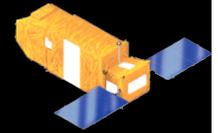


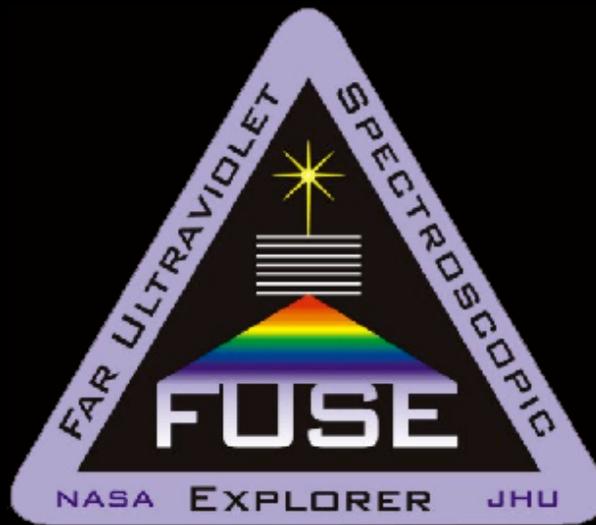


FUSE



Observer's Advisory Committee

Mission Status



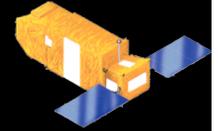
Bill Blair

FUSE Chief of Observatory Operations

October 25, 2002



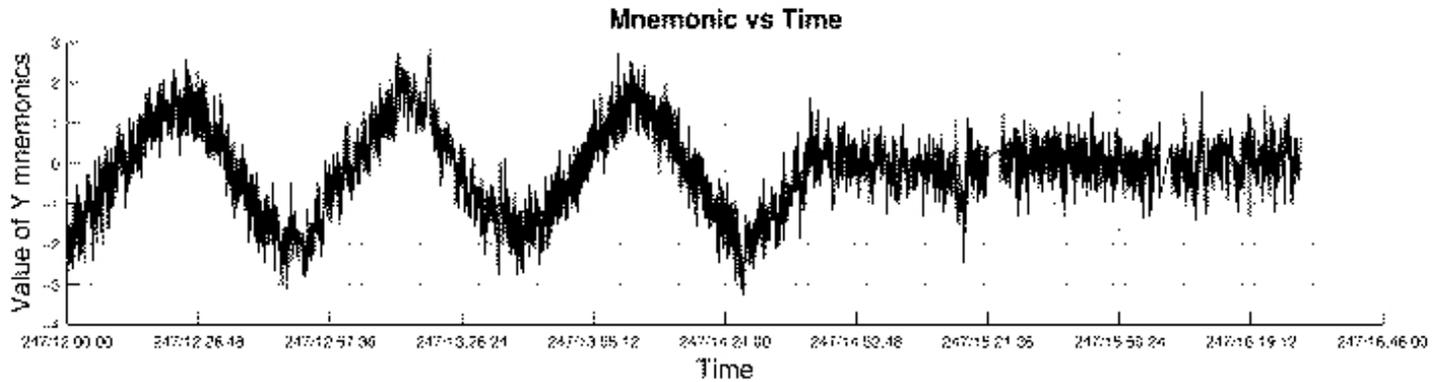
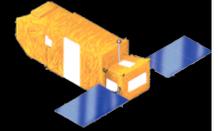
Current FUSE Mission Status



- As of late-October 2002, FUSE operations continue to be nominal with the modified 2 RWA+ MTB control system.
 - Tremendous improvements in MP s/w and predictive capability.
 - Improved slewing (Decoupling of **P**-unloading from A-axis control.)
 - Improved A-axis stability during observations.*
- Development and Testing of “Gyroless” operations system is in progress (next talk by J. Kruk).
- Cycle 3 Status
 - Operational efficiency remains high since February 2002: 32.6% (Includes Z9nn “Observatory Programs”.)
 - Enhanced calibration programs implemented.
 - 355 observations total; 136 scheduled, 219 pending (but ~30 currently unschedulable and ~40 must carryover to Cycle 4).
 - Large number of constrained and carryover observations remain a concern for Cycle 3. (Separate discussion.)

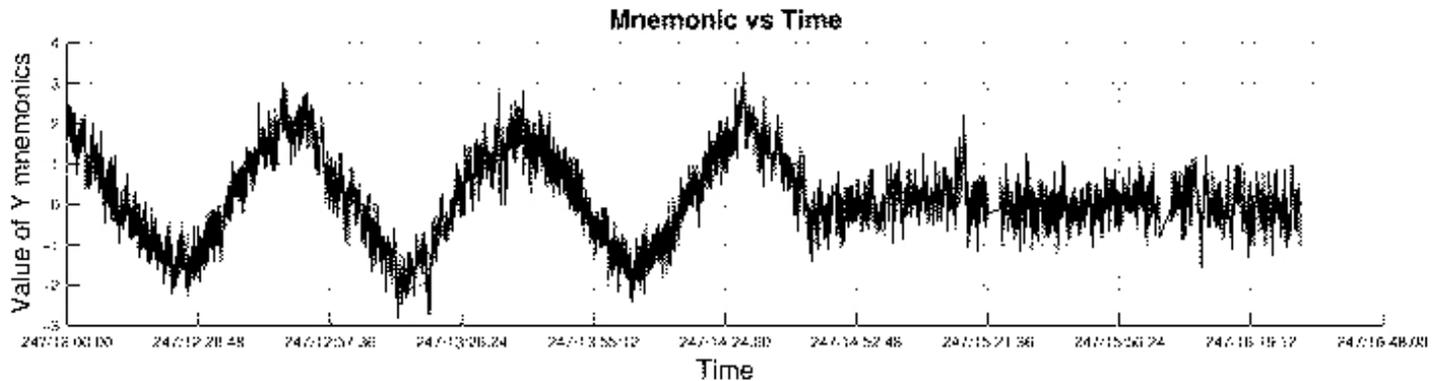


A-axis Control Improvements



Start Time:
2002:247:12:00:00
Stop Time
2002:247:16:30:00

LINE STYLE	MEAN	MAX	MIN	ST. DEV.	# OF PTS	MNEMONIC
.....	-1.4902e-01	2.8315e+00	-3.3419e+00	1.0324e+00	5.2880e+03	N-E---ATHETAER_1

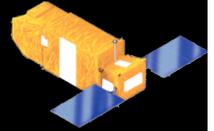


Start Time:
2002:247:12:00:00

LINE STYLE	MEAN	MAX	MIN	ST. DEV.	# OF PTS	MNEMONIC
.....	1.4809e-01	3.2531e+00	-2.9377e+00	1.0155e+00	5.2880e+03	N-E---ATHETAER_2



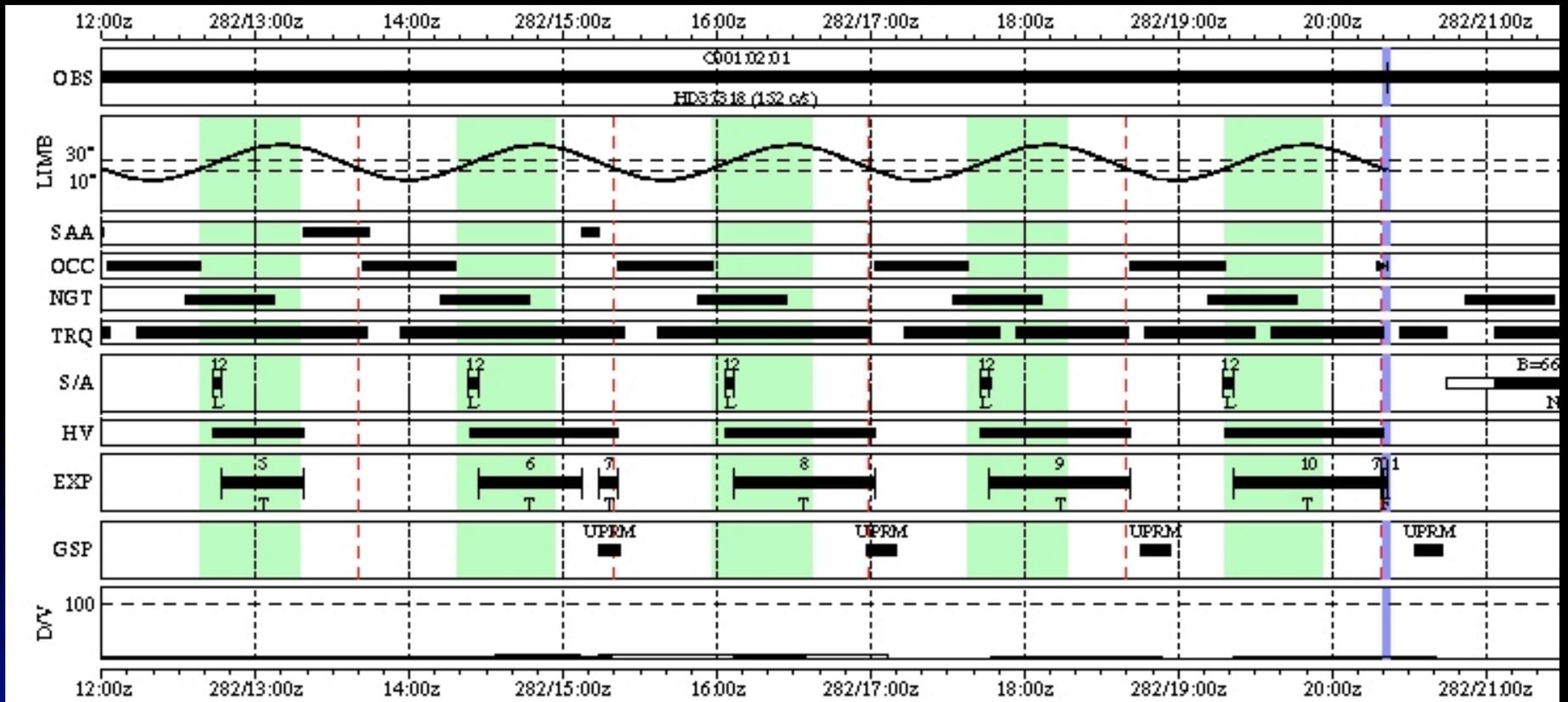
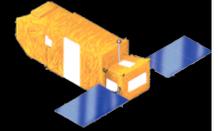
Current Status, con't.



- Efforts to increase sky coverage are ongoing.
 - Testing use of partially stable orbits.*
 - Investigating use of off-nominal roll angles.
 - Decreased Ram avoidance zone ($\pm 15^\circ$ now; expect $\pm 10^\circ$ by Cycle 4).
 - Depends on atmospheric density drop toward solar minimum.
 - Requires careful monitoring program!**
 - Possible decrease in operational low beta limit
 - Decrease from 30° to $\sim 15^\circ$; improves vis. of marginal targets.
 - Channel Alignment issues suspected, but impact unknown.
 - Current Annual Sky Coverage $>75\%$; should increase through Cy4.***



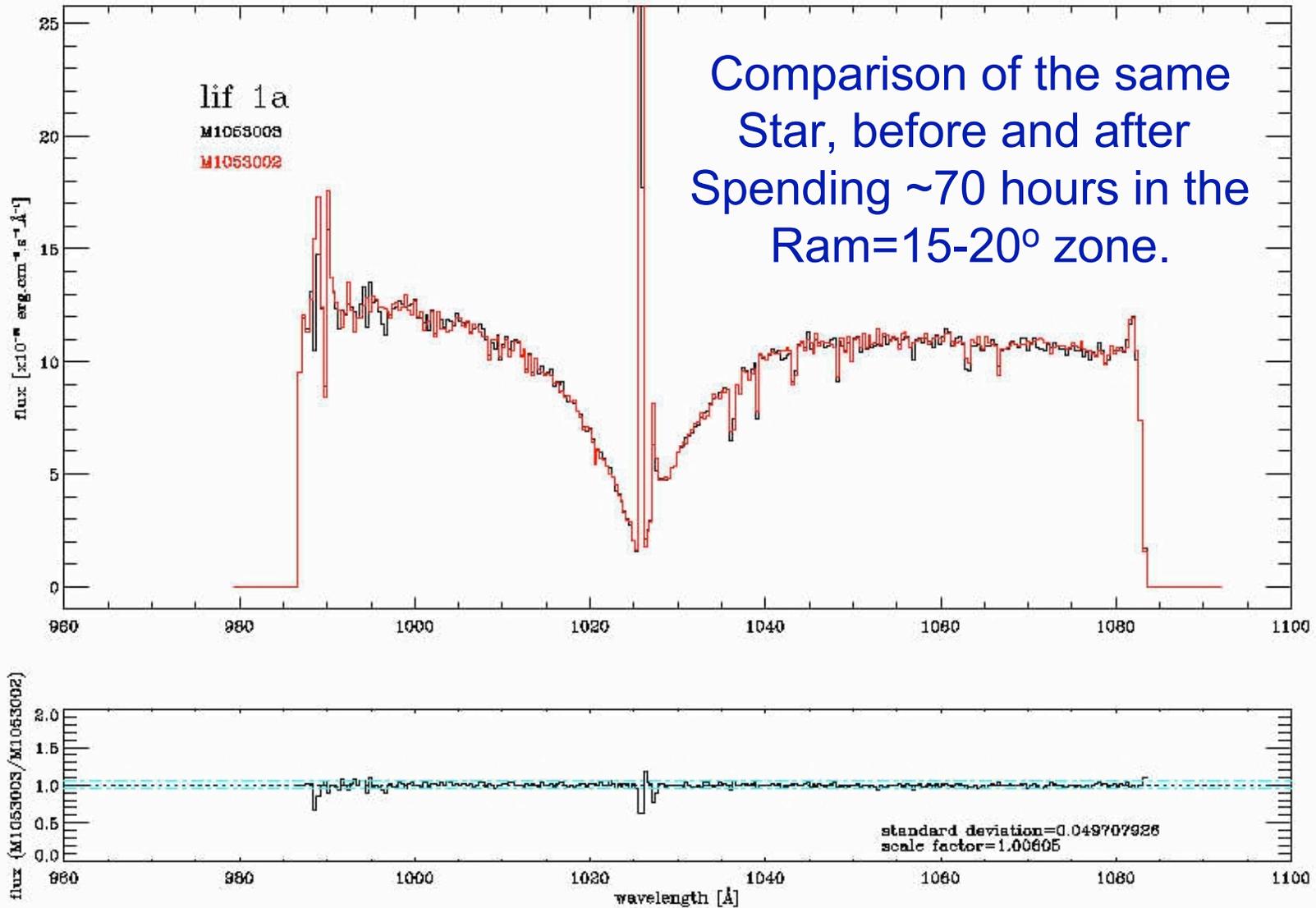
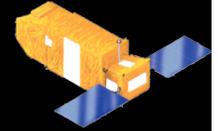
Partially Stable Orbit Usage



MPS 372, Oct. 9, 2002

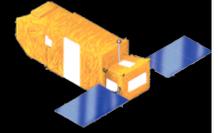


Ram Zone Monitoring



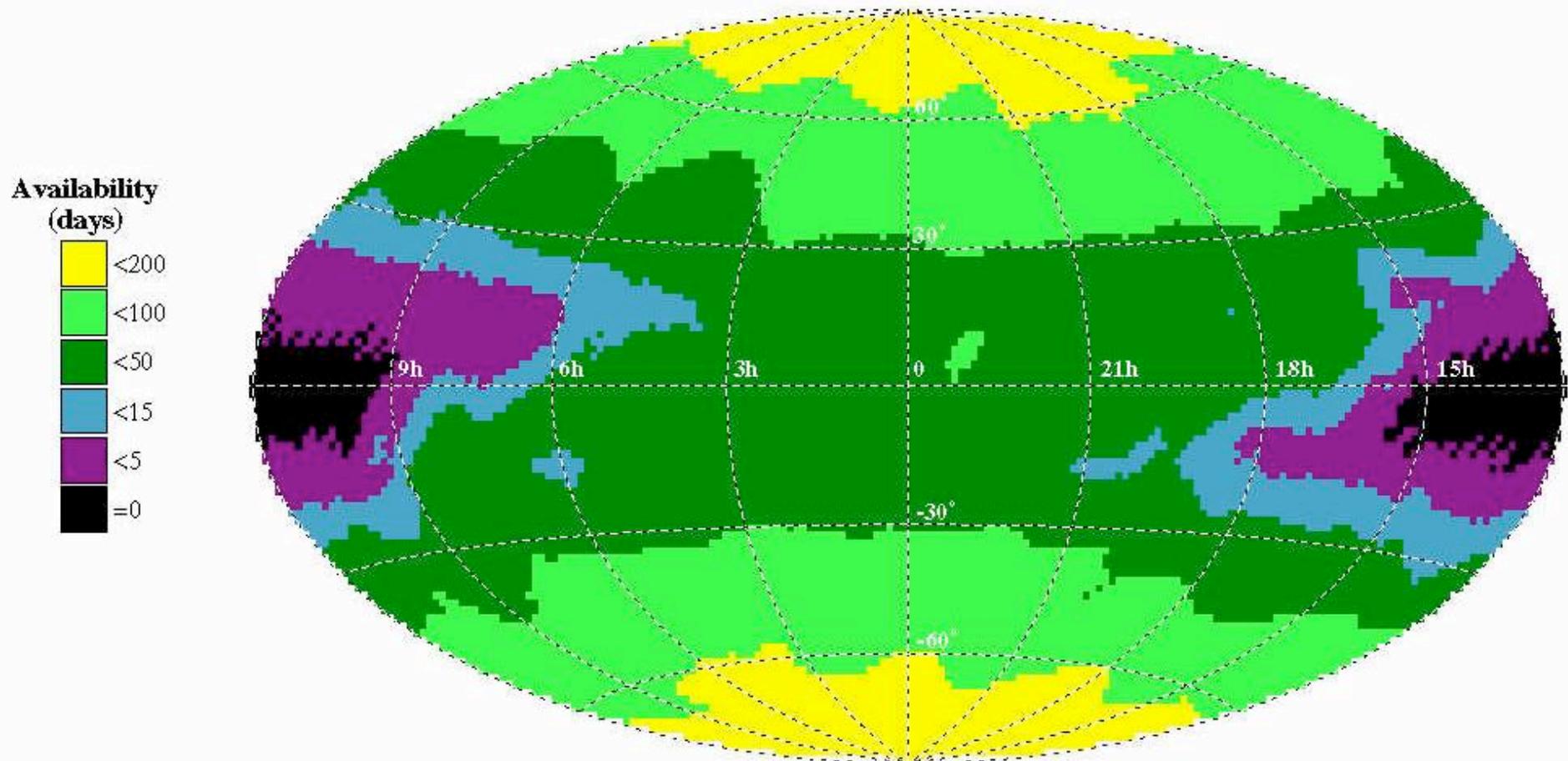


Cycle 4 Sky Coverage



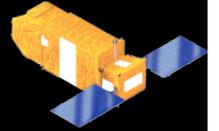
Cycle 4 FUSE Sky Availability (1 Apr 2003 - 1 Apr 2004)

Default parameters: $30 < \beta < 95$, $\text{ram} > 10$, $\text{moon} > 10$, torque with optimized unloading





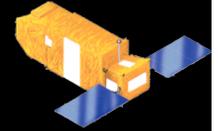
JHU Education/Public Outreach



- Historical Perspective: FUSE has always been starved in the E/PO area.
 - 1994 project restructuring: E/PO words, but no \$\$.
 - NASA E/PO emphasis has arisen since that time.
 - FUSE E/PO effort has been very resource-limited.
- Development Phase:
 - Worked with Maryland Science Center on FUSE-related displays and materials; project got seed money and coordinated donations from FUSE contractors to MSC.
 - Supported extensive launch-related activities (press kit, news releases, interviews, FUSE brochure); at JHU and KSC.
 - Developed extensive public web site, for general public and for use by potential Guest Investigators (technical information).



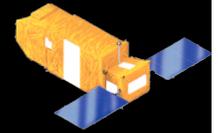
JHU E/PO, con't.



- Prime Mission: Official support for E/PO has been at the level of <math><0.5</math> FTE Education Officer (Luciana Bianchi).
 - E/PO Web site;* science/mission updates on public web site.
 - Two education kits; teacher's guides, lab exercises (on-line).
 - NASA Origins Forum; reporting and materials.
 - Informal Education opportunities (volunteer, ~1/month).
 - Science web and press releases.
- Extended Mission: SSR02 approved continuation of E/PO support at the Prime Mission Level (0.5 FTE).
 - Continue Web site activities, updating.
 - Increased coordination of volunteer activities.
 - Want to explore better support of GI community: coordination and hosting of science summaries and press releases on FUSE web site; work with GI E/PO proposers and recipients; other ideas?



FUSE E/PO Web Site



All About FUSE

- Mission Overview
- Science Summaries
- FAQs
- Personnel
- Photo File
- Animations
- Press Materials
- French Site
- Public Outreach

Mission Operations

- Status Report
- FUSE Operations
- Status Archive

Proposer Info

- Cycle 4 Info
- Observer's Guide
- Publications
- Planning Tools
- NASA GI Site

User Support

- Observer's News
- Data Archive
- Data Analysis
- MPS Plots
- Orbital Elements
- Visitor Info



FUSE
Public Outreach
and
Education

<http://fuse.pha.jhu.edu/outreach/>

Exploring Our Universe: From the Classroom to Outer Space

(a series of educational kits for middle and high school students)

- ★ I. Spectroscopy: The Study of Light
- ★ II. The FUSE Satellite: Observing from Space

★ FUSE paper model – print it out and build it!

★ FUSE Exhibit at the **Maryland Science Center**
(make your own star, see how FUSE works, be a spectroscopist, and more...)

★ FUSE Teacher Workshops and Internships

★ Aquí puedes aprender sobre FUSE en Español

FUSE Nuts and Bolts

Astronomy with FUSE

- FUSE – What's in a Name?
- FUSE Science Goals
- Cool Info About FUSE
- Understanding the Big Bang
- Spectroscopy
- What lies between the Stars?
- FUSE Technical Description
- Learning from Light

[Links to other Education Sites](#)

- ## Educational Kits:
- I. Spectroscopy and Light Basics (Mid. School)
 - II. The FUSE Satellite (High School, more math)

General FUSE and Astronomy (science) Information