JOINT USERS RESOURCE ALLOCATION PLANNING

(JURAP) MEETING

MAY 17, 2001

Jet Propulsion Laboratory
California Institute of Technology

4800 Oak Grove Drive
Pasadena, CA 91109-8099

(818) 354-4321

June 6, 2001
Refer to: 930-01-009-ESB:lc

TO: Distribution

FROM: Eugene S. Burke

SUBJECT: Minutes for the Joint Users Resource Allocation Planning Committee Meeting held May 17, 2001.

NEXT JURAP MEETING:
Thursday, June 21, 2001
JPL Bldg. 303, Room 411 B 1:00 p.m.

Please note: This is a permanent room change.

Attendees:

E. Burke	J. Hodder	K. Martinez	P. Tay
R. Bartoo	P.Khoury	M. Medina	J. Valencia
D.Doody	K.Kim	K.Moyd	I. Webb
R.Espinueva	N. Lacey	B.Ryan	K.Yeter
P.Gorham	A.Landon	D.Saltzberg	
D. Hills	K.Liewer	M. Slade	

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 May 17, 2001 at the Jet Propulsion Laboratory.

Introductory Remarks - E. Burke

Gene welcomed everyone to the JURAP meeting, and reminded the project managers and project representatives of the upcoming August 14 Resource Allocation Review Board meeting (RARB). In preparation for the August RARB, the Projects need to provide any support requirement updates to the Resource Allocation Planning and Scheduling Office (RAPSO) as soon as possible.

Special Report: ***Antenna Time Request: "Detection of Neutrino-Induced Microwave Pulses with the DSN" – D. Saltzberg, UCLA***

Dr. David Saltzberg, a Physicist from UCLA, gave an informative presentation on the "Search for Ultra High Energy Cosmic Neutrinos Hitting the Moon Using the Deep Space Network." In support of this experiment, Dr. Saltzberg is requesting approximately 12 hours per month until October 2001, with DSS 14 and DSS 13 arrayed. The requirement is for the moon to be in view, day or night. Dr. Saltzberg stated, " The DSN has the opportunity to make an astrophysics discovery of the highest caliber within the current year."

DSN Operations – J. Hodder

DSN performance is normal during this reporting period. The statistics are presented in the Attachments. The BWG antennas DSS 24, DSS 25, DSS 26, may have a common design problem that has recently been uncovered. JPL engineers from Division 33 are investigating preliminary findings to understand the problem, and to assess the impact to tracking operations.

Resource Analysis Team - K. Kim for F. Leppla

On-going activities include MADB/TIGRAS testing and training. Special load studies for Genesis and SIRTF missions are in progress. The schedule for Weeks 26 through 31 was released to the DSN May 10, 2001, and Weeks 37 through 40 will enter the negotiation process May 29, 2001.

DSS Downtime Forecast – J. Valencia

No changes to the DSS Downtime Forecast Schedule since the April JURAP meeting. The requested downtimes for the DSS 14 and DSS 65 Antenna Controller Replacement tasks are in the Downtime Forecast schedule as proposals only. Formal contentions and recommendations will be submitted for consideration at the next scheduled RARB meeting. Downtimes for DSS 43 and DSS 63 Antenna Controller Replacement tasks are being worked. Currently, there are no proposals, but time frames in 2005 are being considered.

Goldstone Solar System Radar - M. Slade

Arecibo to Goldstone radar interferometric observations of Venus was successfully conducted in April and May with excellent data from all three Goldstone antennas. The first two Mars Exploration Rover landing site validation tracks were successfully conducted in May.

Radio Astronomy / Special Activities - G. Martinez

Three Time-and-Earth-Motion Precision Observations (TEMPO) were supported in April 2001, with 98% of data time utilized. One Cat M & E observation was successfully supported in April with 100% of data time utilized.

FLIGHT PROJECT REPORTS

Chandra - K. Gage

No Report

Deep Space 1 (DS1) – K. Moyd

Jupiter Watch was conducted on May 1, 2001, with the planet in MICAS field-of-view, and the high gain antenna oriented toward Earth. The Borrelly Comet Encounter Rehearsal was conducted on May 8, 2001 and was considered successful, in spite of a project-related test command problem. The Project experienced a number of telecom-related anomalies from April 15 through May 15 2001. DS-1 reported telemetry data degradation during a Goldstone track in Week 19 forcing the project to reduce the downlink data rate in real time. The problem was isolated to a station convolution data decoder and has since been fixed. In addition, there have been reoccurring periods of missing range data with gaps up to several hours in duration.

Microwave Anisotropy Probe (MAP) – A. Landon

The MAP launch is scheduled for June 30, 2001, from KSC with 26m and 34m subnet support required during the launch and early orbit phase. Mission trajectory design will use lunar phasing loops for lunar gravity assists to achieve the desired L2 parking orbit. The 70m subnet will provide prime support during the science phase, with the 34m as backup. During the 2-year Prime Science Mission, either the 70-meter or 34-meter may be used for support. However, if the 34-meter subnet is used the downlink data rate must be reduced commensurate with 34m antenna link margin constraints.

Stardust - R. Ryan

The spacecraft is healthy and is presently at .77 astronomical units from Earth with a round-trip light time of twelve minutes and forty-five seconds. DSN support has generally been good this reporting period. The Navigational Camera (NAVCAM) calibration activities are on going. Contamination of the camera optics was observed during the calibration process in February. The third heating cycle, ending April 30, 2001, appears to have improved the optics clarity since launch. Heavy solar activity is on-going and has been a concern, however the spacecraft has not been affected.

Voyager – J. Hall

Voyager 1 and Voyager 2 operational status is nominal and overall DSN support is good. Voyager 1 heliocentric distance is 81.1 astronomical units (AU) with a round-trip light time (RTLT) of approximately 22h 15m. Voyager 2 heliocentric distance is 64 AU with a RTLT of approximately 17h 35m.

Cassini - D. Doody

Cassini operations are essentially nominal and minor S/C instrument anomalies and recoveries are worked near-real-time. Quiet Cruise Mission Subphase began April 30, 2001. The spacecraft entered safe mode on DOY 130, requiring emergency 70m support. Cassini operations quickly identified the cause for safing as a Project procedural error, and Cassini operations quickly corrected the problem. Gravitational Wave System Test #1 was successfully performed on DOY 128. Additional, Gravitational Wave System experiments are planned yearly until Saturn Arrival.

Mission Management Office (MMO) - E. Brower

MGS Flight Operations, Science instruments, and Flight Support systems remain green. On DOY 122 the spacecraft entered a safe condition caused by a Sun Monitor Ephemeris fault response. The actual root cause for the fault is unknown and further investigation is planned. The spacecraft has returned to mapping operations with the Sun Monitor Ephemeris fault response disabled. MGS cannot submit firm requests for future DSN coverage requirements because the support requirements for Mars 2001 Odyssey mission are not yet clear. Efforts to provide firm Mars 2001 Odyssey support requirements are on going.

Ulysses - I. J. Webb

Spacecraft operations are normal. The spacecraft began its second orbit around the sun and is currently in nutation operations. Instrument calibrations and reconfigurations are performed as required. A number of equipment failures were experienced during this reporting period. From DOY 109 through DOY 135, a number of McElrath and Big Mac maneuvers were performed to control spacecraft nutation. In addition, a new type of maneuver called SOLACE was successfully executed.

Galileo – B. Compton

The Galileo Project completed a series of recorded SSI and NIMS instrument calibrations, and OTM-94 was successfully performed. Ganymede 29 encounter is on-going and the calibration data playback was successfully completed. In addition, the Galileo Europa Mission team received a Group Award from the National Aeronautics Association.

U. S. Space VLBI - V. Altunin

No report

International Solar Terrestrial Program (ISTP), ACE and IMAGE – R. Dutilly, GSFC

ACE operations are nominal. UPL command testing with the 34m system has been successful. One additional UPL command test with DSS 34 remains to be performed in real time.

IMAGE operations are nominal. DSN support has been excellent, but the Project has concerns about the rate of DSN site hardware failures, which average about three to four discrepancies a week.

POLAR operations are nominal and the POLAR flip activities were successful. The GTM switch was performed, and the TIMAS instrument is now operational. In addition, 34-meter UPL command testing has now been completed.

SOHO operations are nominal and the Project is in continuous operations. UPL command testing with the 34m system has been successful. DSN site hardware failures continue to be of concern during continuous operations.

WIND operations are nominal and UPL command testing with the 34m system has been successfully completed.

The next JURAP meeting will be held:

Thursday, June 21, 2001, at JPL
in Bldg. 303, Room 411, at 1:00 p.m.
(This is a permanent change)

A Special Report by Ted Peng will be presented on the S-Band Frequency.

Note: If you would like to participate in the next meeting by teleconference, call (818) 354-2626 any time during meeting and you will be connected.

ACE
Afkhami, F. . . . . GSFC m/s 428.2
Machado, M. J. . . . . GSFC m/s 428.2
Myers, D. A. . . . . GSFC m/s 428.2
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
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Doody, D. F. 230-310
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Gustavson, R. P. 230-301
Maize, E. H. 230-104
Mitchell, R. T. (PM) 230-205
Webster, J. L. 230-104

Chandra
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

Deep Space 1
Hunt, J. C. 230-207
Moyd, K. I. 230-207
Rayman, M. D. (PM) 230-207
Tay, P. 264-235
Yetter, K. E. 264-235

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Pojman, J. L. 238-538
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Arroyo, B. 264-235
Burnett, D. S. . . . . CIT 170-25
Hirst, E. A. 301-180
Sasaki, C. N. (PM) 264-370
Sweetnam, D. N. 264-370
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Goldstone Deep Space Communications Complex
Holmgren, E. DSCC-25
Massey, K. DSCC-61
McConahy, R. DSCC-33
McCoy, J. DSCC-57
Mischel, D. DSCC-37
Sturgis, L. DSCC-33

Goldstone Orbital Debris Radar (GODR)
Goldstein, R. M. (PM) 300-227

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

Gravity Probe-B
Keiser, M. (PS) . . . . . Stanford Univ.
Shapiro, Prof. I. I. . . . . Harvard Univ.

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

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Dutilly, R. N. . . . . GSFC m/s 581.1
Gurnett, D. . . . . U. of Iowa
Mahmot, R. E. (Acting PM) . . . . . GSFC m/s 444.0
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Milasuk-Ross, J. . . . . GSFC m/s 428.5
Miller, K. A. . . . . GSFC m/s 450.C
Mish, W. H. . . . . GSFC m/s 690.0
Nace, E. M. . . . . GSFC m/s 450.8
Pukansky, S. M. . . . . GSFC m/s 450.C

Madrid Deep Space Communications Complex
Chamarro, A. . . . . MDSCC
Rosich, A. . . . . MDSCC

JPL/General

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Coyle, S. E. . . . . GSFC m/s 581.0
Dew, H. C. . . . . GSFC m/s 423.0

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Geldzahler . . . . . Code SR
Hertz, P. . . . . Code SR
Holmes, C. P. . . . . Code SR
Spearing, R. E. . . . . Code M-3

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
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NASA/SOMO

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Smith, J. G. (PM) 264-828

YOHKOH
Chang, A. F. 264-844

Other Organizations
Crimi, G. F. . . . . SAIC
Laemmel, G. . . . . DLR-GSOC
Wanke, H. . . . . DLR-GSOC

ACE
Afkhami, F. . . . . GSFC m/s 428.2
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Wiley, B. . . . . CDSCC

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Goldstone Deep Space Communications Complex
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Massey, K. DSCC-61
McConahy, R. DSCC-33
McCoy, J. DSCC-57
Mischel, D. DSCC-37
Sturgis, L. DSCC-33

Goldstone Orbital Debris Radar (GODR)
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Goldstone Solar System Radar (GSSR)
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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
Keiser, M. (PS) . . . . . Stanford Univ.
Shapiro, Prof. I. I. . . . . Harvard Univ.

IMAGE
Abramo, C. A. 507-120
Burley, R. J. . . . . GSFC m/s 632.0
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Mahmot, R. E. . . . . GSFC m/s 444.0
Milasuk-Ross, J. . . . . GSFC m/s 428.5
Miller, K. A. . . . . GSFC m/s 450.C
Mish, W. H. . . . . GSFC m/s 690.0
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Pukansky, S. M. . . . . GSFC m/s 450.C

Madrid Deep Space Communications Complex
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Rosich, A. . . . . MDSCC

JPL/General

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Mars Exploration Rover (MER A & B)

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Mars Global Surveyor

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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

Mars Reconnaissance Orbiter Project

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

Mars 2001 Odyssey Mission

Arroyo, B. 264-235
Harris, J. A. 301-455
Mase, R. A. 264-380
Nakata, A. Y. 264-235
Pace, Jr., G. D. (PM) 264-255
Spencer, D. A. 264-255

NASA Headquarters

Costrell, J. A. . . . . Code MT
Geldzahler . . . . . Code SR
Hertz, P. . . . . Code SR
Holmes, C. P. . . . . Code SR
Spearing, R. E. . . . . Code M-3

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
Dowen, 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)

Chang, A. F. 264-844
Tay, P. 264-235
Yetter, K. E. 264-235

Outer Planets/Solar Probe

Ludwinski, J. M. 301-335
Simpson, K.A. 301-335

Radio Astronomy

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

Space Infrared Telescope Facility (SIRTF)

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

StarLight Mission

Deutsch, M. C. 301-250D
Linfield, R. P. (PS) 301-486

Livesay, L. L. (PM) 301-451
Spradlin, G. L. 303-402

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

DSMS / General
Coffin, R. C. 303-400
Doms, P. E. 303-400
Polansky, R. G. 303-400
Squibb, G. F. 303-400
Stelzried, C. T. 303-407

DSMS / Mission Management Office
Rosell, S. N. 264-235
Varghese, P. 264-235

DSMSEngineering
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

DSMS Operations
Almassy, W. T. 502-420
Covate, J. T. 507-120
Dillard, D. E. 507-120
Frazier, R. 507-120
Gillam, I. T. 502-400
Green, J. C. 507-120
Hodder, J. A. 303-403
Knight, A. G. 507-120
Landon, A. J. 507-105
Martinez, G. 507-120
Nevarez, R. E. 502-400
Recce, D. J. 303-403
Roberts, J. P. 502-400
Salazar, A. J. 303-403
Schroeder, H. B. 507-120
Short, A. B. 507-120
Wackley, J. A. 303-403
Waldherr, S. 507-120
Watzig, G. A. 502-420
Wert, M. 502-420

DSMS Plans & Commitments
Abraham, D. S. 303-402
Altunin, V. I. 303-402
Bathker, D. A. 303-402
Benson, R. D. 264-844
Berman, A. L. 264-844
Beyer, P. E. 264-844
Black, C. A. 303-402
Cesarone, R. J. 303-402
Chang, A. F. 264-844
Gillette, R. L. 264-844
Griffith, D. G. 303-402
Holmes, D. P. 264-844
Kazz, G. J. 303-402
Luers, E. B. 303-402
Miller, R. B. 303-402
Peng, T. K. 303-402
Poon, P. T. 264-844
Slusser, R. A. 264-844
Wessen, R. R. 264-844
Yetter, B. G. 264-844

DSMS RAPSO
Bartoo, R. H. 301-285
Borden, C. S. 301-165
Burke, E. S. 303-403
Caputo, R. 514-200
Hampton, E. 600-174
Hincy, W. 600-174
Hungerford, R. M. 301-285
Kehrbaum, J. M. 301-180
Kim, K. 600-174
Lacey, N. 600-174
Leppla, F. B. 600-174
Lineaweaver, S. 600-174
Martinez, K. A. 600-174
Morris, D. G. 303-403
Valencia, J. 600-174
Wang, Y-F. 301-165
Zendejas, S. C. 301-165

Ulysses / Voyager
Bray, T. L. 264-114
Brymer, B. F. 264-114
Cummings, A. C. . . . . CIT 220-47
Hall, Jr., J. C. 264-801
Massey, E. B. (PM) 264-801
Nash, J. C. 264-114
Smith, E. J. (PS - ULS) 169-506
Webb, I. J. 264-114

U.S. Space VLBI
Altunin, V. I. 303-402
Miller, K. J. 264-828
Smith, J. G. (PM) 264-828

YOHKOH
Chang, A. F. 264-844

Other Organizations
Crimi, G. F. . . . . SAIC
Laemmel, G. . . . . DLR-GSOC
Wanke, H. . . . . DLR-GSOC

DSS 13 / DSS 14 Time Request

A Search for Ultra High Energy Cosmic Neutrinos Hitting the Moon Using the Deep Space Network

Presentation to the JURAP Meeting

May 17, 2001

P. Gorham, K. Liewer, C. Naudet, D. Saltzberg, D. Williams

Ultra-High Energy Cosmic Rays: Where is the "GZK" Cutoff?

Greater mystery than origin of GRB's

Predicted cutoff for 10^{20} eV cosmic rays is violated for unknown reason

$p + \gamma\ (2.7K) \rightarrow \Delta \rightarrow p + \pi + X$

- **Observed since 1960's (pre GRB!)**
- **There are no known sources**
- **Need new physics?**

- **Where are the neutrinos?**
  - **Neutrino flux is key to sources**

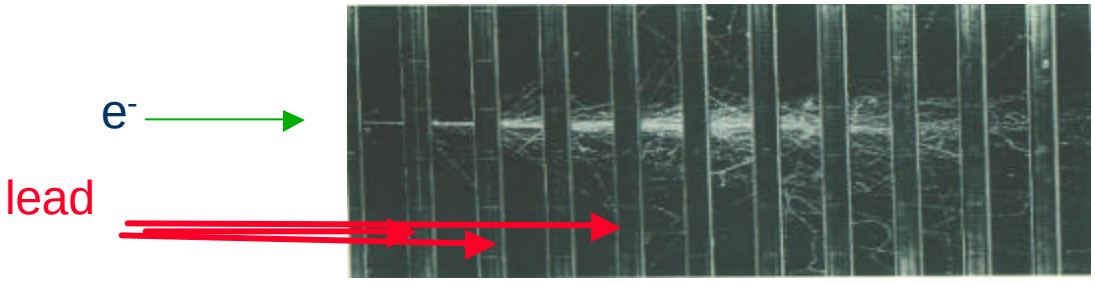
Large n Detectors and Proposals

- Hi-Res/Telescope Array: N_2 Fluorescence detection of atmospheric airshowers. $80M++?
- IceCube: 4800 PMT's in deep Antarctic Ice 1km^2 >$100M
- Antares: 1000 PMT's in deep Mediterranean sea water 0.1km^2 ++ $20M++
- Auger: Surface ground array--horiz. air showers 2x3000km^2 $50M
- Euso/Owl: Orbiting detector of fluorescence from atmospheric air showers Euso: $220M (ISS, >2008)
  OWL: $0.3-0.6B (2012++)

(Ground-based could have significant data in 3--5 years)

Microwave Detection: a few good ideas

#1. UHE cosmic ray will induce an electron-gamma cascade:



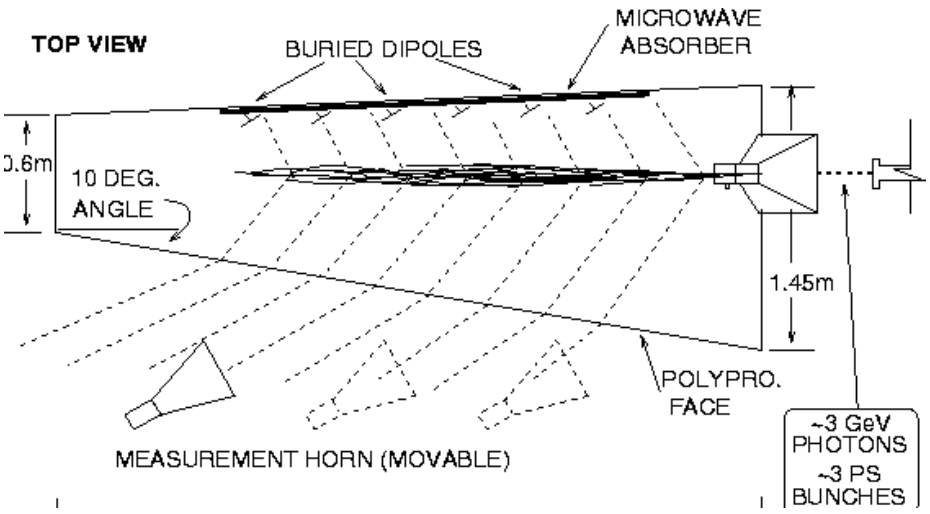
#2. Shower particles emit Cherenkov radiation:

$$\frac{dP_{CR}}{dn} \propto ndn$$

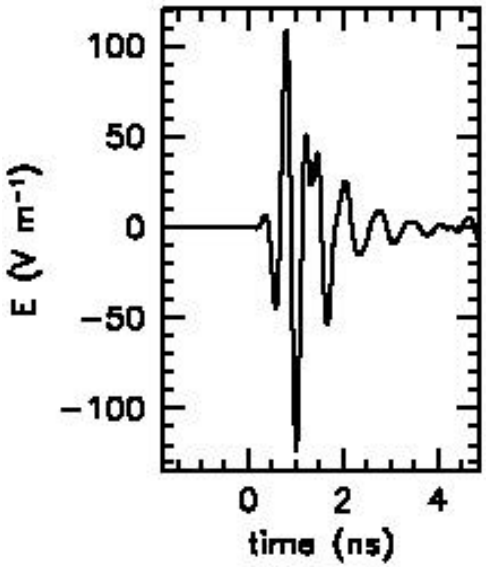
#3. *"coherent" for* microwaves:
Power $\propto N^2_{shower} \propto E^2_{shower}$

#4. Can instrument large natural volumes transparent to microwaves--- eg. the Moon

SLAC 30 GeV Linac



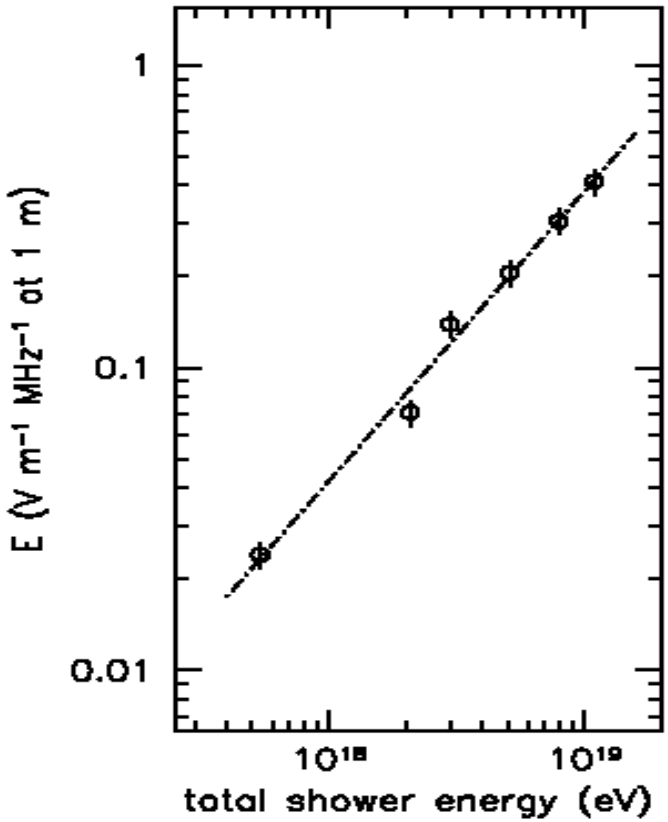
S-Band pulse

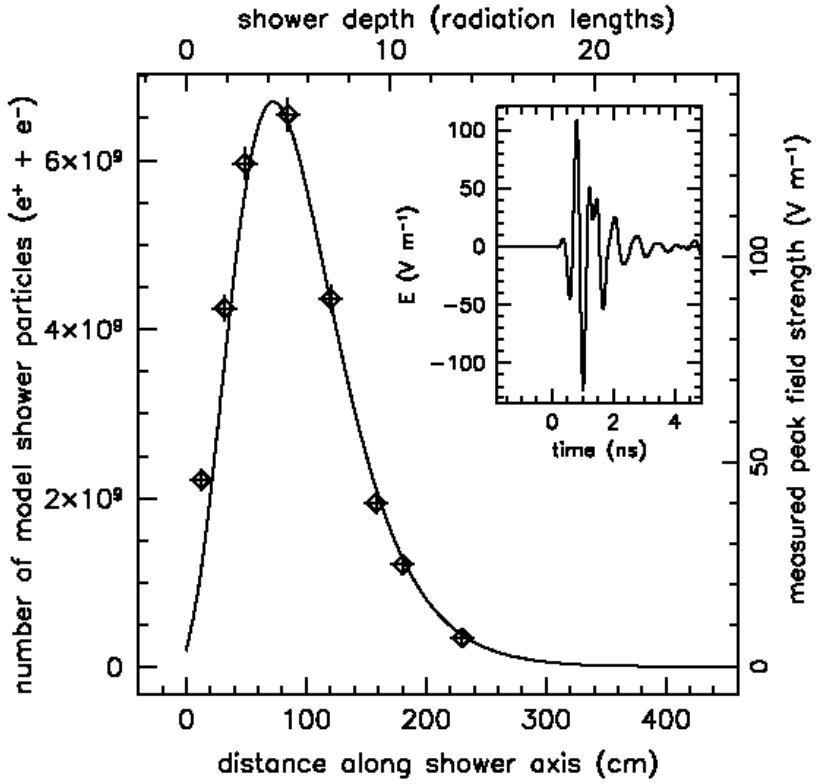


> kV/m near shower

Observation of Coherent Microwaves with Predicted Intensity

$E \propto (\text{shower energy})^{(0.96 \pm 0.05)}$





- **Published in Phys. Rev. Lett. 86, 2802 (2001)**

Radio Telescopes & The Moon

Zheleznykh & Dagkesamanskii

No need to go to the moon, radio telescopes should have enough sensitivity from Earth

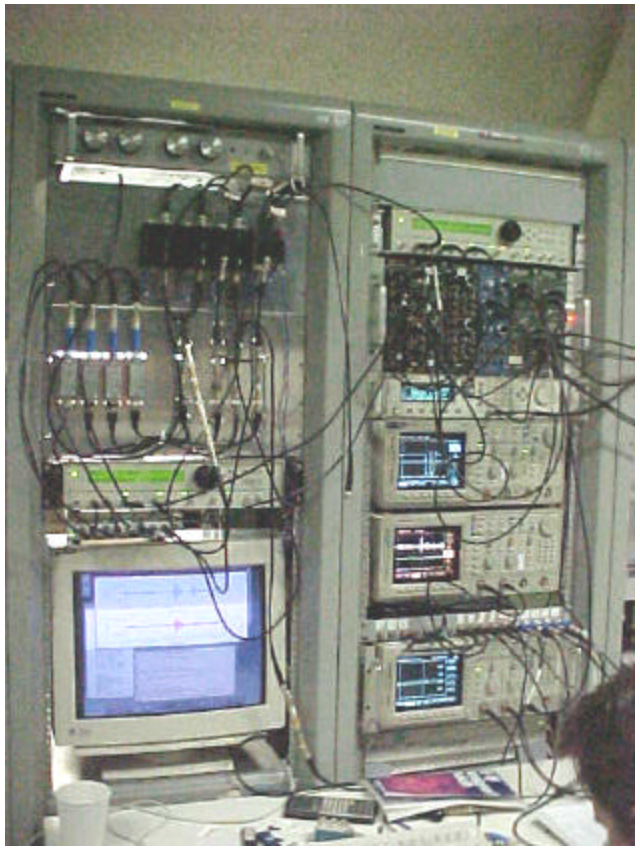
Moon @ 250K ~ 100 Jy 10^{19} eV neutrino ~ 1000 Jy V~200,000 km^3 w.e.

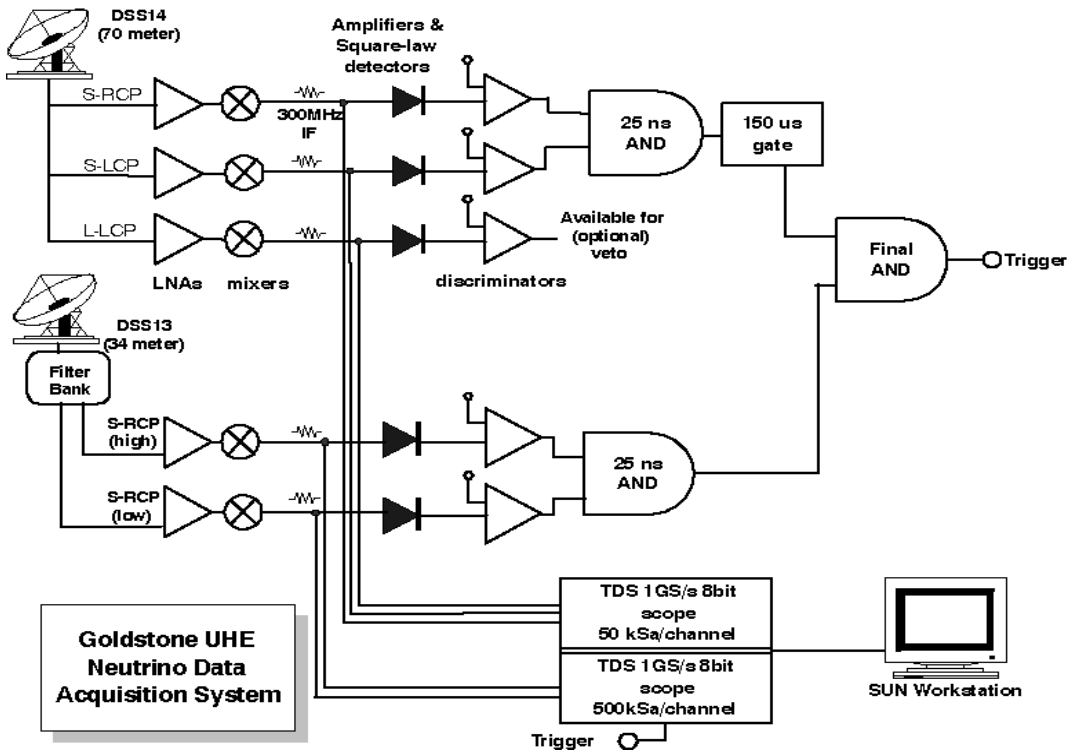
First Experiment. Hankins et al.
Single 64m Parkes antenna (1996) 10 hours.
L-band
Limited by RFI

Goldstone Search

- Two Antennas at Goldstone DSN: “DSS 13” & “DSS 14”
  S -Band for signal & L-band for veto
- “Expect” up to ~ 1 event/ 30 hours
- Original runs (Gorham, Liewer, Naudet)
  4 hours single-antenna
  8 hours recording from both antennas
  Limit: astro-ph/9906504
- UCLA joins in mid-1999
  ~30 hours with both antennas in trigger

Trigger & DAQ @ RA-RG





“Large Event” Analysis

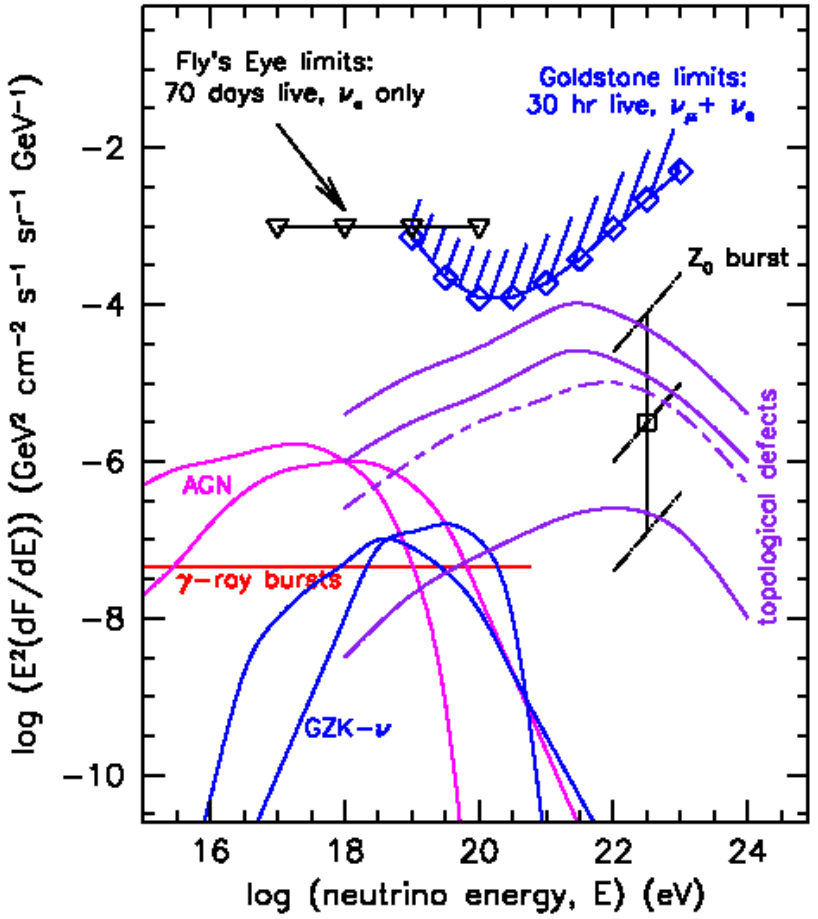
Cut RFI using loose L-band veto.

Cut all signals > 5σ over thermal (~4×10^{19} eV)

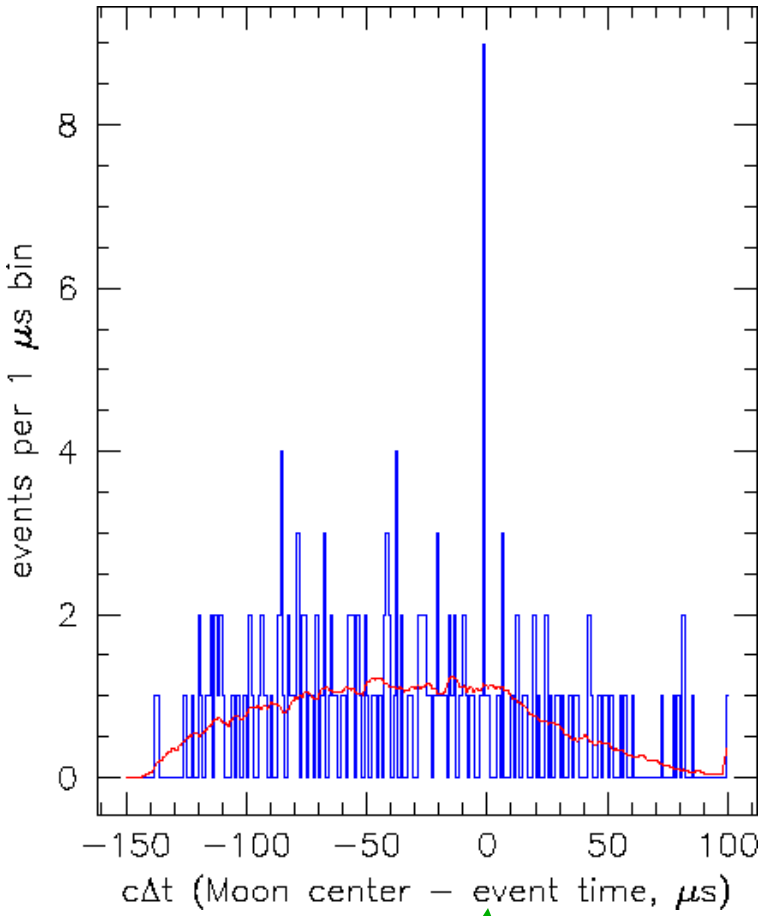
No events even with huge time window

Presented at RADHEP-2000

(astro-ph/0102435)



“Small Event” Analysis

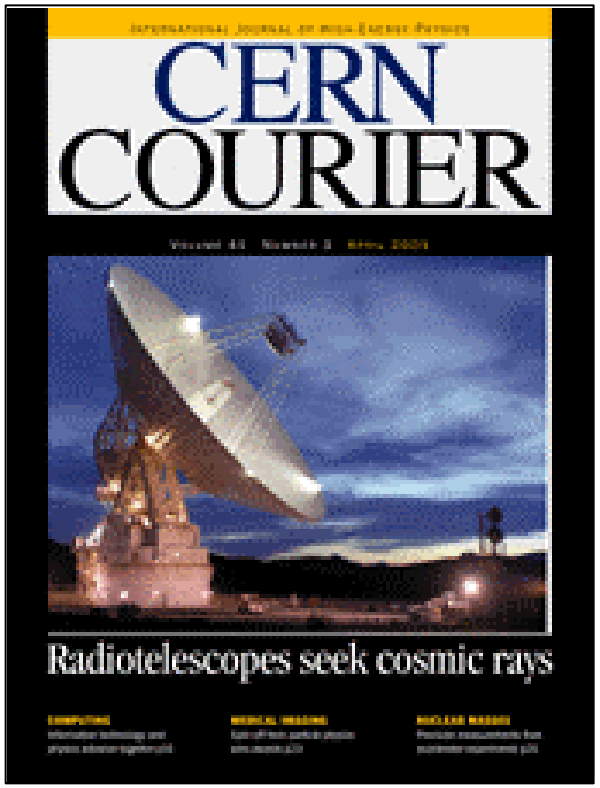


Events of lunar origin should occur at zero delay

- potential signal present?
- requires more time to understand significance of peak and 1.3 ms timing offset

In the Press

- Science News : Mar. 31, 2001
- CERN Courier (cover) : April 2001
- New Scientist Feb. 28, 2001
- Space.com (May 14, 2001)
- Astronomy.com (in press)



Support for "GLUE"

- Discretionary Funds: Klein/Resch (JPL), R. Peccei (UCLA)
- Peer-reviewed competitive proposals
  - Caltech President's Fund
  - National Science Foundation
  - U.S. Department of Energy, Office of Science

  CPF, NSF, DOE proposals based on ~120 hours observing time per year. Currently have 50 hrs livetime.
- Report back to agencies due October for continuing funding
- Has been a great example of inter-agency cooperation

Current Situation

- DSS 14 / DSS 13 combination at Goldstone is optimally suited
  - Realtime fiber link, L-band, high quality HEMTs
- Configuration has been refined & stabilized over 3 years and is taking good data now.
- Progress Report to DOE and Caltech due in October
- DSN has opportunity to make an astrophysics discovery of the highest caliber within the current year

Request

- ~12 hrs observing per month until October with DSS 14, DSS 13, and Moon up (day or night)
  - Currently no allocation before sponsor review
  - More flexibility following review, but new 120 hours still a goal in 2002++
- Since runs have about 2-3 hours of precal. to verify timing, prefer contiguous runs
  - Single 12+ hour pass yields ~10 hours livetime
  - Prefer adjacent days to maximize efficiency

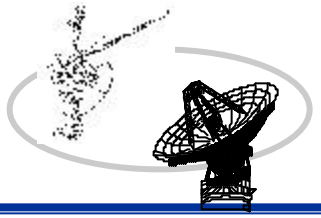
JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

DSN Operations

Jim Hodder

May 17, 2001

NASA Jet Propulsion Laboratory



DSN System Availability

Data Type	March 2001	April 2001
Telemetry	97.2%	99.3%
Tracking	97.2%	98.7%
Command	97.6%	99.0%
Monitor	98.7%	99.4%
Radio Science	99.2%	99.7%
VLBI	98.5%	98.9%

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

Resource Analysis Team

May 17, 2001

Kevin Kim

(for Frank Leppla)

NASA / Jet Propulsion Laboratory

DSN User / Mission Planning Set
2001 - 2011

ONGOING/PLANNED PROJECTS				
Project	**Acronym**	**Launch or Start**	**EOPM**	**EOEM**
DSN VLBI Clock Sync and Catalog M&E	DSN	--	--	--
DSS Maintenance	DSS	--	--	--
European VLBI Network	EVN	--	--	--
Ground Based Radio Astronomy	GBRA	--	--	--
Space Geodesy	SGP	--	--	--
Voyager 2	VGR2	08/20/77	10/15/89	12/31/19
Voyager 1	VGR1	09/05/77	12/31/80	12/31/19
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	12/31/04
ISTP - Geotail	GTL	07/24/92	07/24/95	09/30/05
ISTP - Wind	WIND	11/01/94	11/01/97	09/30/05
Space VLBI	SVLB	02/01/95	12/31/03	- - -
ISTP - SOHO	SOHO	12/02/95	05/02/98	12/30/05
ISTP - Polar	POLR	02/22/96	08/23/97	09/30/05
Gravity Probe B	GPB	06/01/96	10/31/03	TBD
Mars Global Surveyor	MGS	11/07/96	02/01/01	05/04/03
Highly Advanced Laboratory for Communications and Astronomy	VSOP	02/12/97	09/30/01	- - -
Advance Composition Explorer	ACE	08/25/97	02/01/01	01/31/05
Cassini	CAS	10/15/97	06/30/08	06/30/10
NOZOMI (Planet-B)	NOZO	07/03/98	TBD	TBD
Deep Space 1	DS1	10/24/98	09/19/99	10/31/01
Stardust	SDU	02/07/99	01/14/06	- - -
Chandra X-ray Observatory	CHDR	07/23/99	07/23/04	07/23/09
Imager for Magnetopause-to-Aurora Global Exploration	IMAG	03/25/00	05/30/02	03/30/03
Cluster 2 - S/C #2 (Samba)	CLU2	07/16/00	02/15/03	09/19/05
Cluster 2 - S/C #3 (Rumba)	CLU3	07/16/00	02/15/03	09/19/05
Cluster 2 - S/C #1 (Salsa)	CLU1	08/09/00	02/15/03	09/19/05
Cluster 2 - S/C #4 (Tango)	CLU4	08/09/00	02/15/03	09/19/05
2001 Mars Odyssey	M01O	04/07/01	08/01/04	09/19/07
Microwave Anisotropy Probe	MAP	06/30/01	07/21/03	09/30/06
Genesis	GNS	07/30/01	09/08/04	- - -
International Gamma Ray Astrophysics Lab	INTL	04/22/02	06/23/04	06/23/07
Comet Nucleus Tour (CONTOUR)	CNTR	07/01/02	09/05/08	TBD
Space Infrared Telescope Facility	SRTF	07/15/02	09/14/07	- - -
RadioAstron*	RADA	10/01/02	10/01/07	TBD
MUSES - C	MUSC	12/01/02	07/01/07	- - -
Rosetta	ROSE	01/13/03	10/23/12	- - -
Mars Exploration Rover - A	MERA	05/30/03	04/06/04	- - -
Mars Express Orbiter	MEX	06/01/03	12/01/05	07/31/08
Mars Exploration Rover - B	MERB	06/27/03	05/10/04	- - -

* Planning dates

DSN User / Mission Planning Set

2001 - 2011

ADVANCED PLANNING PROJECTS				
Project	**Acronym**	**Launch or Start**	**EOPM**	**EOEM**
Lunar - A	LUNA	08/09/03	03/03/04	- - -
Deep Impact	DEEP	01/02/04	08/05/05	- - -
Messenger	MSGR	03/23/04	09/30/10	- - -
Stereo Ahead	STA	11/26/04	02/25/07	02/28/10
Stereo Behind	STB	11/26/04	03/15/07	03/15/10
Mars Reconnaissance Orbiter	MRO	08/17/05	02/27/16	
Europa Orbiter	EURO	01/03/06	08/22/10	TBD
StarLight	SL	07/01/06	06/30/07	- - -
Highly Advanced Laboratory for Communications and Astronomy	VSP2	01/01/07	01/01/12	- - -
Mars Smart Lander 2007	M07L	09/04/07	08/19/10	TBD
Mars Competed Scout 2007	M07S	09/04/07	11/19/08	TBD
Mars CNES Orbiter 2007	M07O	09/09/07	08/11/08	08/12/10
Mars ASI/NASA Telecommunications Orbiter 2007	M07T	09/09/07	08/09/18	TBD
ARISE	ARSE	01/01/08	01/01/13	- - -
Mars ASI/NASA Science Orbiter 2009	M09O	10/04/09	08/29/12	TBD
Mars CNES MSR Lander 2011	M11L	10/30/11	09/10/14	TBD
Mars CNES MSR Orbiter 2011	M11O	10/30/11	07/22/14	TBD

TMOD Resource Implementation Planning Matrix

Station	Subnet	First Delivery Date	S-Band Down	S-Band Up	X-Band Down	X-Band Up	Ka-Band Down	Ka-Band Up	Ku-Band Up and Down	Close
DSS-14	70M	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	N/A	N/A
DSS-15	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	TBD	N/A	N/A	N/A
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	5/1/2003	10/1/2005	N/A	N/A	N/A
DSS-25	34B2	XXXX	N/A	N/A	XXXX	XXXX	XXXX	5/1/2001	N/A	N/A
DSS-26	34B2	8/1/2002*	N/A	N/A	8/1/2002*	8/1/2002*	4/1/2003	N/A	N/A	N/A
DSS-27	34HSB	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A
DSS-28	34B2	TBD	N/A	N/A	TBD	TBD	N/A	N/A	N/A	N/A
DSS-33	11M	XXXX	N/A	N/A	XXXX	XXXX	N/A	N/A	XXXX	2/1/2002
DSS-34	34B1	XXXX	XXXX	XXXX	XXXX	XXXX	11/30/2004	N/A	N/A	N/A
DSS-43	70M	XXXX	XXXX	XXXX	XXXX	XXXX	TBD	N/A	N/A	N/A
DSS-45	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	TBD	N/A	N/A	N/A
DSS-46	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A
DSS-53	11M	XXXX	N/A	N/A	XXXX	XXXX	N/A	N/A	XXXX	2/1/2002
DSS-54	34B1	XXXX	XXXX	XXXX	XXXX	XXXX	8/1/2006	N/A	N/A	N/A
DSS-55	34B2	11/1/2003	N/A	N/A	11/1/2003	11/1/2003	11/1/2003	N/A	N/A	N/A
DSS-63	70M	XXXX	XXXX	XXXX	XXXX	10/11/2001	TBD	N/A	N/A	N/A
DSS-65	34HEF	XXXX	XXXX	N/A	XXXX	XXXX	TBD	N/A	N/A	N/A
DSS-66	26M	XXXX	XXXX	XXXX	N/A	N/A	N/A	N/A	N/A	N/A

* = DSS-26 X-Band Operational Early to cover DSS-15 NSP Downtime, 8/1/02 - 09/27/02.
Will be removed from service 10/1/02 - 4/1/03 for NSP and X/X/Ka Implementation upon return of DSS-15.

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

4/19/2001

RESOURCE ALLOCATION AND PLANNING

JURAP - MAY 17, 2001

- **RESOURCE NEGOTIATION STATUS**
  - 2001 WEEK 31 (THRU 08/05/2001) WAS RELEASED TO DSN ON 05/12/2001
  - 2001 WEEK 32 (THRU 08/12/2001) IS DUE TO BE RELEASED ON 05/28/2001
  - 2001 WEEKS 37 - 40 (THRU 10/07/2001) WILL GO INTO NEGOTIATIONS STARTING 05/21/2001

RESOURCE ALLOCATION AND PLANNING

Joint Users Resource Allocation Committee

- **SPECIAL STUDIES/ACTIVITIES**
  - GENESIS STUDY

- **ON-GOING ACTIVITIES**
  - MADB/TIGRAS TESTING AND TRAINING
  - DEEP IMPACT LOAD STUDY
  - GALILEO EXTENDED MISSION STUDY
  - IMAGE LOAD STUDY
  - MEX LOAD STUDY
  - MESSENGER LOAD STUDY
  - MRO LOAD STUDY

RESOURCE ALLOCATION AND PLANNING

Joint Users Resource Allocation Committee

- **RARB - AUGUST 14, 2001 LINK ON RAPWEB**
  - TIMELINE ADDED

HTTP://RAPWEB.JPL.NASA.GOV

INTERPLANETARY NETWORK & INFORMATION SYSTEMS DIRECTORATE

Resource Allocation Planning & Scheduling Office (RAPSO)

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

DSS DOWNTIME FORECAST

Jose Valencia

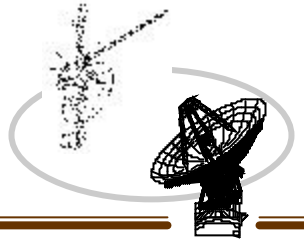
May 17, 2001

NASA Jet Propulsion Laboratory

DSN Downtime & Test Schedule is located on the RAP WWW Homepage at: http://rapweb.jpl.nasa.gov

Although every effort is made to ensure the accuracy of this Downtime Planning report, changes can and do occur. The DSN 7-Day Schedule takes precedence over this document.

Resource Allocation Planning & Scheduling Office (RAPSO)



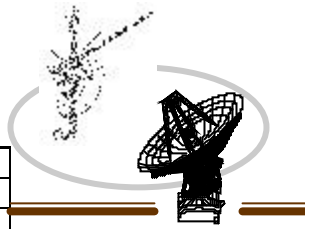
FACILITY	TASK	SCHEDULE	DURATION
DSS-14	Antenna Controller Replacement	Weeks 28 – 40 / 2004	13 Weeks
CANBERRA			
DSS-43	Antenna Controller Replacement	*07/26/04 - 10/03/04 No Proposal (possible in 2005)	10 Weeks
MADRID			
DSS-63	Antenna Controller Replacement	*10/11/04 - 12/19/04 No Proposal (possible in 2005)	10 Weeks
DSS-65	Antenna Controller Replacement	Weeks 07 - 13 / 2004	7 Weeks

*Request Window: Earliest Start - Latest Finish

Antenna Controller Replacement implementation priority:

1. Goldstone
2. Canberra
3. Madrid

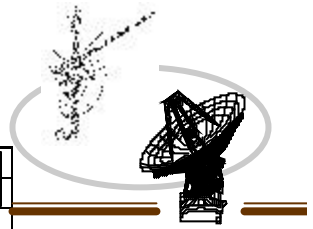
One month turn-around between each complex is needed.



MAJOR DSN DOWNTIMES by DATE

The latest update is on:4/6/01 5:07:00 PM
*The highlighted portion indicates the last change made.

Year	Site	Description	Start	End	Duration (Days)	Weeks	Start DOY	End DOY
2001	DSS 63	70M X-Band Uplink	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Feedcone Structure	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Hydrostatic Bearing Regrout	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Counterweight Rebalance	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Az Cablewrap Rehab	07/23/01	10/10/01	80	30-41	204	283
2001	DSS 63	NIB - Chiller+HtExch HVAC Mods	07/23/01	10/10/01	80	30-41	204	283
2002	DSS 66	Servo Hydraulic Drive Replacement	06/24/02	07/21/02	28	26-29	175	202
2002	DSS 14	70M Servo Drive Upgrade	07/15/02	09/27/02	75	29-39	196	270
2002	DSS 14	NIB - NSP Implementation	07/15/02	09/27/02	75	29-39	196	270
2002	DSS 15	NSP Implementation	08/01/02	09/27/02	58	31-39	213	270
2002	DSS 24	NSP Implementation	10/01/02	11/22/02	53	40-47	274	326
2002	DSS 45	NSP Implementation	10/01/02	11/22/02	53	40-47	274	326
2002	DSS 54	NSP Implementation	10/01/02	11/22/02	53	40-47	274	326
2002	DSS 26	NSP Test and Training	10/01/02	02/01/03	124	40-05	274	032
2002	DSS 24	NIB - 20 KW X-Band Txr Installation	10/01/02	11/22/02	53	40-47	274	326
2002	DSS 54	NIB - 20 KW X-Band Txr Installation	10/01/02	11/22/02	53	40-47	274	326
2002	DSS 43	70M Servo Drive Upgrade	11/25/02	02/09/03	77	48-06	329	040
2002	DSS 43	NIB - Ball-Joint Pad Refurbishment	11/25/02	02/09/03	77	48-06	329	040
2002	DSS 43	NIB - NSP Implementation	12/02/02	02/09/03	70	49-06	336	040
2002	DSS 65	NSP Implementation	12/02/02	02/09/03	70	49-06	336	040
2003	DSS 26	X/X/Ka Downlink Implementation	02/01/03	04/01/03	60	05-14	032	091
2003	DSS 63	70M Servo Drive Upgrade	02/10/03	04/20/03	70	07-16	041	110
2003	DSS 63	NIB - Ball-Joint Pad Refurbishment	02/10/03	04/20/03	70	07-16	041	110
2003	DSS 63	NIB - NSP Implementation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 25	NSP Implementation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 34	NSP Implementation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 25	NIB - 20 KW X-Band Txr Installation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 34	NIB - 20 KW X-Band Txr Installation	02/10/03	04/06/03	56	07-14	041	096
2003	DSS 15	Antenna Controller Replacement	03/03/03	05/04/03	63	10-18	062	124
2003	DSS 46	Servo Hydraulic Drive Replacement	05/05/03	06/01/03	28	19-22	125	152
2003	DSS 45	Antenna Controller Replacement	09/08/03	10/25/03	48	37-43	251	298



MAJOR DSN DOWNTIMES by SITE by Year

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GOLDSTONE SOLAR SYSTEM RADAR

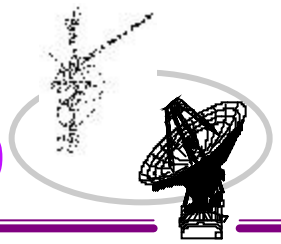
Martin A. Slade

May 17, 2001

NASA Jet Propulsion Laboratory

Joint Users Resource Allocation Planning Committee Meeting

GOLDSTONE SOLAR SYSTEM RADAR (GSSR)



- Arecibo to Goldstone radar interferometric observations of Venus were successful on April 20, 29, May 7, and May 12 , at DSS 14, DSS-13, and GAVRT, with excellent data from all 3 Goldstone antennas.
- The first 2 Mars Exploration Rover landing site validation tracks on May 3 and 5 were successful. These complex tracks involve radar interferometery between DSS 14, DSS 13, DSS 25, and GAVRT.
- These tracks have generated, to date, around 4 terabytes of data.

Honeywell

Honeywell Technology Solutions Inc.
Pasadena Operations
Customer Service Department

Joint Users Resource Allocation Planning Committee

RADIO ASTRONOMY AND SPECIAL ACTIVITIES

George Martinez

May 17, 2001

TEMPO
(TIME AND EARTH MOTION PRECISION OBSERVATIONS)

- Clock Sync
  - DOY 093
    - No problems were reported by either DSS-15.
    - DSS-65 reported that 1 source was missed.
    - Tapes sent to JPL Correlator for processing.
  - DOY 098
    - No problems were reported by either DSS-15 or DSS-65.
    - Tapes sent to JPL Correlator for processing.
  - DOY 118
    - No problems were reported by either DSS-15 or DSS-65.
    - Tapes sent to JPL Correlator for processing.
  - Metrics
    - 3 observations – 99.8% of data time utilized.

CAT M & E

- DOY 118
  - No problems were reported by either DSS-15 or DSS-45.
  - Tapes sent to the JPL Correlator for processing.
- Metrics
  - 100% of data time utilized.

GROUND BASED RADIO ASTRONOMY (GBRA)

- RA360
  - Detect Water MASERs in Active Galactic Nuclei (AGN).
  - No problems were reported by DSS-43.

Joint Users Resource Allocation Planning Meeting

SPECTRUMASTRO

K. Moyd

May 17, 2001

DS1 STATUS

Previous Month's Activities and Current Status

- Regular anchor tracks Earth-pointed and rest of time at thrust attitude through April 30.
- "Jupiter Watch" done on May 1 – Jupiter in MICAS field-of-view while HGA on Earth. Successfully tested ability to track an extended body.
- Encounter rehearsal done on May 8. Basically successful, although a test command was accidentally left in, limiting the fidelity of the rehearsal.
- Deterministic thrusting completed April 30.

Telecom-related problems from April 15 through May 15.

- MCD3 degradation at Goldstone caused a loss of ~1.3 db during Week 19. The project had to reduce its data rates in real time by ~30% during the time when we were returning data from the rehearsal. Has now been fixed.
- Unexplained gaps of up to several hours in ranging data on several occasions.

JPL

SPECTRUMASTRO

DS1 STATUS

Near Term Plans

- Spacecraft will be “Coasting” now that deterministic thrusting is completed.
- Because of the significant decrease in use of hydrazine while thrusting, we will be thrusting even during planned “coast” time. The strategy is to alternate between a “North” star and a “South” star.
- Second encounter rehearsal scheduled for June 28.

JPL

SPECTRUMASTRO

DS1 STATUS

Long Term Plans

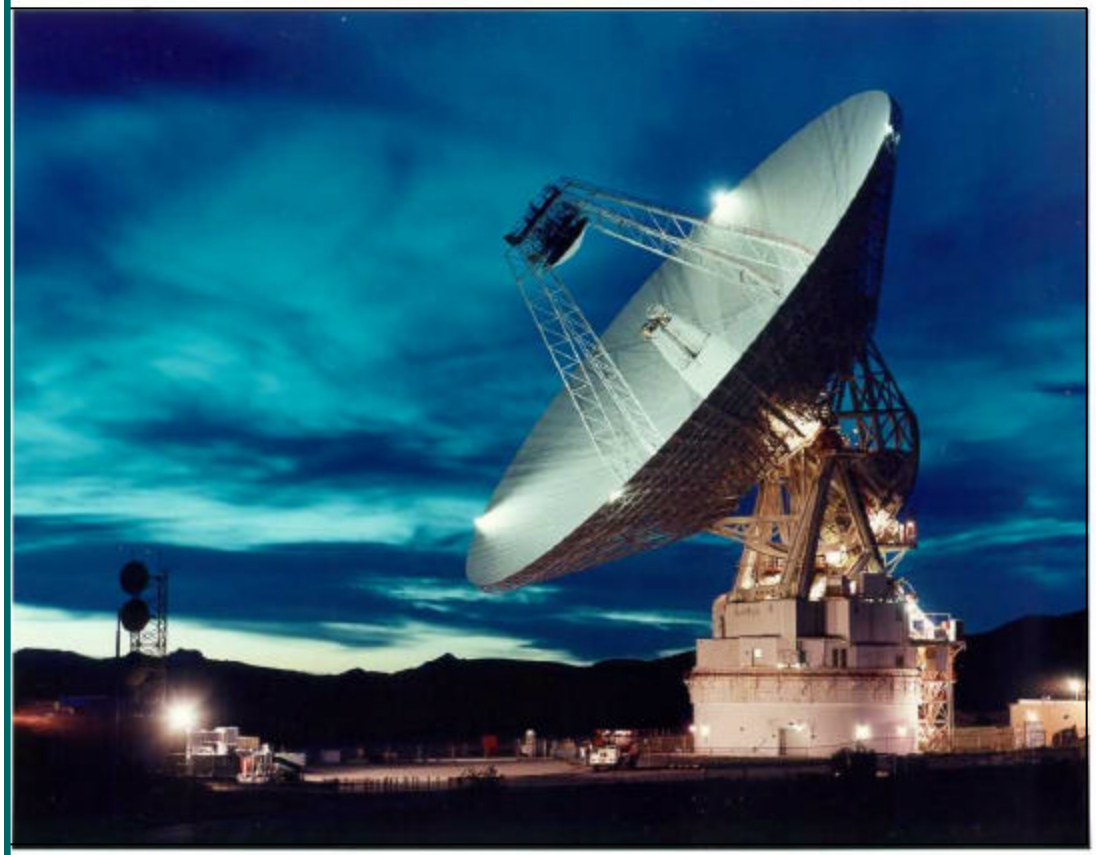
- Comet Borrelly encounter will occur September 22, 2001.
  - Time of the encounter is being controlled so as to work around the unavailability of DSS-63. Also taking into account overlap in view periods between DSS-14 and 43 for critical activity.
- Extended/extended mission being considered to analyze ion engine state after three years of use. Expected to be completed by end of CY 2001.

JPL

SPECTRUMASTRO

INTERPLANETARY NETWORK AND INFORMATION SYSTEMS DIRECTORATE

MICROWAVE ANISOTROPY PROBE (MAP)



DSN MAP STATUS

Report to the

Joint Users Resource Allocation Planning Meeting (JURAP)

Art Landon

MAY 17 2001

JPL

GSOC

Mission Key Events

- Launched on a Delta 7425 from KSC on June 30, 2001, into a 185 x 290, 000 km orbit.
- Launch and Early Orbit (LEOP) supported by 26-m and 34-m subnets
- Phasing loops used to achieve lunar gravity assist;
  - Phasing Loops 2-3 weeks to complete
  - 90-day cruise to L2
- 70-m subnet prime for science phase; 34-m subnet backup
  - Either 70-meter or 34-meter used
- 2-year Prime Science Mission (following 3-month cruise)

SUPPORTING STATIONS

- GOLDSTONE DSCC
  - DSS-16 ---------- 26-METER [1]
  - DSS-27 ---------- 34-METER HIGH SPEED[2]
  - DSS-24 ---------- 34-METER BWG
  - DSS-14 ----------70-METER
- CANBERRA DSCC
  - DSS-46 ---------- 26-METER [1]
  - DSS-34 ---------- 34-METER BWG
  - DSS-43 ---------- 70-METER
- MADRID DSCC
  - DSS-66 ---------- 26-METER [1]
  - DSS-54 ---------- 34-METER BWG
  - DSS-63 ---------- 70-METER

NOTES: LEOP and Lunar Phasing will be with the legacy system. The automation system will not be available for supporting MAP

[1] Only used for backup to DSS-16 for initial Acquisition

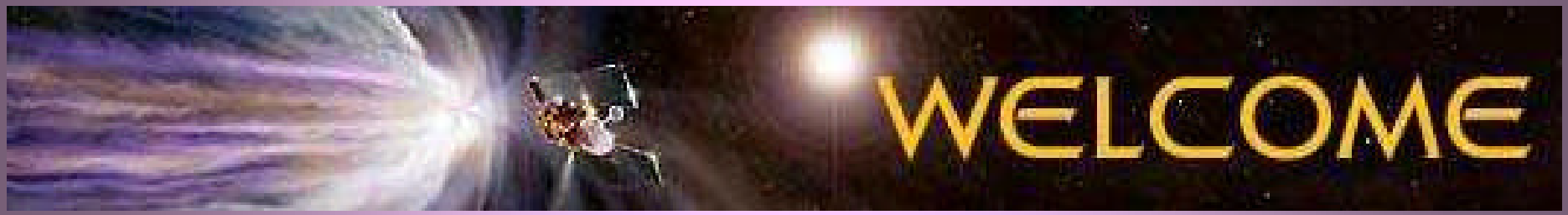
Training/Testing Status

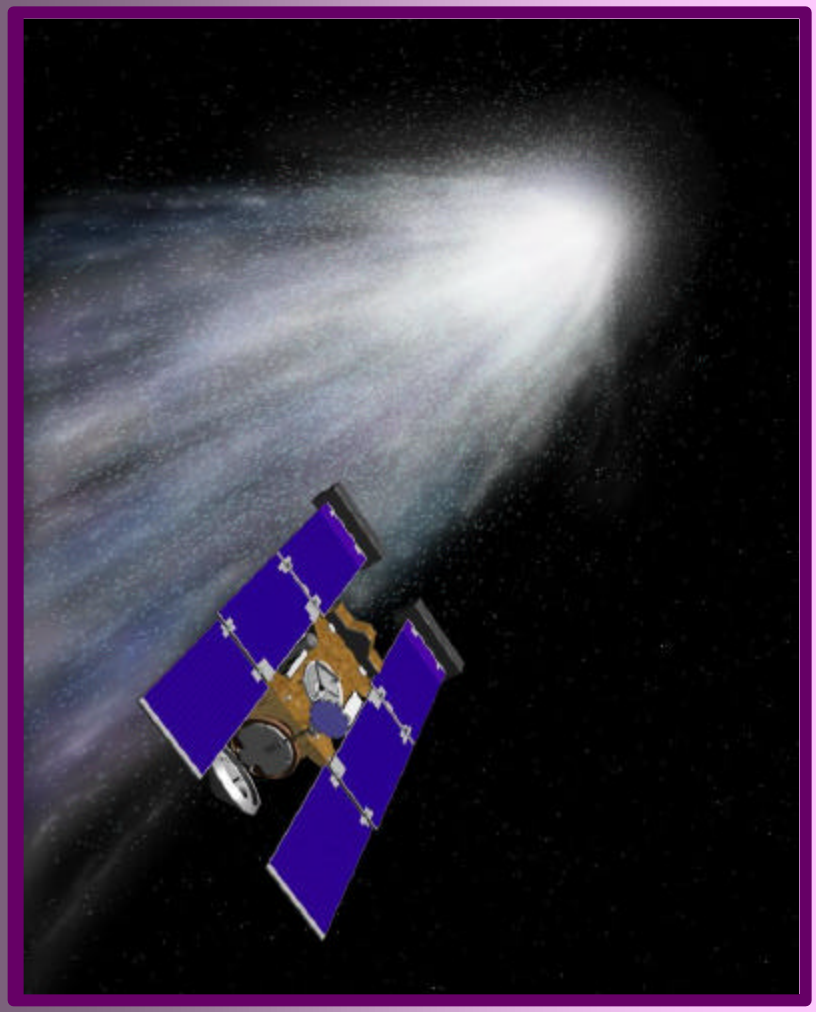
- Compatibility testing successfully complete
- Mission Services Training/Testing Activities (MSTA) phase one for internal DSN mission specific training completed successfully

- MSTA phase two (project testing)continues up to launch.
  - Operational Readiness Testing (ORTs)
  - Mission SIMs
  - Launch SIMs
    - To date testing has been successful

Readiness Review Status

- Operation Readiness Review (project review) held at GSFC on 11 May 2001.
  - No concerns expressed from DSN or MAP project
- DSN Readiness Review scheduled for 5/24/01





STARDUST

JOINT USERS
RESOURCE ALLOCATION
PLANNING COMMITTEE

R. E. Ryan

May 17, 2001

NASA Jet Propulsion Laboratory

http://stardust.jpl.nasa.gov

STARDUST

Report to JURAP

STATUS

- SPACECRAFT IS HEALTHY (5/17/01)
- PRESENTLY 0.77 AU from EARTH
  - 00:12:45 RTLT
  - 1.6 AU from SUN

- SPACECRAFT IS IN NOMINAL CRUISE
  - WEEKLY CHECKS OF NAVIGATION CAMERA
  - CIDA INTERSTELLAR DUST COLLECTION PERIOD # 2 ON-GOING

STARDUST

Report to JURAP

- **NAV CAM (Camera) CALIBRATION ACTIVITY ON-GOING**
  - **SOME ADDITIONAL (or re-deposit of) CONTAMINATION ON THE CAMERA OPTICS WAS SEEN DURING CALIBRATION IN LATE FEBRUARY**
  - **THE 3rd HEATING CYCLE, ENDING APRIL 30, APPEARS TO HAVE IMPROVED THE OPTICS CLARITY TO THE BEST SINCE LAUNCH**
  - **WEEKLY IMAGES ARE MONITORING THE CONDITIONS**

- **TMOD SUPPORT HAS GENERALLY BEEN VERY GOOD THIS PERIOD**
  - **STILL HEAVY SOLAR ACTIVITY, BUT THE SPACECRAFT HAS NOT BEEN AFFECTED (SO FAR)**

UPCOMING EVENTS

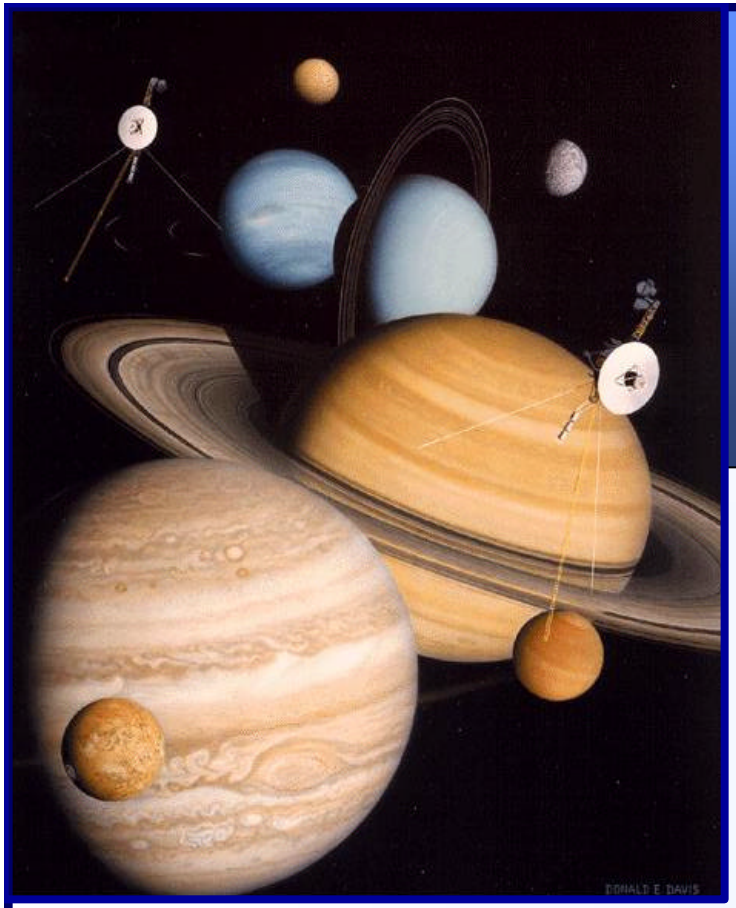
NAVCAM ENCOUNTER GUIDESTAR CALIBRATION JUNE 4/5

GEOMETRY THE SAME AS AT THE COMET

DSM-2 (TCM-7) March 13, 2002

CHECK OUT THE HOMEPAGE:

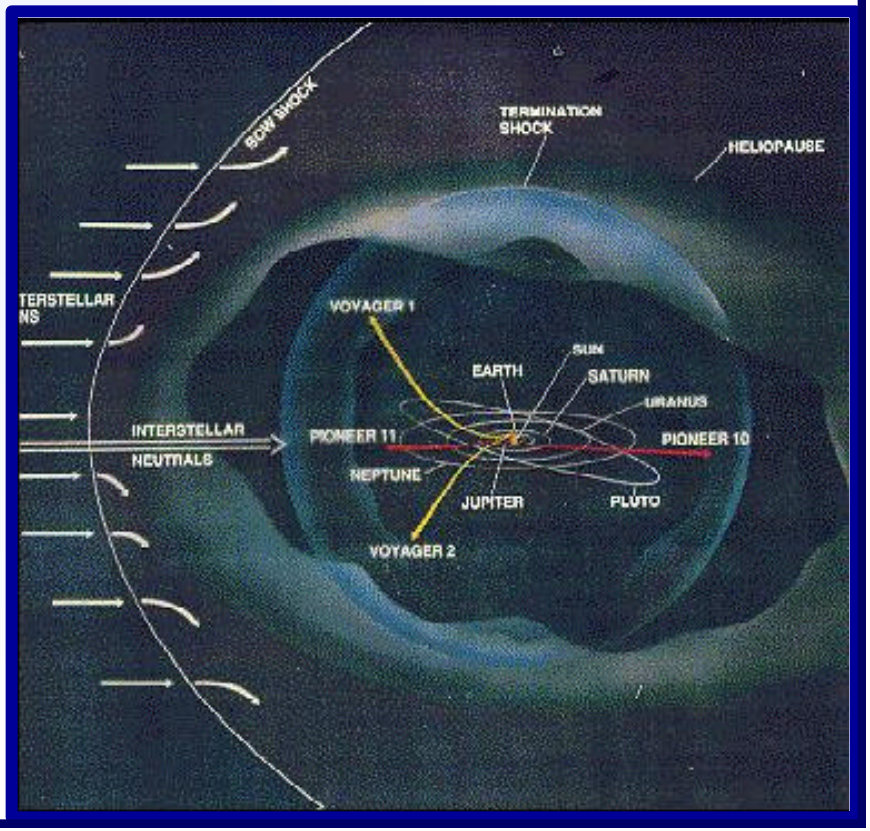
http://stardust.jpl.nasa.gov



VOYAGER

FLIGHT OPERATIONS

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

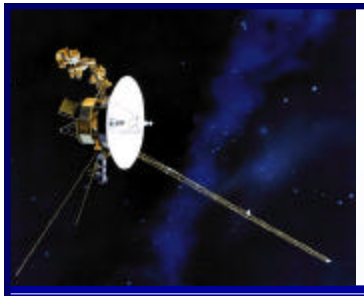


J. C. Hall, Jr.

March 15, 2001

NASA Jet Propulsion Laboratory

http://vraptor.jpl.nasa.gov



VOYAGER

FLIGHT OPERATIONS

JPL

FLIGHT SYSTEM STATUS

MISSION STATUS

VOYAGER 1

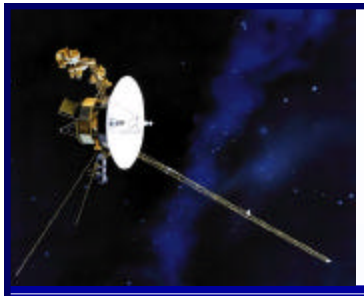
* HELIOCENTRIC DISTANCE – 81.1 AU, RTLT – 22h15m24s

- SPACECRAFT REMAINS HEALTHY
- RTLT = 24h00m00s in 2002-280/06:57:54 (10/7/02)
- MAJOR ACTIVITY - PWS PLAYBACKS, ASCAL, MAGROL

VOYAGER 2

* HELIOCENTRIC DISTANCE – 64.0 AU, RTLT – 17h35m48s

- SPACECRAFT REMAINS HEALTHY
- MAJOR ACTIVITY - MAGROL



VOYAGER

FLIGHT OPERATIONS

JPL

GROUND SYSTEM STATUS

(April 13, 2001 - May 11, 2001)

DSN - OVERALL SUPPORT – GOOD

TOTAL SUPPORT TIME, OUTAGE TIME, % of OUTAGE TIME

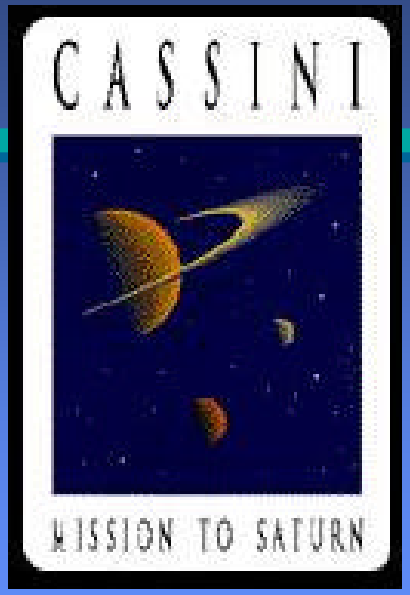
S/C	SCHED SUPPORT	ACTUAL SUPPORT	70M TIME	SIGNIFICANT OUTAGE TIME	% of OUTAGE TIME
31	413.2	413.2	236.4	0.5 (0.7)	.29
32	226.9	213.8*	77.7	1.2 (0.7)	.84

***Released 5.8 hours of DSS-45 support for MO1O safing support. Substituted 5.8 hours of DSS-43 support in place of DSS-45 which was released to MGS. Replaced 5.8 hours of DSS-43 support to MGS with 3.5 hours of DSS-45 support. Released 5.3 hours of DSS-45 support to MGS**

VOYAGER HOMEPAGE - http://vraptor.jpl.nasa.gov

CASSINI

http://www.jpl.nasa.gov/cassini/

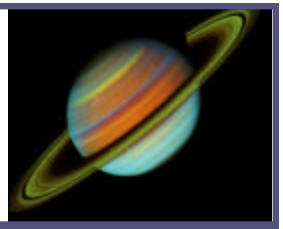


Joint Users Resource Allocation Planning (JURAP) Committee Meeting

Dave Doody
May 17, 2001

NASA Jet Propulsion Laboratory

CASSINI

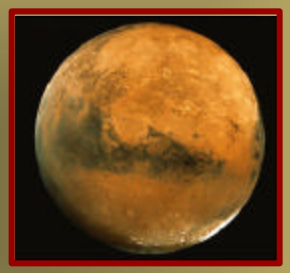


- Quiet Cruise Mission Subphase began April 30 2001.
  - Nominally, S/C remains HGA-to-Earth except for specific short activities.
  - Science Cruise Phase begins with Space Science Subphase 8 July 2002..
- Everything was Basically Nominal...
  - Minor S/C instrument anomalies being worked and recovered near real time.
  - Huygens Recovery Task Force response nearing final recommendation stage.
  - RADAR/Radiometery results of 2cm synchrotron Jovian radiation presented at European Geophysical Society and International Workshop on Planetary Radio Emissions V, together with DSN, VLA and GAVRT data.
- And then we safed, DOY 130.
  - Thanks for 70m time from DSN Maintenance, VLBI, Galileo. We're back on 34m net.
  - Cause was quickly identified as procedural error that had overwritten CDS FSW.
  - We expect to restart Sequence C26 on DOY 144.
- Gravitational Wave System Test #1 Completed DOY 128.
  - Data captured for RS analysis of Ka Translator performance and idiosyncrasies
  - Excellent DSN support
  - GWE System Test #2 planned for August 2001
  - GW Experiment 26 November — 4 December 2001.
  - Additional Experiments yearly until Saturn Arrival

Mars Mission Management Office

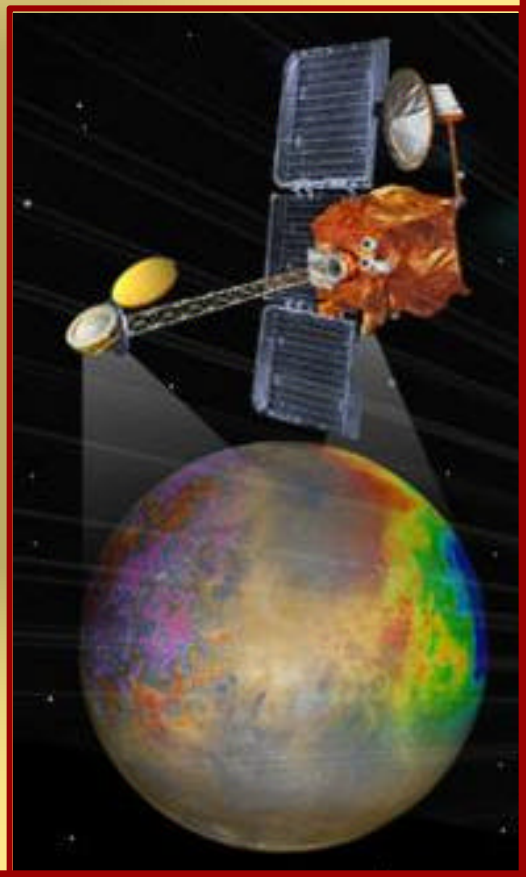
Presentation to the

Joint Users Resource Allocation Planning (JURAP) Meeting

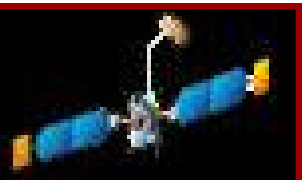


April 19, 2001

E. E. Brower

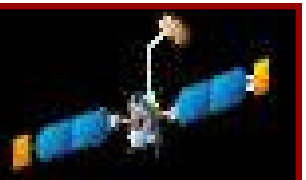


http://mars.jpl.nasa.gov/missions/present/globalsurveyor.html

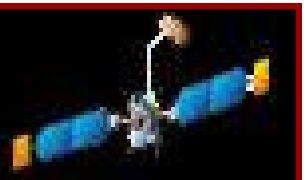


AGENDA

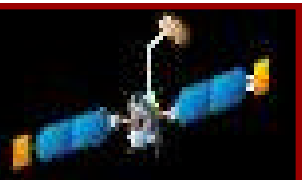
- Color Status
- Recent Events/Accomplishments
- C-Mode Anomaly
- Issues



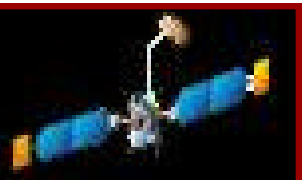
	FEB	MAR	APR
• FLIGHT OPERATIONS			
–SPACECRAFT	G	G	G
–NAVIGATION	G	G	G
–MISSION PLAN/SEQUENCE	G	G	G
• SCIENCE	G	G	G
• FLIGHT SUPPORT			
–GROUND DATA SYSTEM	G	G	G



- **Implemented AEM momentum dumping (saves 20% nadir fuel use) and 3 position SA step. Reduced SA panel exposure, extending shunt life**
- **Performed Relay22 minimum fuel mode (=>10 gm/d@nadir-16 deg.).**
- **75 ROTO Sequences executed by Apr. 27. 50-60 images of MER Landing ellipses taken/month. ROTO Improvements for MER sites under study.**
- **Supporting MER UHF relay demonstration; negotiating MOA for EDL.**
- **Papers submitted for one-year mapping status report with instrument descriptions to appear in special issue of JGR**
- **Planetary quarantine study nearing completion. Letter sent to PQ official advising status. Average spacecraft cross section for operations (12 m2) and final position (6 m2) determined.**
- **Presented Resource Management and Performance Prediction Status to JPL Program Office on May 1**



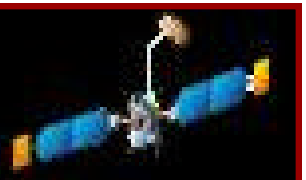
- FFT conducted to evaluate Solar Array induced microphonics
  - New mode at 0.27 Hz not seen in A/B (before HGA deployment)
- Change request received to support Mars Odyssey aerobraking
  - Requested daily TES/MOC WA/MHSA data samples
  - Playbacks to be scheduled for operations shifts (MAPGEN change)
  - Or request could preclude MER landing site observations and MGS science for 3.5 months
- Request received for UHF closed loop test using Stanford (5/15, 6/25)
- MGS moved into JPL Flight Projects Division from TMOD following JPL reorganization
- Spacecraft entered contingency mode on May 2 at 10:10 UTC
  - Sun monitor check miscomparision in off target configuration
  - Spacecraft is back in nadir control mode



On Doy 122 at 10:10:55z Spacecraft Event Time (SCET) with a C-Mode entry. A Sun Monitor Ephemeris fault response sent MGS into C-Mode but the actual root cause of this error source is still unknown. Normally the spacecraft continually compares the sun position calculated from on-board sun sensors to the expected sun position provided by the Spacecraft Team. When the two positions diverge greater that five degrees for greater than two seconds, the Sun Monitor Ephemeris fault response initiates C-Mode.

MGS has return to mapping operations with the Sun Monitor Ephemeris fault response disable until future troubleshooting can take place. The leading theory for the original fault entry is shadowing from the HGA (High Gain Antenna) on the sun sensor.

Special Thanks to all Spacecraft releasing or reworking resources to support MGS recovery efforts



MGS is unable to submit firm requests for future DSN Coverage requirements at due to the uncertainties of pending requirements from the Mars 2001 Odyssey Spacecraft to support aero-braking and MER spacecraft to support EDL. An ongoing effort continues to firm up these requirements so MGS can submit the best information at the earliest point in the process as possible.

ulysses

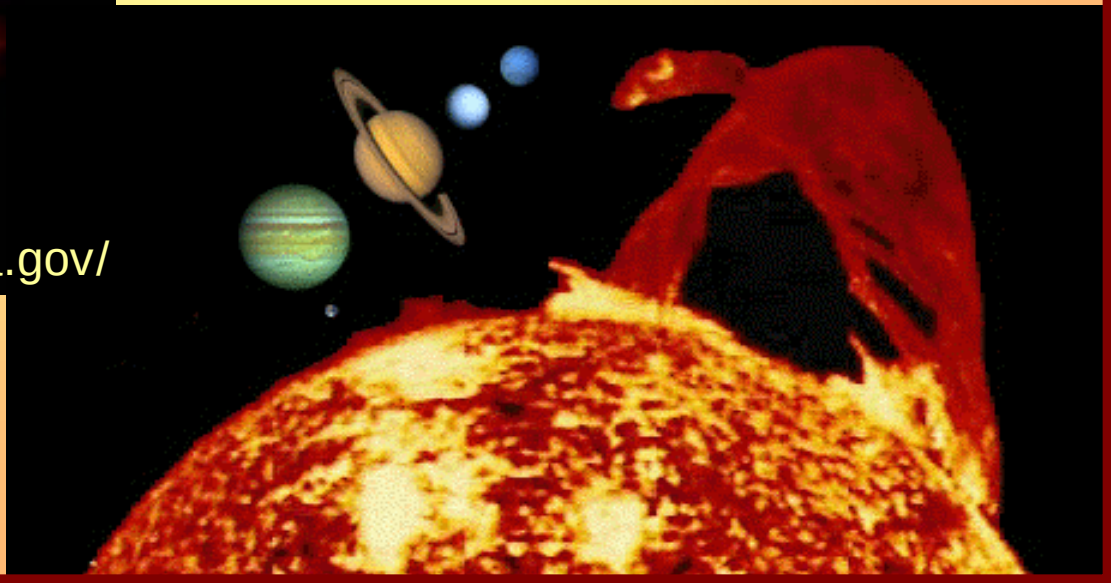
JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

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

I. J. Webb

May 17, 2001

NASA Jet Propulsion Laboratory



ULYSSES

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

- **OPERATIONS ARE NORMAL. THE SPACECRAFT HAS BEGUN IT'S SECOND ORBIT AROUND THE SUN AND IS CURRENTLY IN NUTATION OPERATIONS. INSTRUMENT CALIBRATIONS AND RECONFIGURATIONS ARE PERFORMED AS REQUIRED.**

- **DOY 109 – DOY 135. 35 MANEUVERS WERE INITIATED TO CONTROL SPACECRAFT NUTATION. OF THESE 35 MANEUVERS, 23 WERE McELRATH MANEUVERS (12 PULSES), 7 BIG MAC MANEUVERS (26 PULSES), AND A NEW TYPE OF MANEUVER CALLED SOLACE, SLEW OPEN LOOP AND CONSCAN ENABLED (A NORMAL McELRATH WITH CLOSED LOOP CONSCAN INTERLACED.**

- **DOY 112 / 13:50 – 14:40, DSS 14, BLOWN UPLINK HANDOVER. DSS 14 DID AN UPLINK RE-ACQUISITION TO ACQUIRE SPACECRAFT.**

- **DOY 113 – DSS 63, TRANSMITTER DELAYED DUE TO LOW ELEVATION INTERLOCK BYPASS NOT ACTIVATING.**

- **DOY 114 – DSS 34, ANTENNA HALTED. RESET AMC AND DID A RE-ACQUISITION.**

- **DOY 115 – DSS 14, COMPLEX-WIDE POWER FAILURE. STATION WENT TO GENERATORS TO RESTORE AND DID A RE-ACQUISITION.**

ULYSSES

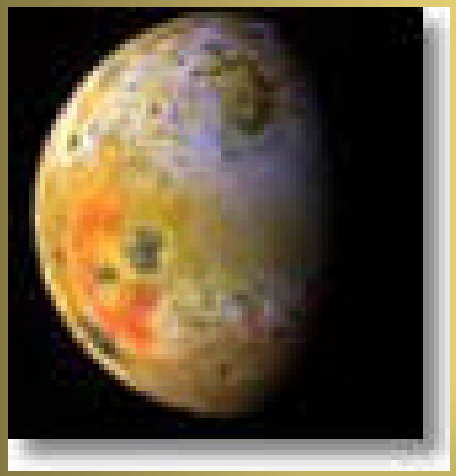
JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE

- **DOY 122 – DSS 14, CPA WAS REFLECTING OFF STATUS WHEN DRIVE WAS ON. STATION DEMOTED CMA TO IDLE2, THEREBY REMOVING COMMAND MOD SUB-CARRIER, WHICH CAUSED NUTATION TO INCREASE.**
- **DOY 127 – DSS 63, OUR S-BAND TRANSMITTER TRIPPED OFF WHEN STATION PERSONNEL STARTED WARMING UP HIGH POWER TRANSMITTER FOR THE UPCOMING PASS.**
- **DOY 130 – DSS 43, ANTENNA HALT DUE TO BEARING ACCUMULATOR PUMP #2 FAILURE. SWAPPED TO PUMP #1 AND DID A RE-ACQUISITION.**
- **DOY 131 – DSS 63, STATION PERSONNEL NOTED AN OUTPUT POWER OF 0.7KW AND READJUSTED TO 1.0KW, CAUSING RAPID NUTATION GROWTH.**
- **DOY 134 – SPC 60, COMPLEX WIDE POWER FAILURE. STARTED UPLINK WITHIN AN HOUR. THIS FAILURE CAUSED RAPID NUTATION GROWTH (.05 TO .25 DEGREES).**

Galileo

Journey to Jupiter

JOINT USERS RESOURCE ALLOCATION PLANNING COMMITTEE



Brad Compton

May 17, 2001

NASA Jet Propulsion Laboratory

http://galileo.jpl.nasa.gov/

GALILEO EUROPA MISSION

ROUTINE ACTIVITIES

- Three attitude maintenance turns
- Three propulsion maintenance activities
- DMS conditioning
- Gyro scale factor test
- Science instrument MROs

SIGNIFICANT EVENTS

- Completed a series of recorded SSI and NIMS instrument calibrations
- Completed OTM-94
- Continued Ganymede 29 encounter and calibration data playback
- National Aeronautic Association presented the Galileo Europa Mission team a Group Diplome for Astronautics award

GALILEO EUROPA MISSION

PROJECT PLANS

- Complete Ganymede 29 encounter and calibration data playback
- Execute OTM-95 (pre-encounter)
- Encounter Callisto (C30) – closest approach 25 May at 5:14 AM
- Perijove occurs 23 May at 11:24 AM
- Execute OTM-96 (post encounter)
- Begin Solar Conjunction

International Solar Terrestrial Physics

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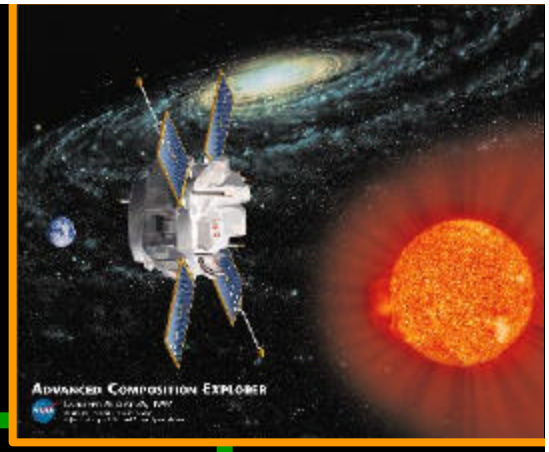
http://www-istp.gsfc.nasa.gov/istp/

ISTP



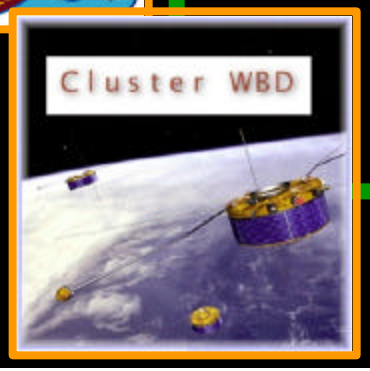
Joint Users Resource Allocation Planning Committee (JURAP)

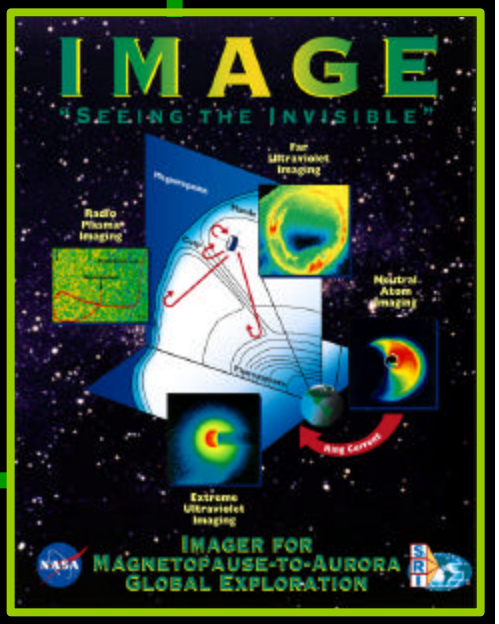
ACE, IMAGE, POLAR

SOHO, WIND

R. Dutilly

May 17, 2001





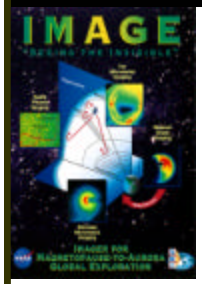
http://image.gsfc.nasa.gov/

International Solar Terrestrial Physics

exploring the Sun-Earth connection

ISTP

MONTHLY SPACECRAFT & PAYLOAD STATUS FOR ACE, IMAGE, POLAR, SOHO, AND WIND



- ACE spacecraft and subsystems are operating nominally. Command testing for the 34M system has been successful. Only remaining test is a real time test with DSS34. The DSN anomaly chart is included for the period January to May 1st.
- IMAGE is operating nominally. Service and data collection rates are excellent. We continue to be concerned about the rate of DSN site hardware failures. The average during mission support is about 3 to 4 discrepancies/week.
- POLAR is in nominal operations. The POLAR flip was successful and the GTM switch was very successful since the TIMAS instrument regained its operational capabilities. Command testing for the 34M system has been completed.
- SOHO is in continuous operations at present and is operating normally.. The DSN anomaly chart is included for the year to date. Command testing for the 34M system has so far been successful. DSN site hardware failures are of concern during continuous operations.
- WIND has been operating nominally. Command testing for the 34M has been completed. The DSN anomaly chart for WIND/POLAR is included.

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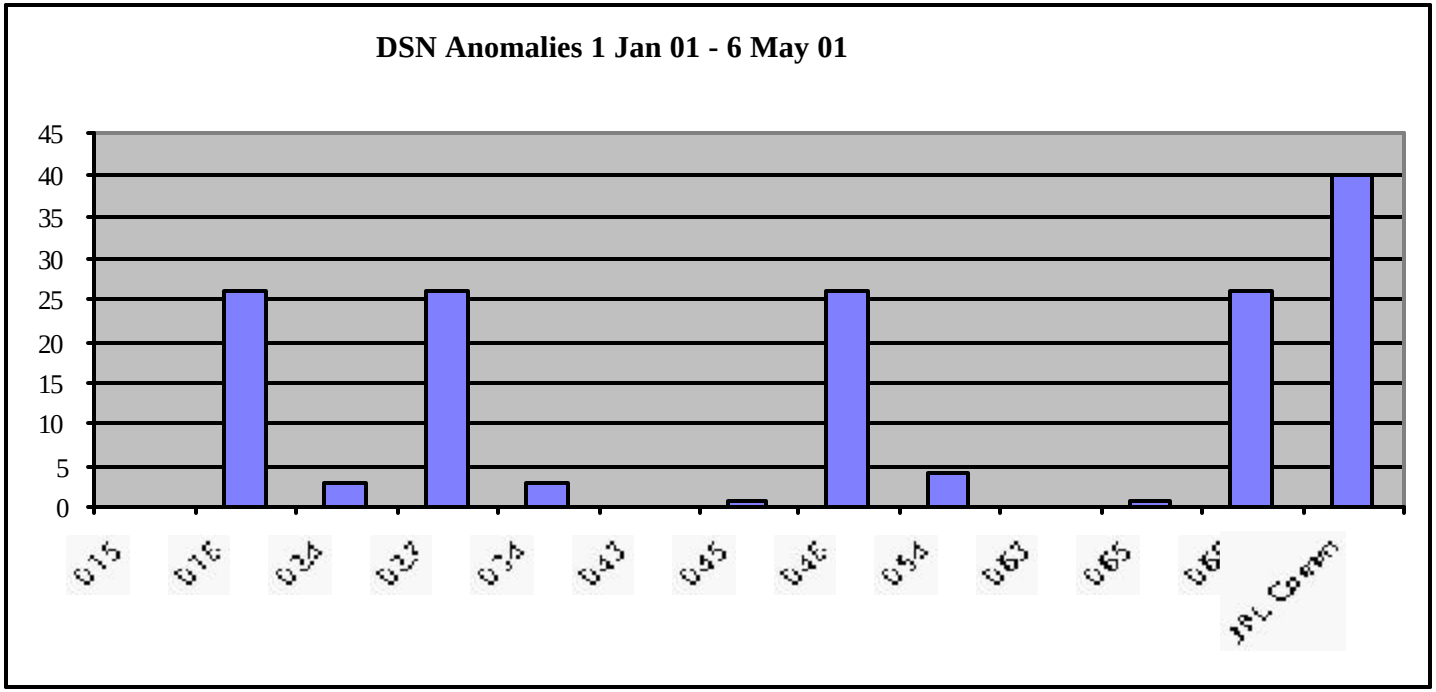
ISTP

SOHO DSN ANOMALY COUNT THIS YEAR



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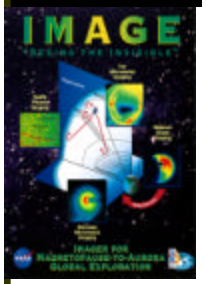
ISTP



WIND/POLAR Discrepancies
April 2001

WIND

	D16	D24	D27	D34	D43	D45	D46	D54	D63	D65	D66	JPL Comm	Total
	0	2	0	1	0	0	0	1	0	0	0	0	4

POLAR

	D16	D24	D27	D34	D40	D45	D46	D54	D63	D65	D66	JPL Comm	Total
	4	3	1	0	0	0	3	2	0	0	4	0	17

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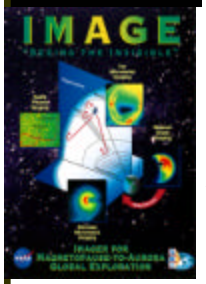
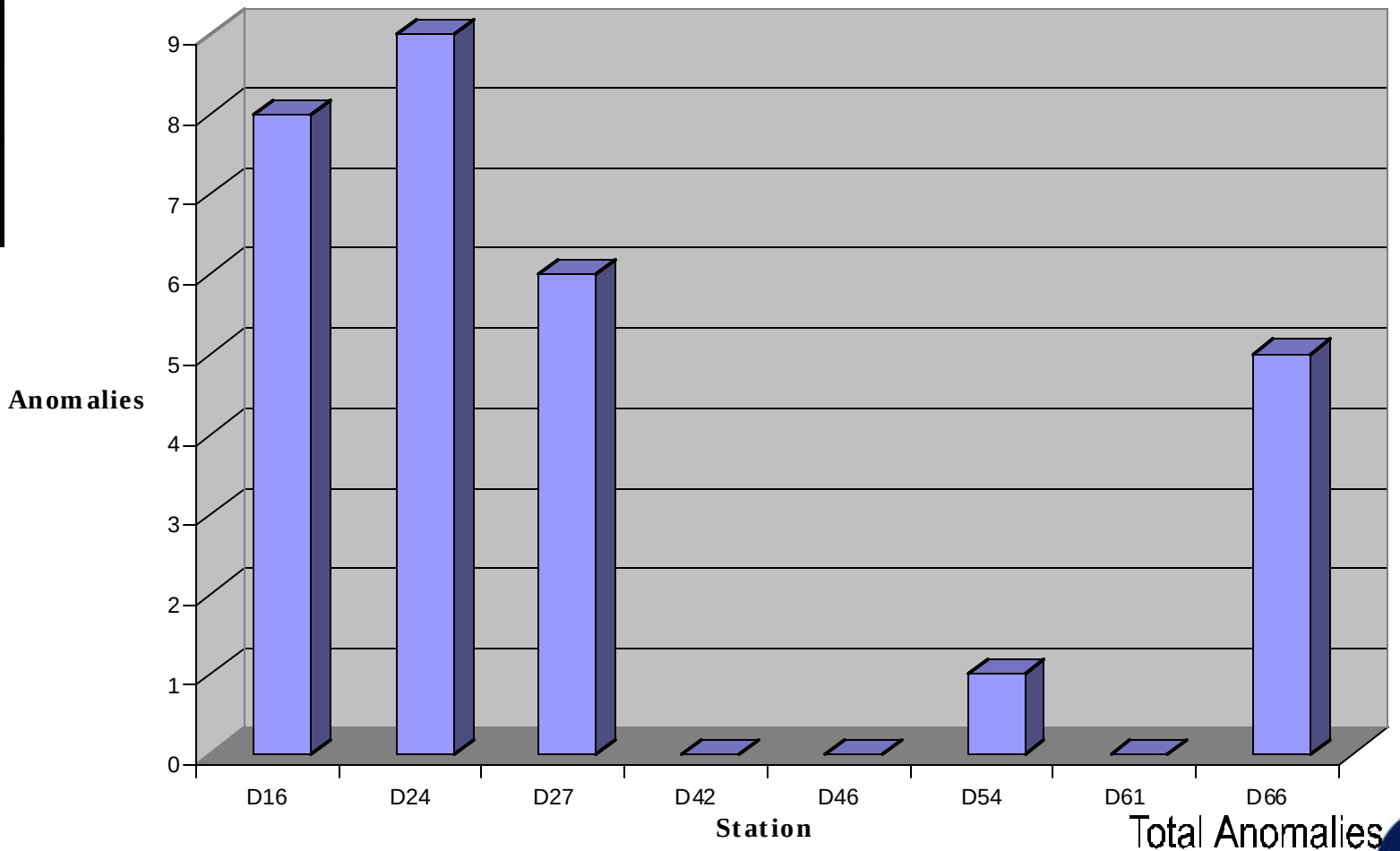
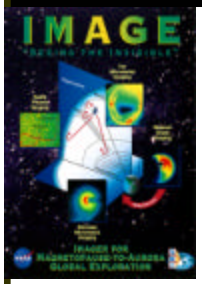
ISTP



ACE DSN Anomalies Jan - May 01





ISSUES

- <u>CAST TOOL</u> - ***FOR 24 MONTHS (AND CONTINUING TO COUNT) GSFC HAS ATTEMPTED TO PUT THE JPL CAST TOOL IN THE HANDS OF OUR SCHEDULERS IN ORDER TO IMPROVE CONFLICT RESOLUTION EFFICIENCY. THIS STILL CONTINUES TO BE AN ISSUE!!!***
  - ***We have still had no training for our DSN schedulers and thus, are not able to use the tool!!!***
  - **One issue holding everything up, is obtaining accounts for the GSFC schedulers.**
  - **Another current issue is the significant delay in getting CAST to work on the CSOC server.**
- **Continuing line problems have caused GSFC to receive degraded data. The most degraded data is from the Madrid site.**
- **During the last few days of April and the first week of May, the number of DSN anomalies went down significantly during missions support.**