



Daily Measurements Return –

Great news! SORCE successfully transitioned to a new “hybrid” operating mode on Monday, Feb. 24th. The hybrid mode allows SORCE to take solar measurements again after an approximate 6-month break. After months of development and planning, the new



version of flight software making this all possible was uploaded to the spacecraft on Friday, Feb. 21st and then activated on Monday, February 24th.

It is called “hybrid” because every orbit is a combination of normal operating mode and safe-hold. The hybrid mode allows SORCE to make solar observations during the daylight part of the orbit, and then put itself into safe-hold every eclipse. Commands are sent to the spacecraft at sunrise from NASA’s TDRSS to wake it up. It then initializes all of the instruments and starts taking data. Either a ground contact later in the orbit or a real-time TDRSS contact then captures the data. A few minutes before sunset, the spacecraft puts itself back into safe mode to conserve power during the night. No other spacecraft has ever operated like this before and the SORCE team is very excited.

The first week in hybrid mode was very successful. Daily teleconferences were held between the LASP mission operations team, instrument scientists, Orbital Sciences Corp., and NASA for status updates. No serious issues surfaced during this trial first week. After one week, the SORCE team presented a Hybrid Mode summary confirming its wonderful success. SORCE has been able to make good solar measurements during almost every orbit in its new hybrid mode. The SORCE extended mission objectives will be fully addressed with the new SORCE hybrid operations.

The SORCE team will next examine a potential option to operate in hybrid mode even with a spacecraft brown-out scenario (caused by another battery cell loss), with the goal being to operate SORCE until after the TSIS launch in 2017. Go SORCE!

Mission Operations Presented with “Science Phoenix Award” –

The last few months have been challenging for the SORCE Mission Operations team as they work to bring SORCE science measurements back to life. Their hard work has paid off and in recognition for everything they have done, from creative problem solving to extraordinary long hours, Tom Woods (SORCE Principal Investigator) and Bill Possel (LASP Mission Operations and Data Systems Director) presented them each with the “*Science Phoenix Award*.” The LASP Mission Operations team working on SORCE includes 31 people – 13 professionals and 18 students.



Tom Woods (left) is pleased to present the *Science Phoenix Award* to the core SORCE Mission Operations team (right to left) Jennifer Reiter, Deb McCabe, and Sean Ryan. The LASP SORCE battery expert Emily Pilinski is missing from this photo. Photo credit: Mike Bryant, LASP.





The LASP Mission Operations professional staff working on *SORCE* includes (left to right): Wayne Russell, Ken Griest, Darren Osborne, Sam Gagnard, Don Gritzmacher, Jack Faber, Gabe Bershenyi, Alain Jouchoux, Sean Ryan, Jenn Reiter, Deb McCabe, and Dave Welch. Not shown: Jerel Moffatt. The 18 LASP *SORCE* Mission Operations students who also received the *Science Phoenix Award* were not included in this photo. Photo credit: Mike Bryant, LASP.

SORCE Selects Summer Undergrad Research Students –

Each summer, the *SORCE* mission funds student research projects in concert with the University of Colorado’s Research Experience for Undergraduates (REU) program. For eight weeks, the students come to Boulder, Colorado to work with *SORCE* scientists on a research project involving measurements from *SORCE*. The program pays for the students’ travel costs and housing, plus a \$500/week stipend.

This year the program will start the week of June 9th at LASP with a 1-week lecture series on Solar and Space Physics from experts in the field. The program will run through August 1st, ending with a student symposium where the students present their findings. Marty Snow is the REU Program Organizer for the entire program which includes 16 REU students working interesting solar and space physics projects in several Boulder locations.

For 2014, three *SORCE*-related projects were selected for the REU program. The project title, mentors, and the REU student selected are:

- ***Bayesian Approaches to Developing Long-Term Data Records***
Mentor: Odele Coddington, LASP, Univ. of Colorado
REU Student: Sarah Swenson, St. Olaf College, Northfield, Minnesota
- ***Develop Science on a Sphere Sequences for Space Weather***
Mentors: Marty Snow, LASP, Univ. of Colorado; and Rodney Viereck, NOAA, Space Weather Prediction Center
REU Student: Derek Young, Bridgewater College, Bridgewater, Virginia
- ***Geocoronal Hydrogen Density Estimates using Exosphere Occultations***
Mentors: Marty Snow, LASP, Univ. of Colorado; and Janet Machol, NOAA, National Geophysical Data Center
REU Student: Natalie Vezina, Purdue University, West Lafayette, Indiana



The 2013 REU students during their first week in June 2013.

Upcoming Meetings / Talks –

SORCE scientists plan to present papers or attend the following 2014 meetings/workshops:

- Boulder Solar Day, March 18, National Center for Atmospheric Research (NCAR), Boulder, Colorado
- Solar-Stellar Variability Workshop, March 19, High Altitude Observatory, NCAR, Boulder, Colorado
- EGU General Assembly, April 27-May 2, Vienna, Austria