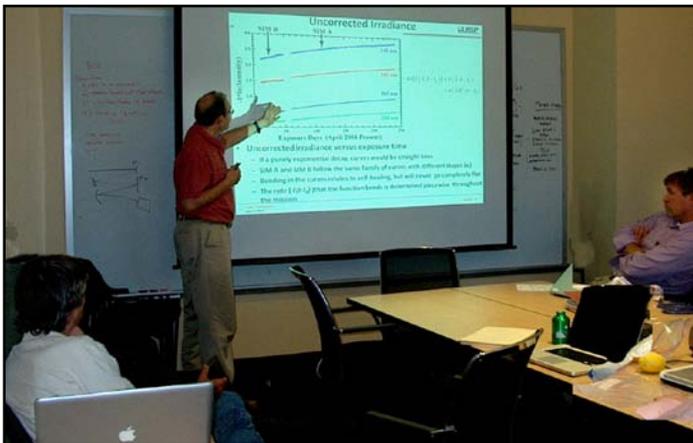




SORCE Workshop Addresses 200-300 nm Validation –

Several members of the LASP SORCE team have begun a series of workshops to discuss validation of the observations from SOLSTICE and SIM in the 200-300 nm range where both instruments make measurements. The workshops have included Tom Woods, Jerry Harder, Marty Snow, Juan Fontenla, Bill McClintock, Peter Pilewskie, and Erik Richard from LASP.



Tom Woods discusses the uncorrected irradiance measurements as Bill McClintock and Erik Richard look on.

On August 25th, the group met to discuss algorithms and specifically how the SIM and SOLSTICE instrument teams derive their respective long-term degradation corrections. The purpose of the algorithm review was not only to share the derivation of the instrument correction factors, but also to estimate uncertainties in the long-term degradation corrections in this wavelength region.

The SIM and SOLSTICE instrument scientists presented their basic algorithms as well as the specialized corrections which are necessary to account for spacecraft and instrument anomalies which have occurred over the past several years. For SOLSTICE, the primary anomaly was the entrance aperture on SOLSTICE A which has been left in solar mode since 2006. For SIM, the spacecraft safeholds in 2007 and 2009 are the main discontinuities in their degradation analysis.

A second workshop was held a week later on Sept. 1, to continue the comparisons, this time concentrating on short-term variability. Erik Richard and Marty Snow showed that SIM and SOLSTICE datasets both display similar levels of solar rotational variability after accounting for their very different spectral resolutions. They have found measurable

levels of solar activity even during the quietest months of solar minimum in mid 2008.

The next workshop in the series is scheduled for October 5th. We will compare irradiance time series over two-year intervals to begin validation of the long-term trends seen by the two instruments.



Left to right, SIM instrument scientist Jerry Harder and SOLSTICE instrument scientist Marty Snow.

Kalevi Mursula Visits LASP –

Finnish scientist Kalevi Mursula gave a seminar at LASP and met with the SORCE scientists on September 16th. The topic of the discussion was on the unusual nature of the most recent solar minimum compared to irradiance records from previous minima. He has found that the correlation of smoothed sunspot number (SSN) to various irradiance indices shows a statistically significant difference in the cycle 23/24 minimum with respect to all other observed minima. His analysis was based on H-alpha, F10.7, and sunspot numbers, and he was very interested in collaborating with the SORCE team on extending his analysis to include the MgII index and emission lines in the FUV.



Left to right: Tom Woods, SORCE PI and Kalevi Mursula from the University of Oulu in Finland stand in front of a monitor showing the orbits of all LASP-controlled satellites.

1,879,710

Hits to the *SORCE* Website

(Since 4/21/03, As of 9/24/10)

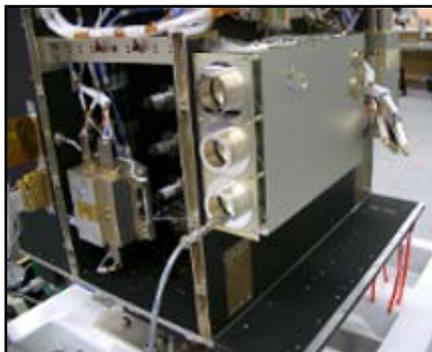
Marty Snow Selected as Guest Investigator on PROBA2 –

Marty Snow submitted a proposal to the Royal Observatory of Belgium to participate in their Guest Investigator program for the PROBA2 satellite. His project is on “Cross-calibration and Comparison of LYRA and SOLSTICE.” The LYRA instrument measures solar irradiance with very high time cadence in four bands, two of which overlap with the *SORCE* SOLSTICE wavelength range. In addition to validating the absolute irradiances observed by the two instruments, this comparison will use the one-minute mini-scan observations that SOLSTICE takes one orbit per day. He will be going to Brussels, Belgium for the month of January 2011 to work with the LYRA team face-to-face.



^ *SORCE* SOLSTICE

> LYRA is composed of three units, each of which has four channels: Lyman alpha, Herzberg continuum, 17-80 nm Aluminum filter, and 6-20 nm Zirconium filter.



SORCE Experiences Anomaly –

SORCE went into a safehold on Sunday, September 26 because of an on-board computer (OBC) reset. This OBC reset appears to be the same problem as OBC reset in May 2007, which is thought to be due to a badly formed packet (with a packet length of zero) sent from the instrument microprocessor. During the exit out of safehold mode on Monday, September 27, the new OBC software patch 7.0 appears to have over-reacted to reaction wheel spin up and turned off Reaction Wheel 1 and 4 and went into its 1-wheel control option for contingency mode. With this being unexpected OBC behavior, the LASP operators then switched *SORCE* back to its safehold mode. Following analysis by LASP and Orbital Sciences Corporation engineers, it was decided to reset the OBC again and not load the new OBC patch 7.0. This activity was completed on Wednesday, September 29, and *SORCE* was commanded out of safehold mode and then placed into normal solar mode on Thursday, September 30. The battery performance during this week has had anomalous behavior but appears nominal now that battery heaters are back on. The instruments are being turned back on one at a time, and the battery voltages will be closely monitored during the recovery process. The microprocessor unit (MU) responsible for instrument command and data handling was turned on first (Friday, Oct 1), followed by TIM (Friday, Oct 1), SOLSTICE-B (Saturday, Oct 2), SIM-A (Sunday, Oct 3), SOLSTICE-A (Monday, Oct 4) and XPS (Tuesday, Oct 5).



The three good reactions wheels appear to be working fine, and the battery and attitude control performance are nominal. As *SORCE* recovers, engineers from LASP, GSFC, and Orbital Sciences Corporation are looking into the cause of the anomalies during this past week.

Upcoming Meetings / Talks –

SORCE scientists plan to present papers or attend the following 2010-2011 meetings:

- Eddy Cross-Disciplinary Symposium on Sun-Climate Research, Oct. 22-24, Aspen, Colorado
- AGU Fall Meeting, Dec. 13-17, San Francisco, California
- ISSI Working Group – Cross-Calibration of 30 years of FUV Instruments, Jan. 10-11, Bern, Switzerland
- ISSI Workshop – Observing and Modeling Earth’s Energy Flows, Jan. 10-14, Bern, Switzerland
- Space Climate Symposia, Jan. 16-21, Goa, India

