer***

Operations continue nominally utilizing the Electronic Power Converter/Traveling Wave Tube Amplifier 1 (EPC1/TWTA1). Analysis continues of the autonomous switchover from EPC2/TWTA2 to EPC1/TWTA1 reported in May. Spacecraft power and thermal reconfigurations continue to keep the spacecraft thermal profile in order. Earth procession maneuvers are being performed about once every five days. For the fourth consecutive time the Project has unsuccessfully completed a HUS Datation Test. The previous three failures were due to routine operational failures. The last failure is being identified as a capability issue, because modulated command data cannot be recorded by the NSP. The DSN, along with Project personnel, are working to develop a workaround.

## Distribution List for April 17, 2003 JURAP

### ACE

Afkhami, F. ....	GSFC m/s 428.2
Rhoads, L. L. ....	GSFC m/s 581.0
Snell, J. M. ....	GSFC m/s 452.C
Sodano, R. J. ....	GSFC m/s 581.0

### Canberra Deep Space Communications Complex

Churchill, P. ....	CDSCC
Jacobsen, R. ....	CDSCC
O'Brien, J. J. ....	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
Iovu, T. C. ....	264-235
Maize, E. H. (DPM) .	230-104
Matson, D. L. (PS) <sup>1</sup> .	230-205
Mitchell, R. T. (PM) .	230-205
Tham, L. ....	264-235
Webster, J. L. ....	230-104

### Chandra

Bucher, S. ....	SAO
Gage, K. R. ....	SAO
Lavoie, A. R. (PM) .	MSFC Org. FD03
Marsh, K. ....	SAO
Weisskopf, M. C. (PS) .	MSFC Org. SD50
Wicker, D. ....	SAO
Wright, G. M. ....	MSFC Org. FD03

### Comet Nucleus Tour (CONTOUR)

Arroyo, B. ....	264-235
Chiu, M. C. (PM) .	APL 23-208
Farquhar, R. ....	APL 2-155
Holdridge, M. ....	APL 13N-319

### Dawn

Arroyo, B. ....	264-235
Gavit, S. A. (PM) .	264-426
Rayman, M. D. ....	TI1718

### Deep Impact

Arroyo, B. ....	264-235
Blume, W. H. ....	301-180
McKinney, J. C. ....	301-350
McNamee, J. B. (PM) .	301-320
Seybold, C. C. ....	301-140L

### Europa

Arroyo, B. ....	264-235
McNamee, J.B. (PM) .	301-335
Simpson, K.A. ....	301-335

### Galileo

Compton, B. ....	230-102
Huynh, J. C. ....	230-102
Medina-Gussie, M. ....	301-371
Pojman, J. L. ....	238-538
Theilig, E. E. (PM) .	264-525

### Genesis

Arroyo, B. ....	264-235
Burnett, D. S. ....	CIT 170-25
Hirst, E. A. (MM) .	264-570
Sweetnam, D. N. (PM) .	264-370
Tay, P. ....	264-235
Yetter, K. E. ....	264-235

### Goldstone Deep Space Communications Complex

Holmgren, E. ....	DSCC-125
Massey, K. ....	DSCC-61
McCoy, J. ....	DSCC-57
Millmore, D. ....	DSCC-37

### Goldstone Orbital Debris Radar (GODR)

Goldstein, R. M. (PM) .	300-227
Wolken, P. R. ....	507-105

### 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. ....	Smithsonian Astrophys. Obsrv.

### IMAGE

Abramo, C. A. ....	507-120
Burley, R. J. ....	GSFC m/s 632.0
Green, J. L. ....	GSFC m/s 630

### INTEGRAL

Arroyo, B. ....	264-235
Clausen, K. (PM) .	ESA/ESTEC
Maldari, P. ....	ESA/ESOC
Schmidt, M. ....	ESA/ESOC

### IPN-ISD / General

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

### IPN-ISD / 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

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<sup>1</sup> Project Scientist

## Distribution List for April 17, 2003 JURAP

### IPN-ISD / DSMS Operations

Almassy, W. T. ....	502-420
Berman, A. L. ....	303-403
Buck, R. D. ....	303-403
Buckley, J. L. ....	303-403
Covate, J. T. ....	507-120
Dillard, D. E. ....	507-120
Green, J. C. ....	507-120
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
Watzig, G. A. ....	502-420
Wert, M. ....	502-420

### IPN-ISD DSMS Plans & Commitments

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

### IPN-ISD / DSMS RAPSO

Baldwin, J. ....	301-240
Bartoo, R. H. ....	171-370
Borden, C. S. ....	301-165
Burke, E. S. ....	303-403
Hampton, E. ....	504-102
Kehrbaum, J. M. ....	301-145J
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 (Cluster II)

Abramo, C. A. ....	507-120
Christensen, J. L. ....	GSFC m/s 404.0
Dutilly, R. N. ....	GSFC m/s 581.1
Gurnett, D. ....	U. of Iowa

Mahmot, R. E. (PM) ....	GSFC m/s 444.0
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### ISTP (GEOTAIL/POLAR/SOHO/WIND)

Abramo, C. A. ....	507-120
Alexander, H. ....	502-320
Bush, R. I. ....	Stanford Univ.
Carder, M. E. ....	GSFC m/s 450.C
Dutilly, R. N. ....	GSFC m/s 581.1
Giles, B. L. ....	GSFC m/s 692.0
Hearn, S. P. ....	GSFC m/s 450.C
Mahmot, R. E. ....	GSFC m/s 444.0
Machado, M. J. ....	GSFC m/s 428.2
Milasuk-Ross, J. ....	GSFC m/s 428.5
Miller, K. A. ....	GSFC m/s 450.C
Nace, E. M. ....	GSFC m/s 450.8
Odendahl, S. K. ....	GSFC m/s 581.0

### 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
Robbins, P. E. ....	161-260
Silva, A. ....	149-200
Smith, J. L. ....	301-180
Taylor, A. H. ....	264-538
Toyoshima, B. ....	301-276
Williams, B. G. ....	301-125J
Winterhalter, D. ....	169-506
Woo, H. W. ....	126-110
Yung, C. S. ....	238-808

### Jupiter Icy Moons Orbiter Project

Casani, J. R. (PM) ....	301-370
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### Lunar A

Arroyo, B. ....	264-235
Ryne, M.S. ....	301-276

### Madrid Deep Space Communications Complex

Gimeno, J. ....	MDSCC
Gonzalez, C. ....	MDSCC
Martin, A. ....	MDSCC
Rosich, A. ....	MDSCC

### MAP

Abramo, C. A. ....	507-120
Coyle, S. E. ....	GSFC m/s 581.0
Dew, H. C. ....	GSFC m/s 423.0
Mahmot, R. E. (PM) ....	GSFC m/s 444.0

## Distribution List for April 17, 2003 JURAP

### Mars Exploration Rover (MER A & B)

Adler, M. . . . . T1723  
Arroyo, B. . . . . 264-235  
Crisp, J. A. (PS) . . . . . 241-105  
Erickson, J. K. . . . . T1723  
Ludwinski, J.M. . . . . T1722  
Roncoli, R. B. . . . . 301-140L  
Theisinger, P. C. (PM) . . . . . T1722

### Mars Express Orbiter

Arroyo, B. . . . . 264-235  
Horrtor, 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  
Jordan, Jr., J. F. . . . . 264-472  
McCleese, D. J. . . . . 264-426  
Naderi, F. M. . . . . 264-438  
Whetsel, C. . . . . 264-426

### Mars Reconnaissance Orbiter Project

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

### Mars 2001 Odyssey Mission

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

### MEGA

Altunin, V. I. . . . . 303-402  
Smith, J. G. (PM) . . . . . 264-828

### MESSENGER

Arroyo, B. . . . . 264-235  
Farquhar, R. (PM) . . . . . APL 2-155  
Peterson, M. . . . . APL 4-246

### Muses-C

Arroyo, B. . . . . 264-235  
Mottinger, N. A. . . . . 301-125J  
Smith, J.G (PM) . . . . . 264-828

### 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/ARC/General

Campo, R. A. . . . . ARC 244-14

### NASA/GSFC/General

Barbehenn, G. M. . . . . GSFC m/s 440.8  
Levine, A. J. . . . . GSFC m/s 452.0  
Martin, J. B. . . . . GSFC m/s 451.0

### NASA/SOMO

Dalton, J. T. . . . . GSFC m/s 720.0  
Downen, A. Z. . . . . 303-400  
Hall, V. F. . . . . JSC Code TG  
Morse, G. A. . . . . JSC Code TA  
Thompson, E. W. . . . . JSC Code GA

### NOZOMI (Planet B)

Arroyo, B. . . . . 264-235  
Ryne, M. S. . . . . 301-276  
Tay, P. . . . . 264-235  
Yetter, K. E. . . . . 264-235

### PFPD / Mission Management Office

Morris, R. B. . . . . 264-235  
Varghese, P. . . . . 264-235

### Radio Astronomy

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

### Reference Frame Calibration

Altunin, V. I. . . . . 303-402  
Cangahuala, A. (PM) . . . . . 301-125J  
Jacobs, C. . . . . 238-600

### Rosetta (ROSE)

Alexander, C. J. (PM) . . . . . 169-237  
Arroyo, B. . . . . 264-235  
Ellwood, J. (PM) . . . . . ESA/ESTEC  
Schwehm, G. H. (PS) . . . . . ESA/ESTEC  
Warhaut, M. . . . . ESA/ESOC

### Space Geodesy

Wolken, P. R. . . . . 507-105

### Space Infrared Telescope Facility (SIRTF)

Arroyo, B. . . . . 264-235  
Gallagher, D. B. (PM) . . . . . 264-767  
Kwok, J. H. . . . . 264-767

### ST-5

Bibyck, I. . . . . GSFC m/s 581.0  
Carlisle, C. . . . . GSFC m/s 532.0  
McLennan, Dr. D. D. (PM) . . . . . GSFC m/s 495.0  
Slavin, J. A. (PS) . . . . . GSFC m/s 696.0

**Distribution List for April 17, 2003 JURAP**

**Stardust**

Arroyo, B. . . . . 264-235  
Duxbury, T. C. (PM) . . . . . 264-379  
Hirst, E. . . . . 264-570  
Ryan, R. E. . . . . 301-285  
Tay, P. . . . . 264-235  
Yetter, K. E. . . . . 264-235

**Ulysses / Voyager**

Angrum, A. . . . . 264-801  
Arroyo, B. . . . . 264-235  
Brymer, B. F. . . . . 264-114  
Cummings, A. C. . . . . CIT 220-47  
Hall, Jr., J. C. . . . . 264-801  
Ludwig, R. . . . . 600-111  
Massey, E. B. (PM) . . . . . 264-801  
Medina-Gussie, M. . . . . 301-225  
Nash, J. C. . . . . 264-114  
Smith, E. J. (PS - ULS) . . . . . 169-506  
Stone, E.C. (PS - VGR) . . . . . CIT 220-47  
Yetter, K. E. . . . . 264-235

**Other Organizations**

Crimi, G. F. . . . . SAIC  
Laemmle, G. . . . . DLR-GSOC  
Wanke, H. . . . . DLR-GSOC

---

**Please mark any additions, deletions, or corrections to  
this distribution list and return to:**

David G. Morris  
Jet Propulsion Laboratory  
4800 Oak Grove Drive, 303-403  
Pasadena, CA 91109 / 818-393-3535  
email: David.G.Morris@jpl.nasa.gov



**RAPSO**

**Resource Allocation Planning  
and Scheduling Office**



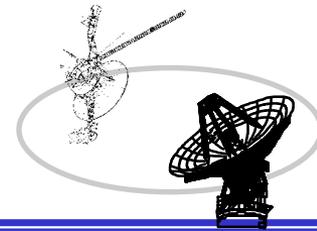
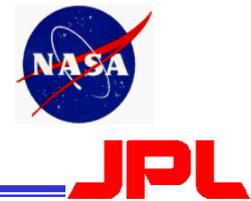
**Jet Propulsion Laboratory  
California Institute of Technology**

# **Joint Users Resource Allocation Planning (JURAP) Meeting**

**April 17, 2003**

## **Action Item Status From August 13, 2002 and February 11, 2003 RARB (Resource Allocation Review Board)**

**David G. Morris**



## Resource Allocation Planning & Scheduling Office (RAPSO)

# Action Item Summary

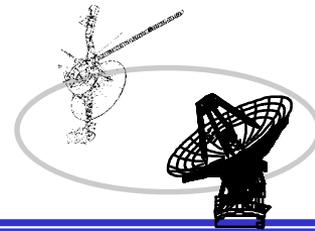
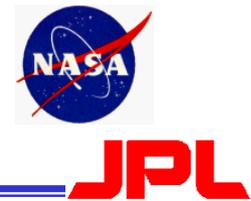
<i>AI#</i>	<i>Year</i>	<i>Month(s)</i>	<i>System</i>	<i>Responsible</i>	<i>Due Date</i>	<i>Status</i>
01	2003- 2004	December- April	Mars Program	B. Arroyo	06/01/2003	Open

**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 to clarify the scope of resources in which to plan to.

<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 December	October-	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.



## Resource Allocation Planning & Scheduling Office (RAPSO)

# 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	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.

<i>AI#</i>	<i>Year</i>	<i>Month(s)</i>	<i>System</i>	<i>Responsible</i>	<i>Due Date</i>	<i>Status</i>
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

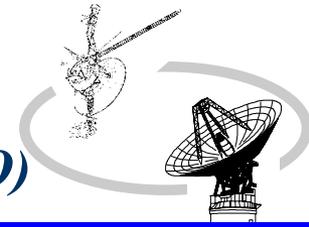
**JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE**



**Resource  
Analysis  
Team**

**April 17, 2003**

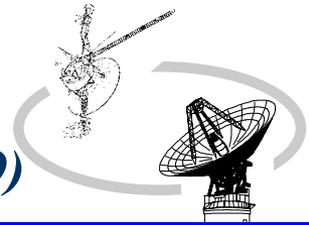
***Napoleon Lacey***



*Resource Allocation Planning & Scheduling Office (RAPSO)*

**ONGOING/PLANNED PROJECTS**

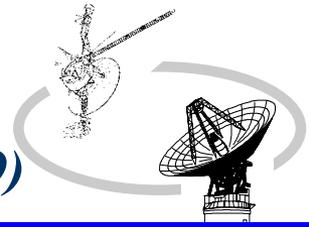
Project	Acronym	Launch or Start	EOPM	EOEM
DSN Antenna Calibration	DSN	--	--	--
DSS Maintenance	DSS	--	--	--
European VLBI Network	EVN	--	--	--
Ground Based Radio Astronomy	GBRA	--	--	--
Reference Frame Calibration	DSN	--	--	--
Space Geodesy	SGP	--	--	--
Voyager 2	VGR2	08/20/77	10/15/89	09/30/07
Voyager 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



*Resource Allocation Planning & Scheduling Office (RAPSO)*

**ONGOING/PLANNED PROJECTS**

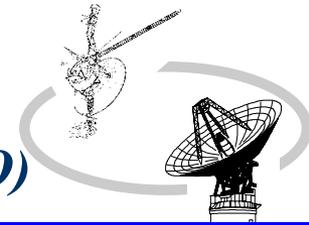
Project	Acronym	Launch or Start	EOPM	EOEM
Gravity Probe B	GPB	06/01/96	01/01/05	TBD
Mars Global Surveyor	MGS	11/07/96	02/01/01	01/03/08
Advance Composition Explorer	ACE	08/25/97	02/01/01	09/30/07
Cassini	CAS	10/15/97	06/30/08	06/30/10
Nozomi (Planet-B)	NOZO	07/03/98	12/31/05	TBD
Stardust	SDU	02/07/99	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	---



*Resource Allocation Planning & Scheduling Office (RAPSO)*

**ONGOING/PLANNED PROJECTS**

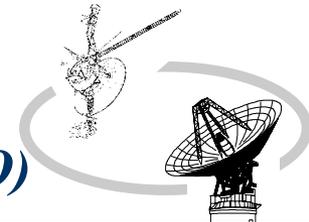
Project	Acronym	Launch or Start	EOPM	EOEM
Mission Enhancement by Ground-based Astronomy	MEGA	02/01/02	12/31/03	---
International Gamma Ray Astrophysics Lab	INTG	10/17/02	12/18/04	12/18/07
Space Infrared Telescope Facility	STF	04/27/03	07/24/08	---
MUSES - C	MUSC	05/09/03	06/05/07	---
Mars Exploration Rover - A	MER2	06/02/03	04/06/04	05/11/04
Mars Express Orbiter	MEX	06/06/03	02/11/06	08/03/08
Mars Exploration Rover - B	MER1	06/25/03	04/27/04	06/15/04
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	DIF	12/31/04	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	02/18/08	---
Stereo Behind	STB	11/15/05	02/18/08	---



*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
Mars Competed Scout 2007	M07S	08/19/07	08/23/08	08/22/10
Kepler	KPLR	10/01/07	07/31/11	TBD
Mars Telesat 2009	M09T	10/04/09	08/29/20	TBD
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 CNES MSR Lander 2011	M11L	10/30/11	09/10/14	TBD
Mars CNES MSR Orbiter 2013	M13O	11/28/13	08/21/16	TBD



# Resource Allocation Planning & Scheduling Office (RAPSO)

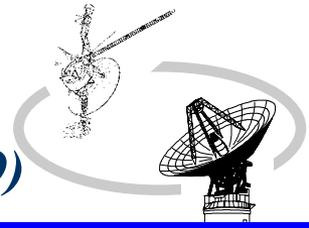
## DSN Resource Implementation Planning Matrix

Station	Subnet	Delivery Date	S-Band Down	S-Band Up	X-Band Down	X-Band Up	20kW X-Band	Ka-Band Down	Ka-Band Up	NSP
DSS-14	70M	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	05/13/03
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	34B1	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	10/01/05	N/A	XXXX
DSS-25	34B2	XXXX	N/A	N/A	XXXX	XXXX	09/01/03	XXXX	XXXX	XXXX
DSS-26	34B2	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	N/A
DSS-34	34B1	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	01/01/05	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	05/03/03
DSS-46	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A
DSS-54	34B1	XXXX	XXXX	XXXX	XXXX	XXXX	09/08/03	08/01/06	N/A	05/13/03
DSS-55	34B2	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	04/21/03
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

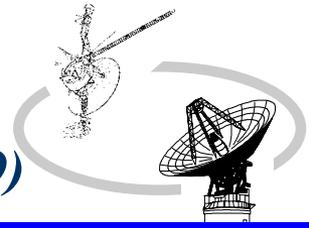
N/A = Capability Not Planned

04/17/03



## ◆ RESOURCE NEGOTIATION STATUS

- 2003 WEEKS 22 – 24 (THRU 06/15/2003) RELEASED TO DSN ON 04/11/2003.
- 2003 WEEKS 25 – 28 (THRU 07/13/2003) DUE TO BE RELEASED ON 04/28/2003.
- 2003 WEEKS 37 – 40 (THRU 10/05/2003) WILL GO INTO NEGOTIATIONS STARTING 05/02/2003.

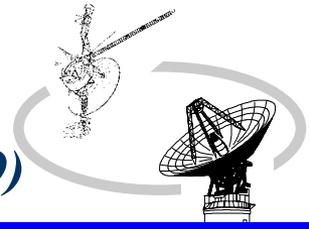


◆ **SPECIAL STUDIES/ACTIVITIES**

- 70M LIFE EXTENSION DOWNTIME ASSESSMENT
- DSS-15 OUT-OF-SERVICE ASSESSMENT REPORT
- LUNAR-A LOAD STUDY - CHANGED LAUNCH
- MESSENGER LOAD STUDY
- MRO EXTENDED MISSION LOAD STUDY

◆ **ON-GOING ACTIVITIES**

- MADB/TIGRAS TESTING AND TRAINING
- DOWNTIME PLANNING
- DSS-27 OUT-OF-SERVICE ASSESSMENT REPORT
- SAMPLE COLLECTION FOR INVESTIGATION OF MARS (SCIM)
- SPACE INTERFEROMETRY MISSION (SIM)
- ST5 LOAD STUDY
- ULYSSES EXTENDED MISSION LOAD STUDY



- ◆ **RARB - AUGUST 12, 2003**
  - NEW TIMELINE BEING PREPARED.

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

# ***Goldstone Solar System Radar***



***Martin A. Slade***

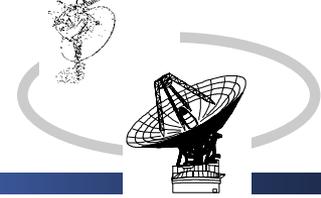
***April 17, 2003***

***NASA Jet Propulsion Laboratory***

***Joint Users Resource Allocation Planning Committee Meeting***



- The GSSR MSPA DEMO test track on DOY 081 with Mars Odyssey was successful: no problems with spacecraft and no RFI noted at DSS-25. The MSPA DEMO with MGS on DOY 087 had no GSSR transmissions due to generator failure and T-Bus failure to switch to commercial power. DEMO with MGS rescheduled for DOY 146 (May 26).
- Mercury Relativity radar observations on April 4 and 5 were successfully supported. TX pointing tests show that pointing has gotten better, but still problems at low elevation angles



# Radio Astronomy & Special Activities

April 17, 2003

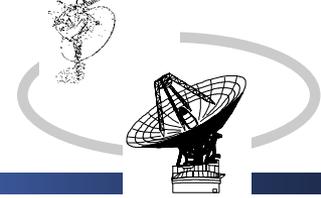
George Martinez



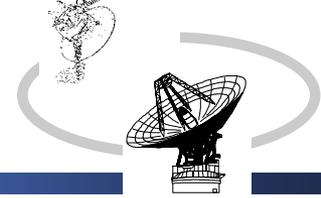


# TEMPO

(Time and Earth Motion Precision Observations)

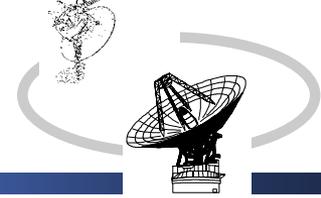


- **DOY 068**
  - No problems were reported by either DSS-16 or DSS-65.
  - Data tapes were sent to the JPL correlator for processing
  
- **DOY 078**
  - No problems were reported by DSS-65.
  - DSS-14 reported a problem with the Master Equitorial.
  - Data tapes were sent to the JPL correlator for processing.
  
- **Metrics**
  - 97.1% of data time utilized



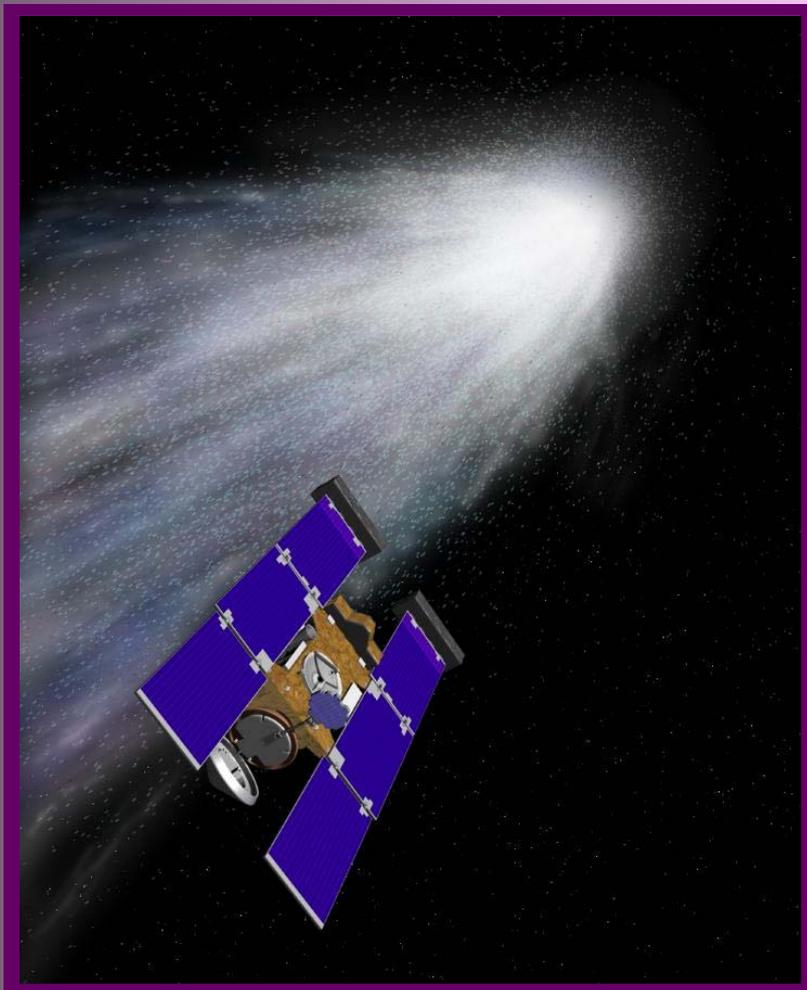
- **Europe-67**

- **The purpose of this experiment was 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 tape was sent to the Bonn correlator for processing.**



- **BG134**

- This was a K-band dual polarization experiment to study water megamasers in an attempt to map sub-parsec accretion disks of supermassive black holes. In addition to Goldstone, observations were done using antennas of the VLBA, VLA, 100-m Greenbank Telescope, and the 100-m telescope at Effelsburg.
- The PI reported that pointing at Goldstone was very bad and doubts that the antenna was on the source for the first hour of the 10 hour experiment.
- Manual boresighting produced an offset of 24 millidegrees in Dec.
- The data tapes were sent to the Socorro correlator for processing.



# STARDUST

**JOINT USERS**

**RESOURCE ALLOCATION**

**PLANNING COMMITTEE**

**R. E. Ryan**  
**April 17, 2003**

NASA Jet Propulsion Laboratory

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

### STATUS

**SPACECRAFT IS HEALTHY (4/17/03)**

**PRESENTLY 2.4 AU from EARTH**

**00:40:25 RTLT**

**1.4 AU from SUN**

**BIT RATE REMAINS AT 504 bps (on HGA/34 HEF)**

**DECREASE IN SOLAR RANGE**

**SOME DECREASE IN EARTH RANGE**

**S/C COMING OUT OF CONJUNCTION**

## CURRENT ACTIVITIES

- **NAVCAM PERISCOPE CALIBRATION TEST IMAGES DOWN.**
  - IMAGE REPLAY AT DSS 14 ON MARCH 22 WAS SUCCESSFUL
  - IMAGES AND PRELIMINARY RESULTS ARE GOOD, ANALYSIS CONTINUES
- **SUPERIOR CONJUNCTION ON APRIL 9**
  - APRIL 3 to 18 IS THE “UNDER 3 DEGREES” CONJUNCTION PERIOD
    - STAYED ABOVE 2 DEGREES SEP, DATA NOISY BUT GOOD
- **DSMS SUPPORT HAS BEEN FAIR THIS PAST PERIOD**
  - FOUR NSP DEMOS WERE SCHEDULED
    - DSS 15 DEMO WAS GOOD
    - DEMO'S WITH 34 AND 63 (2) WERE CANCELLED



**JPL**

April 17, 2003



UNIVERSITY OF  
WASHINGTON



3 of 5

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

### UPCOMING EVENTS

#### DSMS NSP DEMOS

DSS 45 ON MAY 1

DSS 14 ON MAY 5

DSM-3/TCM 8 - JUNE 17 AND 18, 2003

(TWO PARTS)

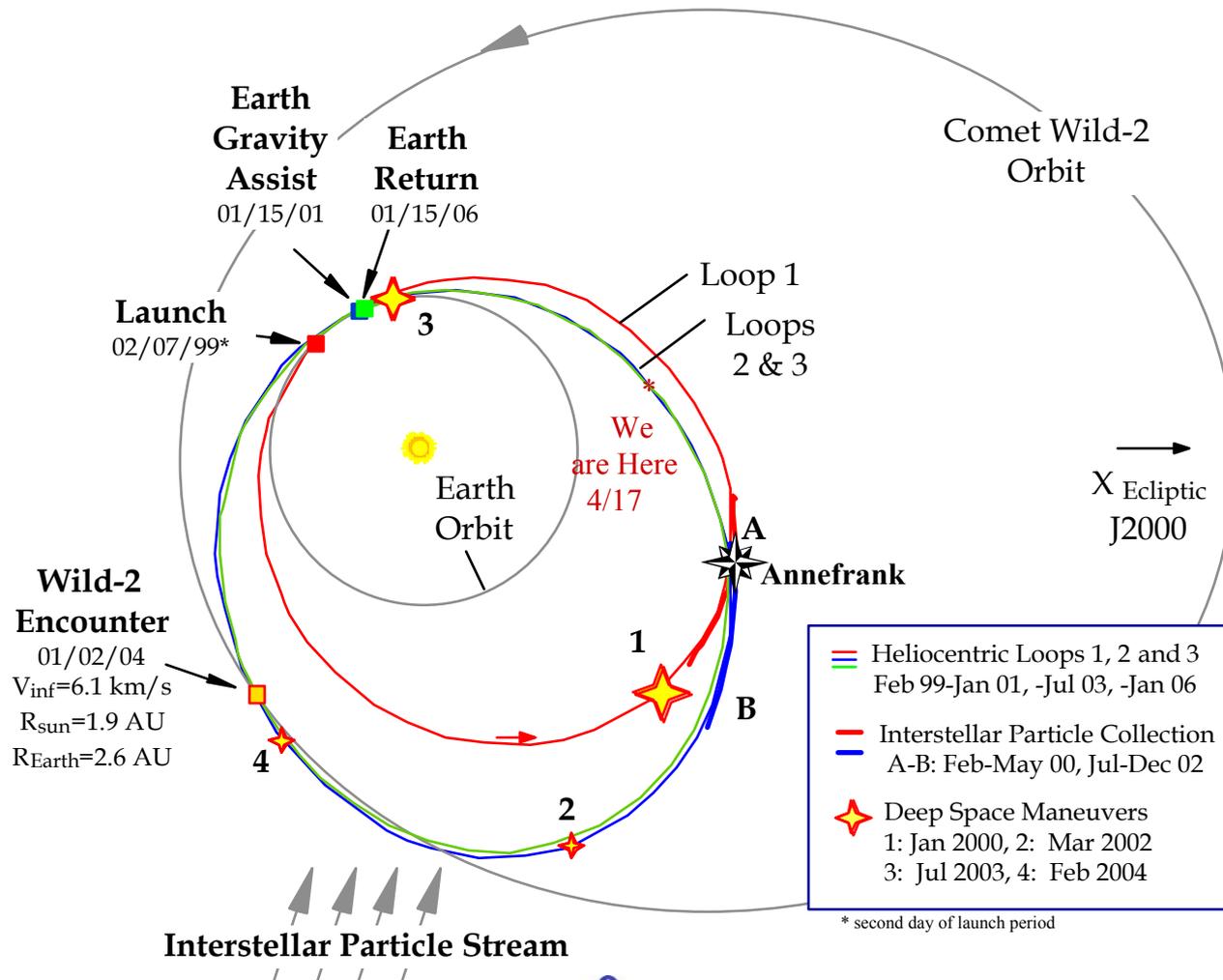
TCM 9 (CLEANUP) JULY 17

SUPERIOR CONJUNCTION ON AUGUST 17 (0.9 DEGREES)

BELOW 2 DEGREES SEP FROM AUGUST 2 THROUGH OCTOBER 2

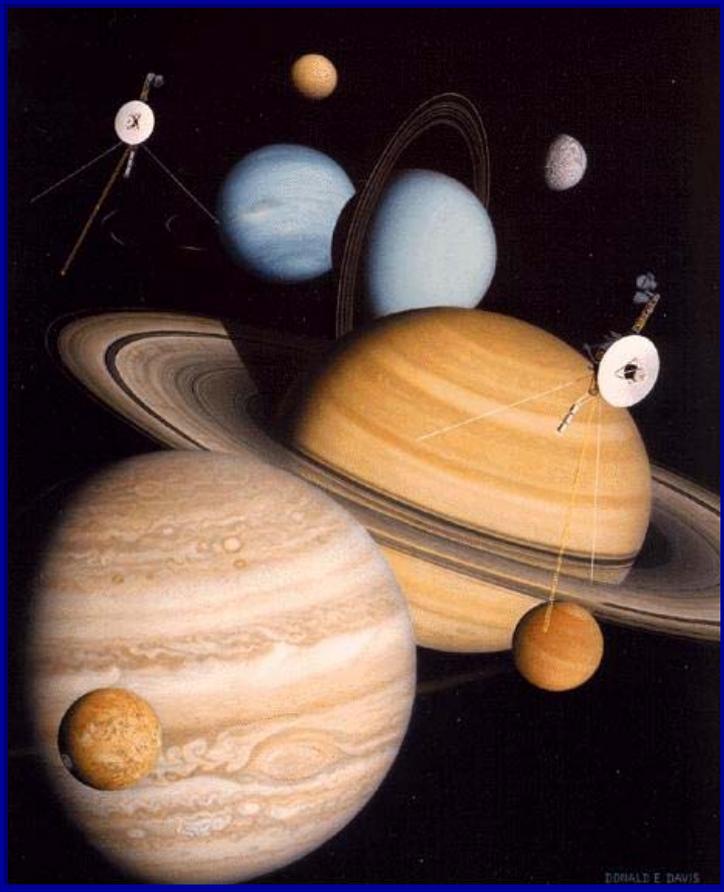
# STARDUST

## Report to JURAP



April 17, 2003





# VOYAGER

## FLIGHT OPERATIONS

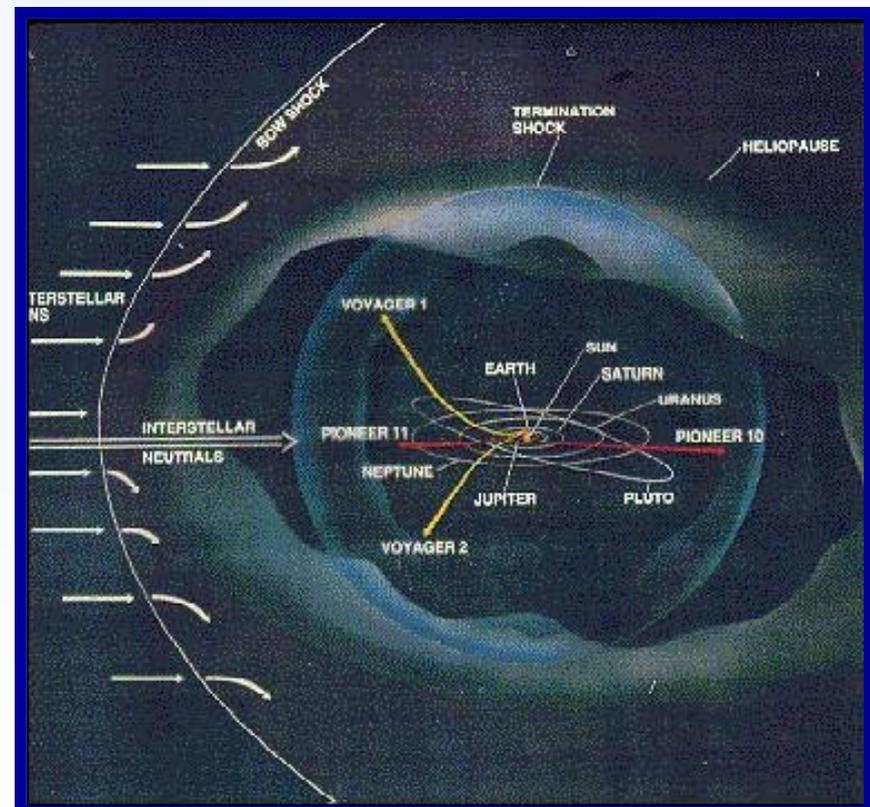
### JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

Jefferson Hall  
April 17, 2003

*NASA Jet Propulsion Laboratory*



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





# VOYAGER

## FLIGHT OPERATIONS



**JPL**

### FLIGHT SYSTEM STATUS

#### MISSION STATUS

#### VOYAGER 1

- \* HELIOCENTRIC DISTANCE – 88.0 AU, RTLT – 24h14m32s
- \* SPACECRAFT REMAINS HEALTHY
- \* MAJOR ACTIVITY: DTR PLAYBACK, PMPCAL, ASCAL, & MAGROL

#### VOYAGER 2

- \* HELIOCENTRIC DISTANCE – 70.0 AU, RTLT – 19h21m32s
- \* SPACECRAFT REMAINS HEALTHY
- \* MAJOR ACTIVITY: DTR PLAYBACK, PMPCAL, ASCAL, & MAGROL
- \* AUTONOMOUS GYRO SWAP ON DOY 102/2110



# VOYAGER

## FLIGHT OPERATIONS



**JPL**

### GROUND SYSTEM STATUS

(January 11, 2003 - March 20, 2003)

- DSN - OVERALL SUPPORT – GOOD
- Voyager 1: DSS-26 on 4/5 (DOY 095), 0.6 hours due to a DCC problem [DR G102595].
- Voyager 2: DSS-45 on 3/28 (DOY 087), 0.9 hours due to rain [DR C102195]. DSS-43 on 4/6 (DOY 096), 0.5 hours due to double blocking problems [DR C102236].



# VOYAGER

## FLIGHT OPERATIONS

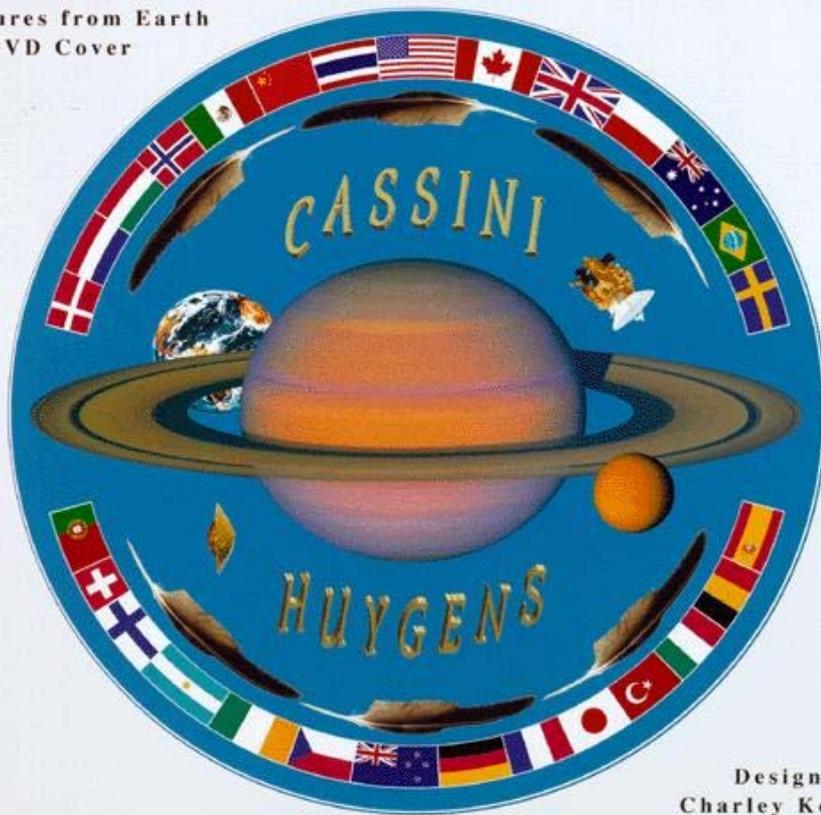


### TOTAL SUPPORT TIME, OUTAGE TIME, % OF OUTAGE TIME

S/C	SCHEd. SUPPORT	ACTUAL SUPPORT	70M TIME	SIGNIFICANT OUTAGE TIME	% OF OUTAGE TIME
31	361.5	360.5	26.5	0.6(2.4)	0.83
32	267.9	272.8	53.4	1.4(0.5)	0.70

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  
April 17, 2003

*NASA / Jet Propulsion Laboratory*



# Cassini / Huygens

---

- **In Space Science Subphase**

- Space Science observations on hold during Flight S/W installation and checkout
- CDS Flight S/W for Saturn Tour running on both strings, checkout proceeding well
  - Tested new safing response that uses HGA and 1896 bps TLM
- Superior Conjunction RS Experiment scheduled for 30 days in June, July.
- Approach Science mission phase begins in January
- Tour advanced science planning continues
- Extended mission possibilities under study

- **Operations**

- Daily ops going well, excellent DSN support; excellent NOPE support
  - NSP-configured support going smoothly for the most part
  - NSP Demo schedule squeeze meant first support is committed OPS for DSS26, DSS63
  - Minor S/C instrument adjustments, calcs, and anomalies being worked near real time
  - Working Huygens Mission Data Delivery plans for the '05 Titan mission
- NOCC Hierarchical Display System is inoperative with NSP (as expected)
  - Cassini is requesting replacement system to complement DMD MON displays for realtime DSN visibility



*Mars Global Surveyor*  
**Flight Operations  
Status**

**E.E. Brower**  
*March 20, 2003*

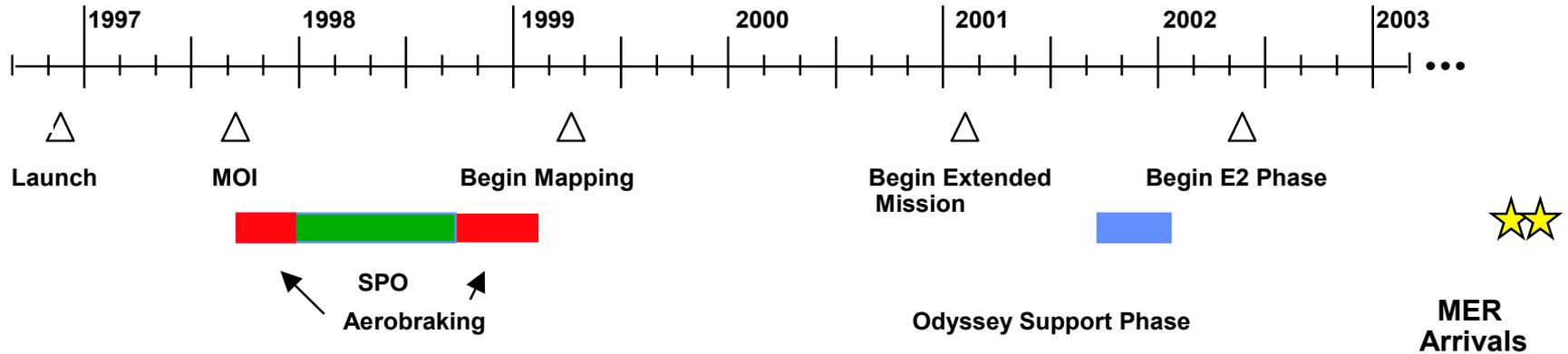
# *Mars Global Surveyor*

## **AGENDA**

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

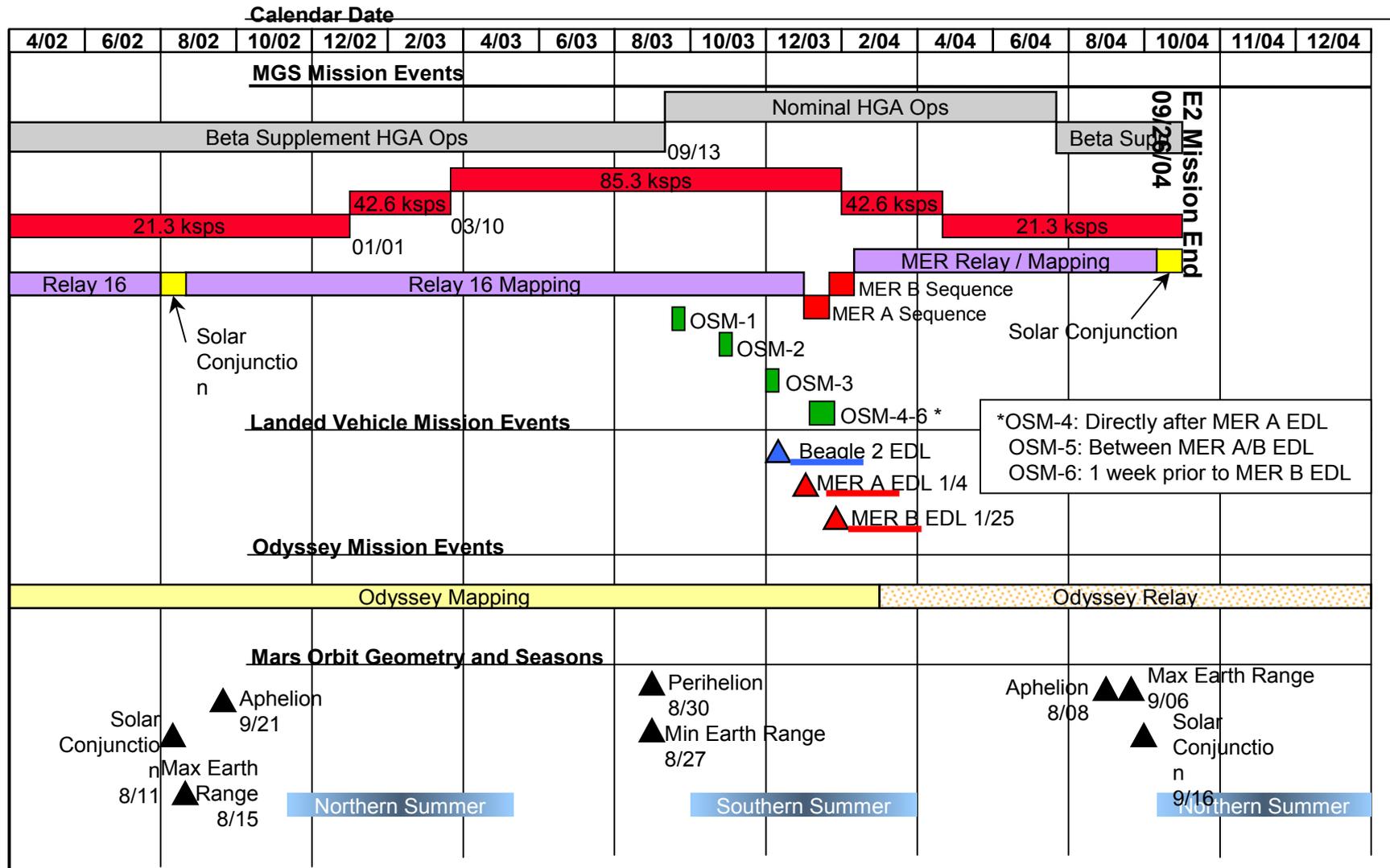
# Mars Global Surveyor Project Snapshot



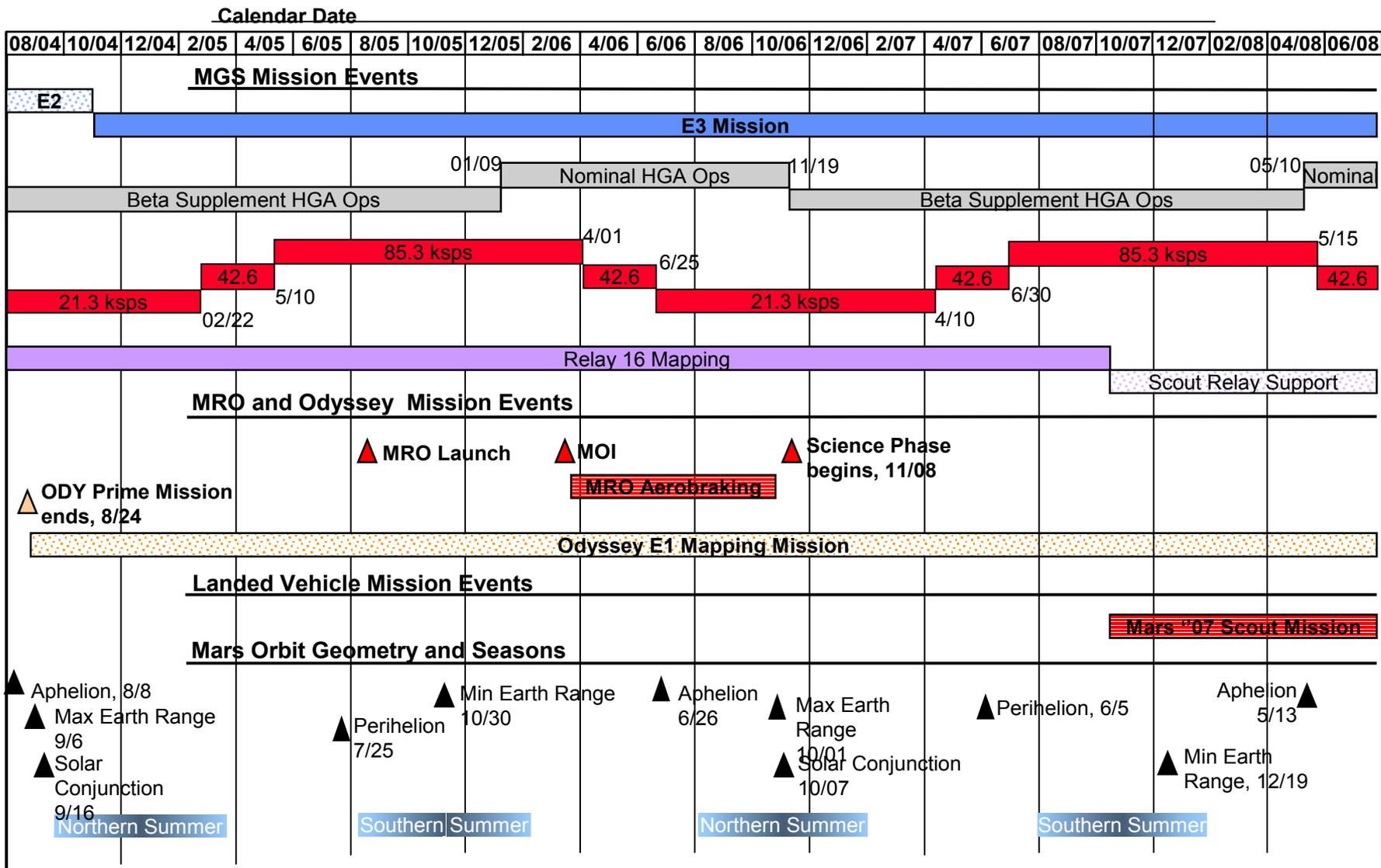
PHASE NAME	START DATE	END DATE	ORBITS	ORBITE
<b>PRELAUNCH PHASE</b>	<b>1994-10-12</b>	<b>1996-11-06</b>		
<b>LAUNCH PHASE</b>	<b>1996-11-06</b>	<b>1996-11-07</b>		
<b>CRUISE PHASE</b>	<b>1996-11-07</b>	<b>1997-09-12</b>		
<b>INSERTION PHASE</b>	<b>1997-09-12</b>	<b>1999-03-09</b>	<b>1</b>	<b>1683</b>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

**MGS**

# Mars Global Surveyor E2 Mission Timeline



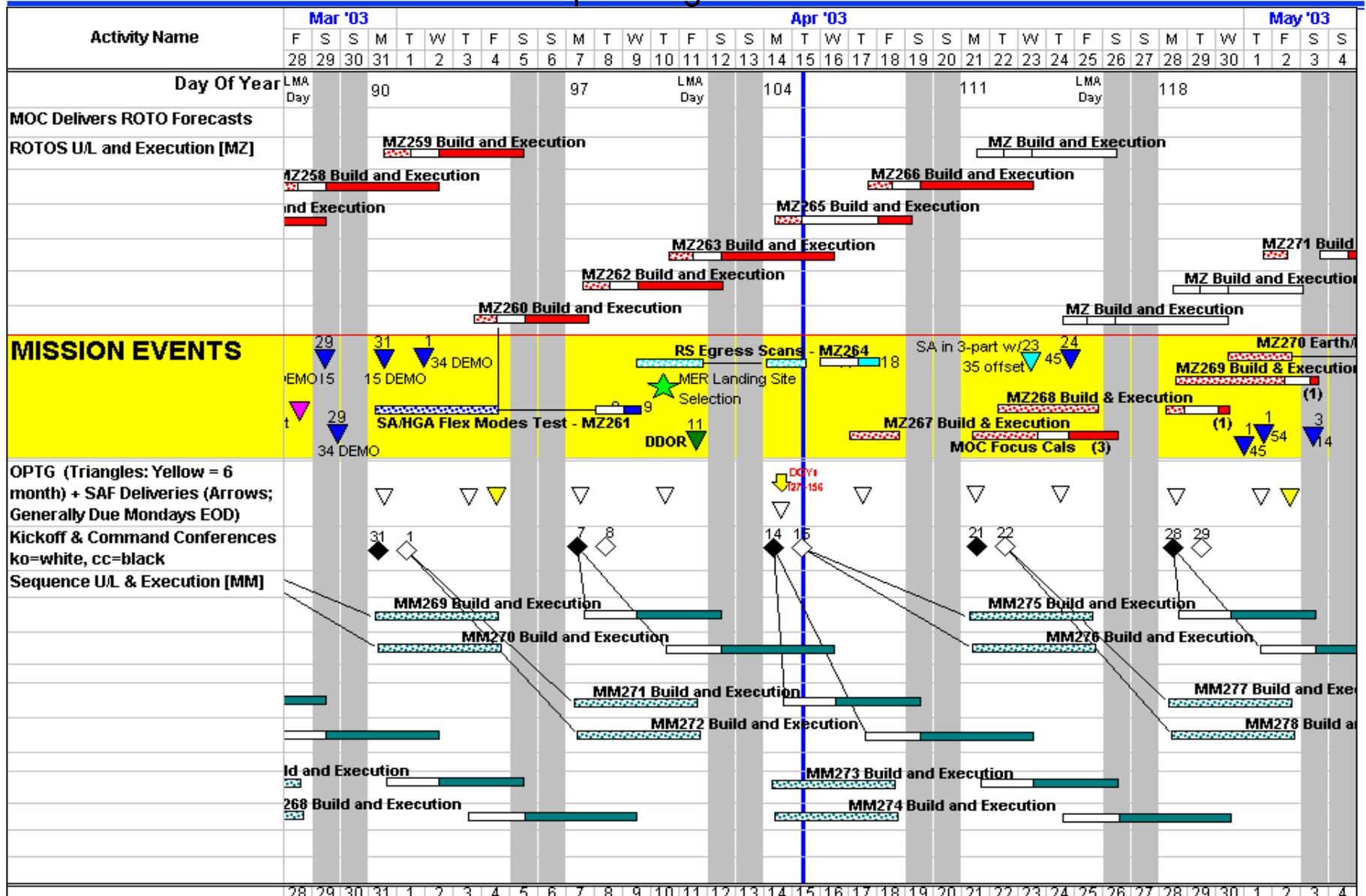
# Mars Global Surveyor Proposed E3 Mission Timeline



MGS

# Mars Global Surveyor

## Upcoming Events







# *Mars Global Surveyor*

## Recent Accomplishments

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- The spacecraft continued nominal extended mission operations during this week. All instruments are taking data in the Beta Supplement/Relay 16 configuration with daily playbacks. Five Roll Only Targeted Observations (ROTOs) were conducted April 6-12, 2003, increasing the total extended mission set to 641.
- On April 8, a flex mode test was successfully conducted to monitor solar panel stiffness. This test was followed by a combined Odyssey DDOR measurement on April 11. A flight software patch was uplinked to modify the Stuck Solar Array Gimbal fault response in order to provide more periodic communications while still maintaining adequate power margin. Southern hemisphere Radio Science Egress scans will be conducted on April 17-18. By this date (April 14) the MGS spacecraft will have completed 20,000 orbits since Mars Orbit Insertion on September 12, 1997.

# *Mars Global Surveyor*

## Mission Assessment

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- **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.**

# *Mars Global Surveyor*

## Comments

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- **None**



**JURAP:**

**Mars Odyssey  
Mission Status**

**April 17, 2003**

**Peter T. Poon**

**Telecommunications and Mission Systems Manager for Mars  
Odyssey, Mars Global Surveyor,**

**Telesat 2009/ Netlanders, European VLBI Network, Goldstone  
Apple Valley Radio Telescope Project**





# Mars Odyssey Mission Status



## HIGHLIGHTS

- **Mars Odyssey spacecraft is in excellent health**
- **All three Science payload suites are collecting very useful science data:**
  - **Thermal Emission Imaging System (THEMIS)**
  - **Martian Radiation Environment Experiment (MARIE)**
  - **Gamma Ray Spectrometer (GRS)**



# Mars Odyssey Mission Status



## HIGHLIGHTS

- **April 7, 2003 marked the two-year anniversary of the Mars Odyssey launch.**
- **Mars Odyssey achieved the 5000th mapping orbit.**
- **April 7 was day 412 of the 917-day science mission**
- **Planned total science data volume for the 917-day science mission was 126.5 Gbytes**
- **Mars Odyssey science data already returned is ~ 140 Gbytes.**
- **End of Primary Mission: Aug 24, 2004**



# Mars Odyssey Mission Status



## LOADING STUDY FOR EXTENDED MISSION

- **In response to TMS Manager Peter Poon's request to perform a DSN loading study for the Mars Odyssey Extended mission (August 25, 2004 – May 29, 2008), Gene Burke and David Morris, Manager/ Assistant Manager of the DSN Resource Allocation and Scheduling Office (RAPSO), have responded positively, and have provided a loading study report by Susan Lineaweaver.**
- **As stated in the Dave Morris's message, the study summarized that Mars Odyssey should be able to get nearly all of the extended mission requirements with some use of 34M antennas, careful scheduling and use of Multiple Spacecraft per Antenna (MSPA) capability.**
- **Thanks to Gene, David, and Susan for the excellent response!**



# Mars Odyssey Mission Status



**Excerpts from various Mars Odyssey scientists:**

**“In just one year, Mars Odyssey has fundamentally changed our understanding of the nature of the materials on and below the surface of Mars”**

**“During its first year of surveying the martian surface, Odyssey's camera system provided detailed maps of minerals in rocks and soils.”**

**“A wonderful surprise has been the discovery of a layer of olivine-rich rock exposed in the walls of Ganges Chasm. Olivine is easily destroyed by liquid water, so its presence in these ancient rocks suggests that this region of Mars has been very dry for a very long time,” principal investigator for Odyssey's thermal emission imaging system at Arizona State University, Tempe.**



# Mars Odyssey Mission Status



**“Infrared images have provided a remarkable new tool for mapping the martian surface. The temperature differences we see in the day and night images have revealed complex patterns of rocks and soils that show the effects of lava flows, impact craters, wind and possibly water throughout the history of Mars”**

**“Odyssey has measured radiation levels at Mars that are substantially higher than in low-Earth orbit. The martian radiation environment experiment has confirmed expectations that future human explorers of Mars will face significant long-term health risks from space radiation,” principal investigator for the martian radiation environment experiment, National Space Biomedical Research Institute, Houston. “We've also observed solar particle events not seen by near-Earth radiation detectors.”**



# Mars Odyssey Mission Status



**“The gamma ray spectrometer suite, which early in the mission discovered vast amounts of hydrogen in the form of water ice trapped beneath the martian surface, has also begun to map the elemental composition of the surface.”**

**“We are just now getting our first look at global elemental composition maps, and we are seeing Mars in a whole new light, gamma ray 'light,' and that's showing us aspects of the surface composition never seen before,” said team leader for the gamma ray spectrometer suite at the University of Arizona, Tucson.**

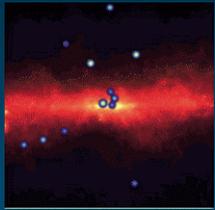


# Mars Odyssey Mission Status



## Network Simplification Project (NSP)

- **Mars Odyssey participated in various NSP Project Interface Tests and Demos**
- **Mars Odyssey is very satisfied that DSMS meets the NSP Return to Service schedule for DSSs.**



# *INTEGRAL*



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

## **Joint Users Resource Allocation Planning (JURAP) Committee Meeting**

**Dwight P. Holmes**  
**April 17, 2003**

***NASA / Jet Propulsion Laboratory***



# INTEGRAL



## OPERATIONS

- **DSN Status**
  - INTEGRAL project has been concerned about significant data loss from Goldstone complex.
    - Poor performance from Goldstone since launch
  - Integral telemetry delivery performance has been characterized by three fundamental signatures:
    - Signature 1: Handover between ESA and JPL stations create data duplication during overlap which is erroneously identified as a gap
    - Signature 2: Single frame telemetry dropouts
      - Impacts Science Data return
      - To a lesser extent impacts command sequencing – verification
      - Implies requirement for timely service (Low Latency)
    - Signature 3: Bursty telemetry dropouts
      - Major impact to command sequence verification
        - Confirmed at least four + cases of RFI
        - Station equipment problems



# **INTEGRAL**



## **Operations**

- **DSN Status – corrective actions**
  - **Signature 1**
    - **Being addressed by the INTEGRAL operations team at ESOC**
  - **Signature 2**
    - **Currently, all data is sent in the Timely Delivery mode.**
    - **Proposal and subsequent test and verification of split services classes**
      - **Engineering data sent in Timely Delivery mode for command time-line (VC0)**
      - **Scientific data sent as a Complete Delivery Service to minimize frame loss (VC7)**
  - **Signature 3**
    - **Equipment calibration and performance improvements through an ECO in process (TCP and MFR at DSS-16)**
    - **RFI notification and limited coordination is in process**



# **INTEGRAL**

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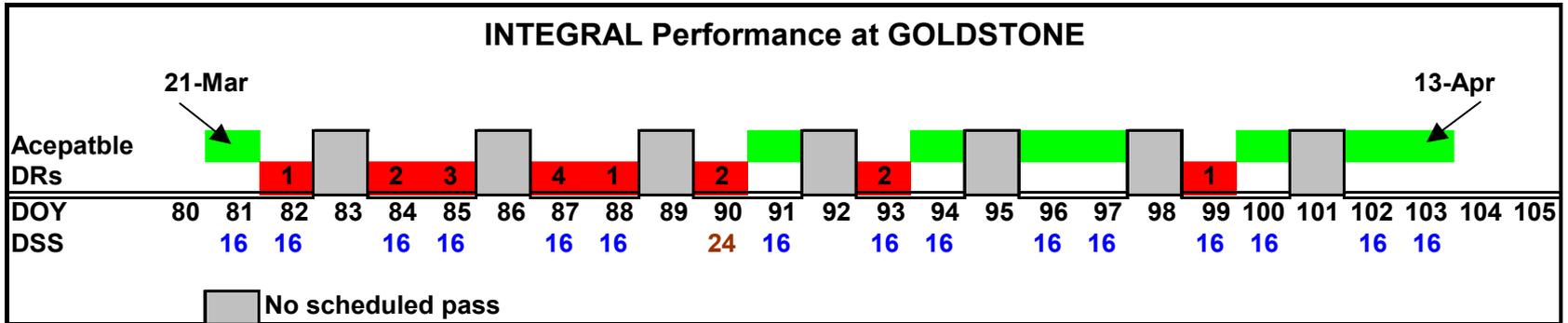
- **DSN Status – corrective actions**
  - **Network Infrastructure Services has implemented two important changes on DOY 098**
    - **Activated Class-Based Weighted Fair Queuing**
      - **Bandwidth reservation feature allows a reserved minimum bandwidth for each user class during periods of congestion**
    - **Implemented new CISCO 6509 Ethernet Switch in the Central Communications Terminal**
      - **Included GCS Servers (RNS, SFG, and CDR plus WAN line (GCR) routers**
    - **Changes significantly reduced the lost blocks.**



# INTEGRAL



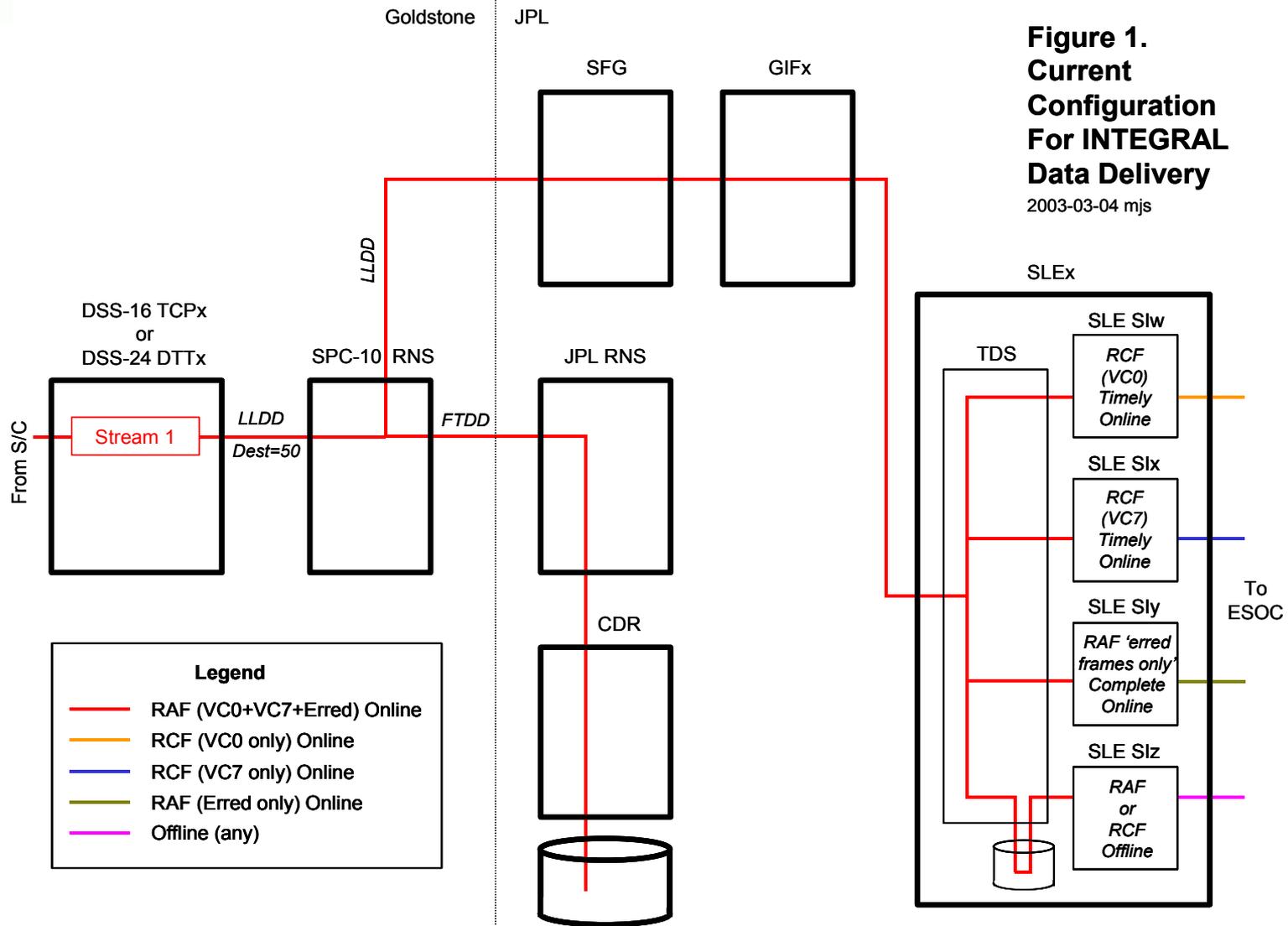
## INTEGRAL Status



DOY 99 TLM error profile was evidenced by three distinct periods of intermittent telemetry dropouts. Signal Level correct, and no RFI detected. The cause is unknown. DR# G102621



# INTEGRAL

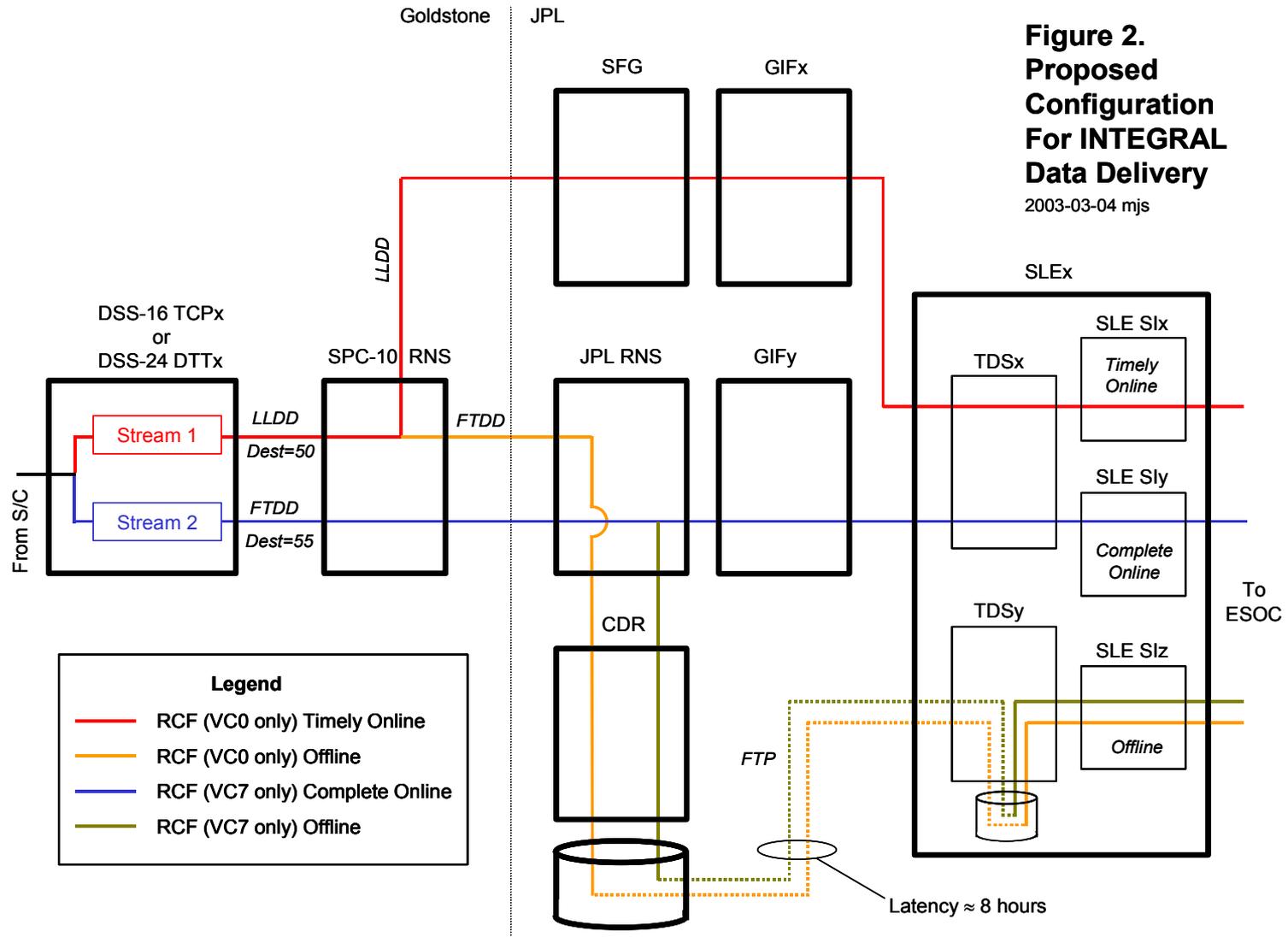


**Figure 1.**  
**Current**  
**Configuration**  
**For INTEGRAL**  
**Data Delivery**

2003-03-04 mjs



# INTEGRAL





# **INTEGRAL**

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## **The MISSION**

- Integral is currently in the primary observational phase
- Integral has been making Gamma Ray observations of Cygnus X-1 and the Galactic Plane.
- As of 4 April, INTEGRAL has detected 82 potential GAMMA Ray bursts and confirmed 30.
- Examples of Images and Data from INTEGRAL Science Data Center

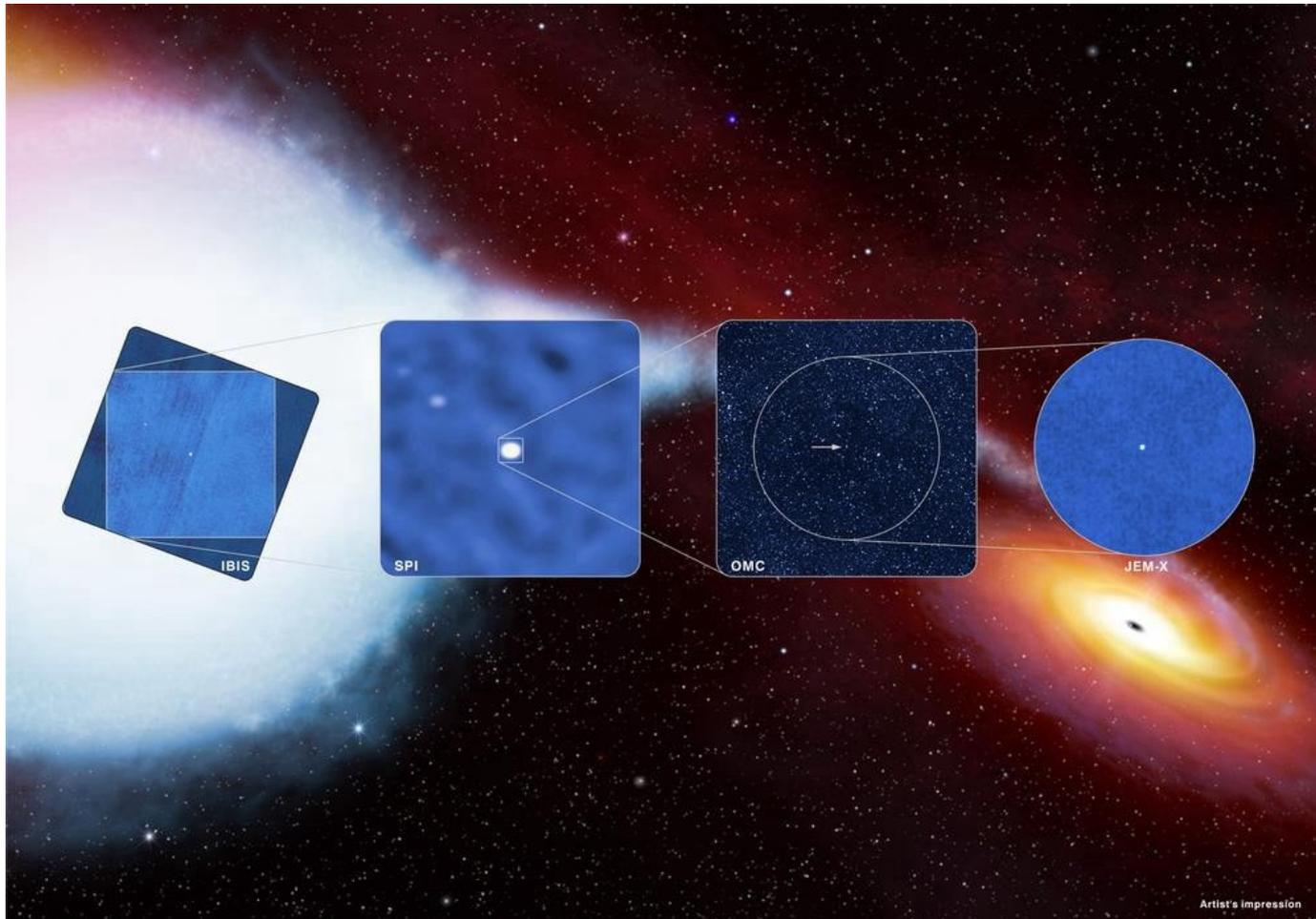
<http://astro.esa.int/Integral/isoc/html/>



# INTEGRAL



Composite "first-light" image of Cygnus X-1 obtained by the four instruments aboard the INTEGRAL spacecraft overlaid on an artist's view of this binary system.

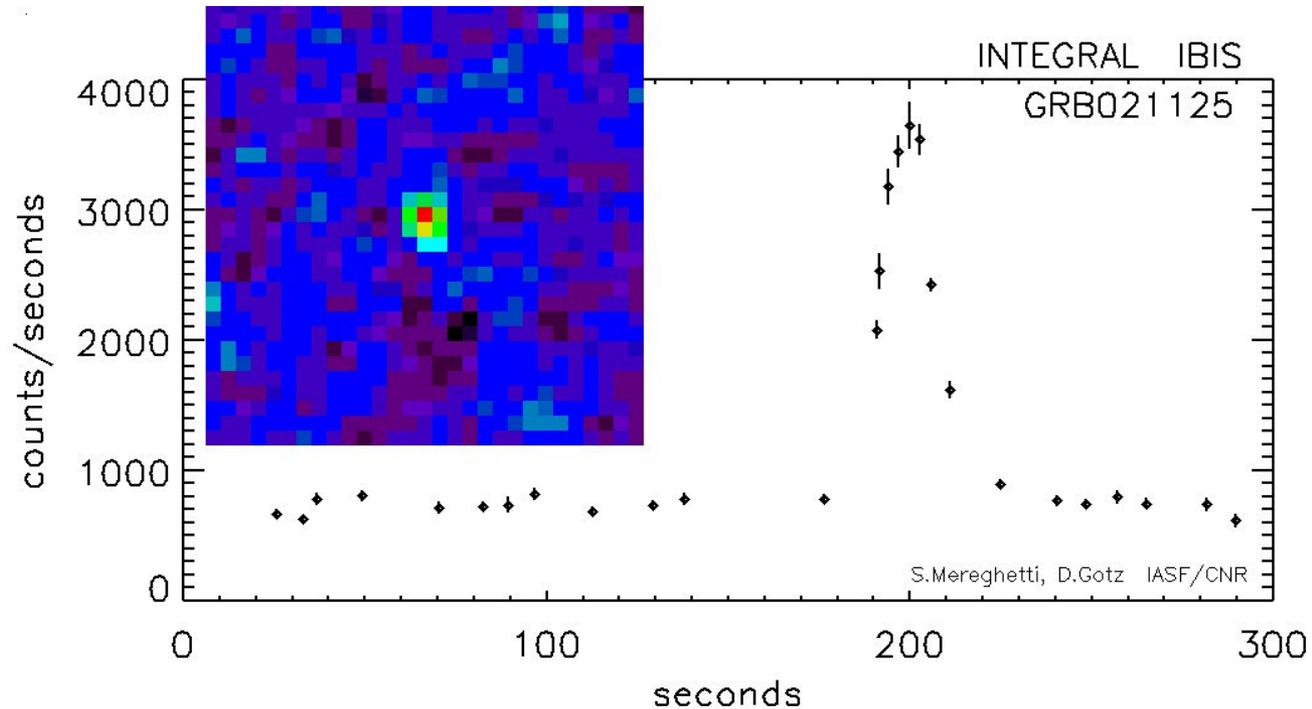




# INTEGRAL



## IBIS light-curve of the Gamma-Ray Burst GRB021125



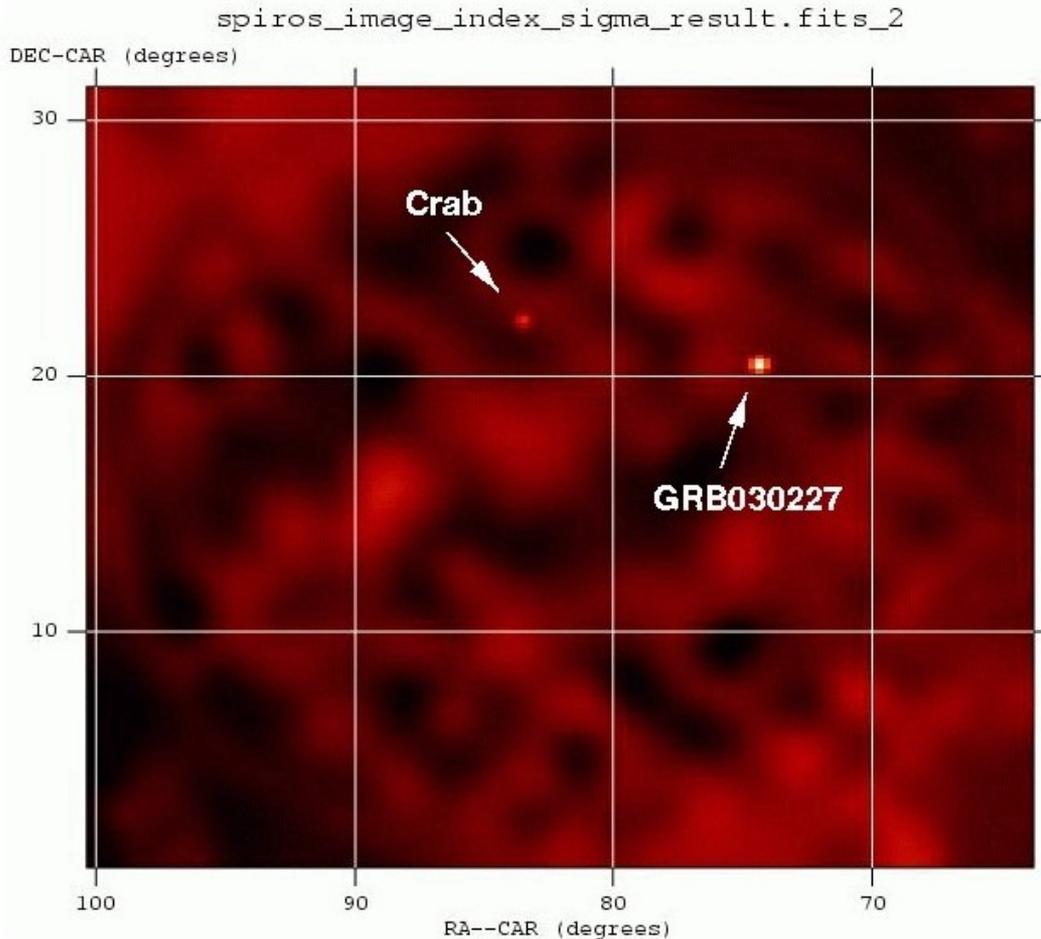
IBIS image and light curve of the first Gamma-Ray Burst (GRB) in the field-of-view of the INTEGRAL instruments. It is a single peaked burst with a duration of about 20 seconds.



# INTEGRAL



## SPI image of GRB030227 near the Crab nebula



**SPI = Gamma Ray spectrometer**

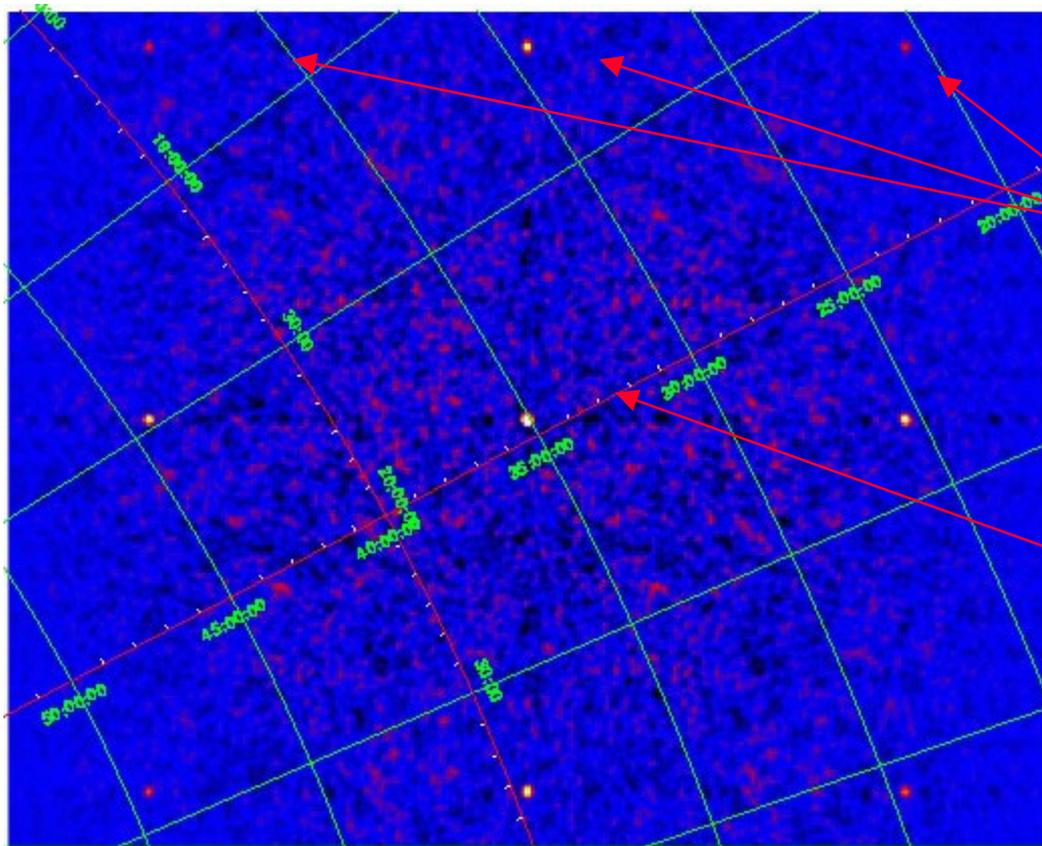
SPI image in the 20-200 keV energy band showing both the Crab nebula and the 4th Gamma-Ray Burst (GRB) seen in the INTEGRAL field-of-view on February 27, 2003 at 08:42 UT. It was obtained with the SPIROS software for a time interval of 18 sec (including the burst), using detectors 0-18 (single + PSD events) and with an empty field observation as a background model.



# INTEGRAL



## Cyg X-1 as seen by IBIS



**IBIS = Gamma Ray Imager**

**First IBIS source as seen with the IBAS (INTEGRAL Burst Alert System) software. The coordinate grid is based on the predicted attitude. Cyg X-1 is detected about 9 arcmin from its true position. The eight apparent sources seen symmetrically around the central source (Cyg X-1) are so called ghosts**



# **INTEGRAL**

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## **Second full-detector image of the OMC**



**OMC = Optical Monitor Camera**

**The second complete field of view (5x5 degree) sky image of the OMC, in the area of the Large Magellanic Cloud. This image has been obtained combining three 10 sec and three 16 sec exposures.**



# ulysses

## **JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE**

**B. Brymer**

**April 17, 2003**

*NASA Jet Propulsion Laboratory*



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



# ULYSSES

## *JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE*

- **SPACECRAFT OPERATIONS CONTINUE NOMINALLY VIA EPC1/TWTA1**
- **SPACECRAFT POWER AND THERMAL RECONFIGURATIONS AND INSTRUMENT CALIBRATIONS ARE PERFORMED AS REQUIRED**
- **SPACECRAFT EARTH POINTING MANEUVERS ARE BEING PERFORMED EVERY 5 DAYS**
- **FOUR CONSECUTIVE FAILURES TO PERFORM HUS DATATION TESTS SUCCESSFULLY HAVE BEEN EXPERIENCED**
  - **2002/272, DSS14, cancelled due to station delay in return to service following servo upgrade**
  - **2002/297, SPC10, Bad due to complex-wide latency timing problem**
  - **2002/326, DSS14, RTSG hardware failure to modulate command data**
  - **2003/087, DSS24/NSP, Modulated command data not recorded due to lack of NSP capability**
- **THE NSP LACK OF CMG RECORDING CAPABILITY IS BEING STUDIED AND A MAKE-GOOD CONFIGURATION AND PROCEDURE IS BEING DEVELOPED. WHEN COMPLETED, THE PROCEDURE WILL BE TESTED AT DTF21 PRIOR TO DSN EMPLOYMENT**