



### SORCE Mission Status

#### LASP Activity –

As the launch date draws near, the activity level in every area is picking up to make sure all issues are addressed and all deadlines are met. Recent milestones include the Mission Operations Rehearsal #1, which started on September 30 and lasted 4 days, finishing up just ahead of schedule. This rehearsal covered launch and spacecraft operations up to the first 48 hours after launch. It went very well, and the rehearsal's objectives were accomplished.

Rehearsal #2 for Mission Operations is scheduled for November 14–17 and will focus on science operations, making sure that all instrument-related activities are considered and proceed as intended. It will require that all pointing algorithms and calculations be in place. Instrument commissioning will begin approximately 4 days after the launch, and instrument vents and doors will be opened in a carefully formulated sequence beginning 14 days after launch. The sequence of events is based on minimizing any contamination. Instruments will begin making solar observations at this point, although preliminary calibrated data is not expected until about a month after launch. Currently instrument scientists are scrupulously monitoring the instrument test results and analyzing data in preparation for this final rehearsal.

The Operations Readiness Review took place on October 8-9 at LASP, with LASP, NASA, and Orbital personnel in attendance, as well as several outside consultants. This important review covered the status of all SORCE activities



Countdown to Launch - December 1  
(as of October 18, 2002)

**44 Days**



related to the LASP Mission Operations Center's ability to operate the spacecraft and instruments, as well as collect and process the science data. According to meeting organizers, the review was very useful and it helped to address final issues.

Dr. Juan Fontenla joined the SORCE data processing team to develop Java code for the instruments. Juan has a PhD in Physics from the University of Buenos Aires, Argentina, and has extensive experience and publications in solar physics. He most recently has been working with private companies in software development. Juan specializes in analyzing and modeling solar UV spectra. Boulder is a familiar place to Juan from when he worked at HAO, where he developed models on the RISE project to compute solar spectra and irradiances for comparison with new measurements.

Marty Snow will be shifting gears within LASP to increase his SORCE role by helping the SOLSTICE team. He will be working with Bill McClintock and Tom Woods analyzing experimental data on the SOLSTICE A and B instruments. Calibration data, especially data from the NIST SURF, have been collected over the last year. These calibration tests allow the instrument team to establish the SOLSTICE sensitivity – the data processing parameter that ultimately determines the level of solar irradiance.

Professional solar physics associations are having their Fall conferences, and are thus providing an opportunity for the SORCE scientists to share the upcoming launch



and science data expectations. Gary Rottman and Greg Kopp attended the COSPAR Meeting in Houston, Texas, October 10-14. Tom Woods will be presenting 3 papers just after the SORCE launch at the Fall AGU conference in San Francisco.

NASA Public Affairs Officer, Lynn Chandler, visited LASP for two days recently to review the SORCE Public Affairs Plan. This includes all planned media events and press releases, beginning with the first news release when SORCE arrives at Kennedy Space Center on Saturday, October 26. Two weeks prior to launch many more press-related activities commence, and they continue for 48 hours after the launch. Several special promotional media pieces are being prepared to go with these events.



LASP Integration and Test Engineer David Gathright and Orbital Mechanical Technician Corky Philyaw are shown preparing SORCE for mass properties testing.

Two additional NASA public relations staff accompanied Lynn to Colorado. NASA's television producer, Rachel Weintraub, spent much of the day shooting film around LASP, including the Mission Operations Center activity (Rehearsal #1) and orchestrating special interviews that will go out to the news media before the launch and will be used as a resource when needed following the launch.

Film-maker Chris Chrissotimos is producing a SORCE CD-ROM for NASA. He will incorporate Rachel's television interviews, as well as individual interviews he conducted with SORCE scientists during his visit. He also videotaped a special session for the education and outreach section of the CD-ROM. Ten children and their parents attended a taping of the SORCE Sun Kit Demonstration, which was led by the CU Science Discovery Program and Greg Kopp from LASP. Children from Boulder's Crest View Elementary 5th grade participated, along with children of LASP employees.

Additional promotional pieces in progress are animated videos to present the SORCE science concepts and data, education pieces for different level audiences, and a complete press kit (with video file). The SORCE public relations package

#### Tentative Dates for Upcoming Events:

- 10/21 Pre-Ship Review (Orbital)
- 10/25 SORCE shipped from Orbital to KSC
- 11/6 Mission Readiness Review (GSFC)
- 11/14–11/17 Mission Ops Rehearsal # 2 (LASP)
- 11/20 Flight/Launch Readiness Reviews (KSC)
- 11/22 Launch Rehearsal (KSC)
- 12/1 SORCE Launch (KSC)

will also include a 4-page NASA Fact Sheet with a brief overview of the mission and instrument photos. A lithograph, which is a front-to-back glossy handout, is distributed at the launch. It provides the mission overview and educational outreach activities. NASA personnel are working on a full education and outreach package for professional educators, and a Science Writer's Guide is in the works to assist professional science writers tackling the SORCE mission. The SORCE brochure is heading to the printer and will be ready for distribution prior to launch.

The lobby area outside the LASP Mission Operations Center will have a new look prior to the SORCE launch. A large display panel will feature the spacecraft, instruments, and a very brief science overview of the SORCE mission and goals.

The new SORCE web page is very close to being activated and you will be able to find it in same place as always – <http://lasp.colorado.edu/sorce>. It has a whole new exciting look and much more information. It is easy to read and has information to meet the needs of the solar expert, non-technical person, and public educators teaching at many levels. After launch, the data collection and science will be a prominent feature on the site. If you have any comments or suggestions, please contact the SORCE web developer, Ann Windnagel ([ann.windnagel@lasp.colorado.edu](mailto:ann.windnagel@lasp.colorado.edu)).



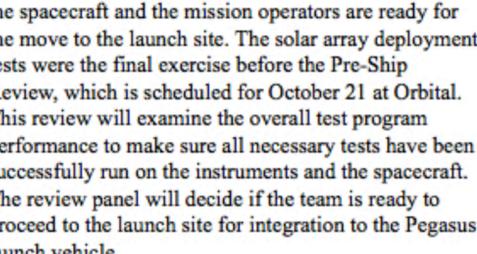
Close up of the two SORCE star trackers.



#### Orbital Sciences Activity –

Weeks of the Orbital team has spent the past couple weeks at LASP participating in the Mission Operations Rehearsal #1. They will also be at LASP for Rehearsal #2 in November and the final launch. These people have worked on the SORCE software, hardware, and mission development and will continue to participate in SORCE Mission Operation activities until the spacecraft is stable, with the instruments and the spacecraft performing as expected.

The instruments and spacecraft are in great shape and almost ready for flight. Engineers have completed the final post-environmental tests and comprehensive performance tests. All optical alignments are complete, and mass properties testing to determine the craft's mass distribution were successful. A long duration tests, completed October 11th, allowed the spacecraft to run uninterrupted for 5 straight days, making contact with LASP two times per day, just like it will be doing in orbit. This test is the final validation for both the spacecraft and the mission operators are ready for the move to the launch site. The solar array deployment tests were the final exercise before the Pre-Ship Review, which is scheduled for October 21 at Orbital. This review will examine the overall test program performance to make sure all necessary tests have been successfully run on the instruments and the spacecraft. The review panel will decide if the team is ready to proceed to the launch site for integration to the Pegasus launch vehicle.



Orbital engineers monitor the SORCE spacecraft, mounted in the Pegasus mating cradle, during Mass Properties testing.

Once all testing at Orbital has concluded and the Pre-Ship Review conducted, the SORCE spacecraft and the Ground Support Equipment (GSE) will be packaged and shipped to Kennedy Space Center. On Friday, October 25, SORCE

will be transported by chartered truck, with Orbital and LASP personnel closely monitoring from a chase vehicle.



SORCE instruments with stimulus lamps during a Comprehensive Performance Test (CPT).

#### Kennedy Space Center Activity –

Launch preparations are underway, with Kennedy Space Center (KSC) anticipating SORCE'S arrival on Saturday, October 26. LASP engineers attended a Ground Operations Review Meeting at KSC in late September to discuss SORCE requirements and Kennedy Space Center's ability to meet them. They reviewed the facilities, schedules, personnel, and launch operations and found everything to be very acceptable to meet the SORCE mission needs.

Once the shipment arrives at KSC, it will immediately be unpacked, and the SORCE post-ship checkout and Pegasus integration process will commence. The Pegasus launch vehicle will be mated to the spacecraft near the middle of November. A Flight/Launch Readiness Review is scheduled for November 20, and a Launch Rehearsal is planned for November 22.

#### Upcoming Meetings

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

- NOAA Solar UV Irradiance Workshop, Oct. 28-29, Boulder, CO
- NIST Satellite Instrument Calibration Workshop, Nov. 5-7, Gaithersburg, MD
- EOS Investigators Working Group, Nov. 18-20, Ellicott City, MD
- AGU Fall Meeting, Dec. 6-10, San Francisco, CA
- AGU/European Geographic Society (EGS)/European Union of Geosciences (EUG), April 6-11, Nice, France

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