



SORCE Mission Status

LASP Activity -

As thermal vacuum testing progresses at Orbital, the instrument scientists and the LASP Mission Operations Center are busy with their own testing and verification. Real-time data from the thermal vacuum tests is being transmitted 24 hours a day to LASP. The data received from Orbital is being broadcast to three terminals in room 241 at LASP. Record files are being switched every 2 hours and sent to the database for processing, with the database running 1-3 hours behind the real-time data. It is possible to access the real-time raw record files at LASP as well.

Instrument scientists are monitoring the instrument test results closely and verifying the data. The thermal vacuum tests for each instrument have been very valuable for uncovering potential flaws with the data collected, software problems, or instrument anomalies. SORCE scientists are working diligently to get all calibration files together,

with the intention of having an Algorithm Theoretical Basis Document (ATBD) review in September. The Mission Operations Center is addressing all software and hardware issues.

The last SORCE monthly review was held on Tuesday, July 30, at Orbital Sciences. Rick Kohnert updated everyone on the system status noting that the current margins for power, mass, and memory are well within acceptable limits, 11%, 11.6%, and 19.5% respectively. He also reviewed the July 9-10 meeting at Kennedy Space Center, to plan the final arrangements for SORCE's arrival and integration. The next monthly review will be on Wednesday, August 28, at Orbital Science Corporation.



SORCE with solar arrays deployed

The SORCE 24-page brochure is progressing and should be going to the printer the last week in September. The last pieces of art and text are coming together, and final proofing will begin in early September. Additional promotional pieces are in the works including a pre-launch video that will go out to the news media before the launch and will be used as a resource when needed following the launch. NASA television producers will be coming to LASP in September to shoot a few final clips for the animated video. Closer to launch, there will also be video taped interviews with SORCE scientists and NASA Program Directors.

The complete SORCE public relations package will also include a Fact Sheet, Lithograph, an educational interactive CD-ROM, poster, and an Education and Outreach package for professional educators. NASA personnel

Countdown to Launch - December 1

(as of August 27, 2002)

96 DAYS



are working on visualization techniques to present the final real data from SORCE via the Web.

Work is continuing on the SORCE web page, with small changes occurring daily. As the launch date nears, the data collection and science will be a prominent feature on the site. The web page will also meet the needs of the non-technical curious person, and public educators teaching at many levels. The July Steamboat SORCE Science Working Group Meeting summary can be found on SORCE's web page. This summary will also be appearing in the July-August issue of The Earth Observer, the EOS Project Science Office bi-monthly publication.

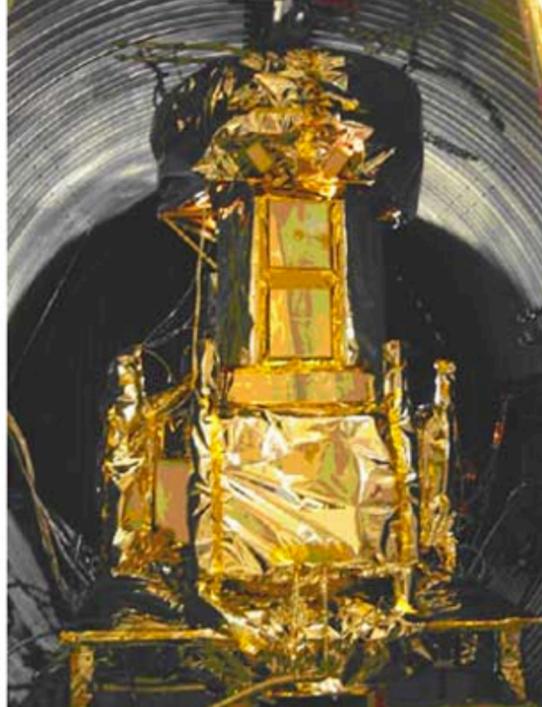
July SORCE Science Meeting
Abstracts
and Presentations Available
On-Line:
July02ScienceMeeting.html

Orbital Sciences Activity -

The solar array panel illumination tests were successfully completed at the end of July, and the solar arrays were removed to prepare for the Thermal Vacuum Testing. Additional preparations included thermocouple installation (218 total!), thermal blanket installation, and instrument module taping and bagging.

After a few minor delays, unrelated to instrument or spacecraft performance, the SORCE spacecraft went into the Thermal Vacuum Chamber on Friday, August 2. Following one last final inspection and photos, the chamber doors were closed on Tuesday afternoon, August 6, and the spacecraft was turned on in preparation for the vacuum pump-down. When the pump-down reached 10-5 Torr, the spacecraft was turned off and the "bake-out" process began. The chamber was heated to 50° C or 122° F to bake-out any contaminants in the chamber before beginning any thermal tests. At the same time, the tank pressure reached 10-6 Torr, where it remained for the entire 3-week duration of the thermal vacuum testing. This created a very special environment simulating space. The vacuum pump will remain active at all times during the thermal testing phase.

After several limited performance tests (LPTs) in the hot environment to evaluate and measure instrument and spacecraft functionality and performance, the next step was to follow the same procedure to test in cooler temperatures. More LPTs were run at the cold temperatures, before switching back to a hotter environment. This transitioning between various survival temperatures is similar to what will be happening to the spacecraft once SORCE is launched into orbit. The vacuum chamber exposes the spacecraft to the most extreme minimum and maximum temperatures it will encounter. Aliveness tests, which take about 15 minutes, are run after reaching all cold and hot



SORCE in the Thermal Vacuum Chamber prior to testing.

plateaus, checking the functionality of all moving mechanisms. The thermal vacuum tests also include a series of comprehensive performance tests (CPTs), which can take up to 18 hours each.

Different stimulation sources (tungsten and mercury bulbs, laser diodes) are used in the chamber to simulate the sun exposure to the instruments and to test the instrument reaction. The instrument doors (shutters, filter wheels, prism positions, etc.) are tested to make sure they are in working order in all circumstances with a multiple of variables.

To date, the testing has surfaced several interesting, but minor issues. All of these present challenges have already been or will be corrected by the end of September. At no time during the thermal vacuum test have any thermal limits gone outside of an acceptable range.

After a thorough series of LPTs and CPTs on the spacecraft and the instruments, the thermal vacuum tests are concluding today, August 27. The chamber and spacecraft will be brought to room equilibrium, the spacecraft turned off to avoid electrical sparking, and the chamber will be vented with nitrogen. Once the venting is complete, the chamber doors will be opened and a post vacuum test inspection will take place.



The SORCE spacecraft is currently scheduled for shipment to Kennedy Space Center on October 23. As the launch date nears, final integration and testing events and schedules are becoming increasingly critical. The mission is currently within budget and on schedule.

Upcoming Meetings -

SORCE scientists plan to present papers or attend the following 2002 - 2003 meetings:

- COSPAR, Oct. 14-19, Houston, TX
- AMS, Nov. 4-8, San Antonio, TX
- NIST Satellite Instrument Calibration Workshop, Nov. 5-7, Gaithersburg, MD
- EOS Investigators Working Group Nov. 18-20, Ellicott City, MD
- 2002 Core Technologies for Space Systems, Nov. 19-21, Colorado Springs, CO
- AGU Fall Meeting, Dec. 6-10, San Francisco, CA
- AAS, Jan. 5-9, Seattle, WA
- AMS, Feb. 9-13, Long Beach, CA
- AAAS, Feb. 13-18, Denver, CO

