



2011 SORCE Meeting –

Decadal Cycles in the Sun, Sun-like Stars, and Earth's Climate System

Sept. 13-16, 2011 ♦ Sedona, Arizona

This meeting will facilitate our quest for a deeper understanding of solar cycle variations, Sun-like star variability, solar influences on climate change, and decadal climate variations. This meeting is especially timely as we anticipate an upcoming solar cycle that will likely differ significantly from the past three cycles.

Sessions are organized around the following science questions:

- What can we learn about decadal climate response and climate sensitivity using the solar cycle as a well-specified external radiative forcing?
- What is current understanding of the amplitude of solar spectral variability and the response of the Earth's atmosphere and climate system?
- How does total solar irradiance vary over the solar cycle and what are the implications for climate modeling to recent refinements in its magnitude?
- How do comparisons with Sun-like stars improve our understanding of solar variability?
- How can solar and climate models be advanced to better reproduce decadal variability and improve forecast capabilities?

This meeting is jointly sponsored as the 8th Solar Radiation and Climate Experiment (SORCE) Science Team Meeting and the 1st NASA GSFC / CU LASP Sun–Climate Research Center (SCRC) Meeting. SORCE Meetings bring together the broader science community to discuss current understanding of solar variability and the Sun's influence on climate and global change. The recently formed NASA GSFC / CU LASP Sun–Climate Research Center also shares this goal.



Sedona, Arizona – “Red Rock Country”



The Hilton Sedona Resort and Spa, a full-service meeting facility.

Call for Abstracts

The format for this 3.5-day meeting consists of invited and contributed presentations in the five sessions below. We encourage your participation and hope that you will share this announcement with colleagues. More information regarding submitting an abstract is at:

<http://lasp.colorado.edu/sorce/news/2011ScienceMeeting/abstracts.html>.

Important Deadlines:

Abstracts Due: June 12

Pre-Registration: August 12

Lodging Cut-off: August 12

Confirmed Speakers (as of 3/31/2011)

The speakers are given in alphabetical order within each session and with tentative titles:

Session 1 – Solar Irradiance Cycles

Matt DeLand, SSAI, Maryland

Solar Cycle UV Variations

Thierry Dudok de Wit, CNRS & Univ. of Orléans, France

New Methods of Modeling the Solar Cycle Variations

Greg Kopp, LASP, Univ. of Colorado

Status and Record of TSI Measurements

Judith Lean, NRL, Washington, DC

Implications of Measurement Stability from Comparisons to Solar Regression Models

Peter Pilewskie, LASP, Univ. of Colorado

SSI and Climate

Erik Richard, LASP, Univ. of Colorado

Future SSI Record for JPSS TSI

Werner Schmutz, PMOD/WRC, Davos, Switzerland
PREMOS TSI Results

Richard Willson, NASA JPL
Recent ACRIM Calibrations

Session 2 – Comparative Sun-Star Cycles

Tom Ayres, CASA, Univ. of Colorado
What about the other Suns?

Wes Lockwood, Lowell Observatory, Flagstaff, AZ
Solar Variability after Dark: Photometric Evidence from Stars

Richard Radick, NOAO Natl. Solar Obs., SacPeak, AZ
Sun-like Stars Cycle Variations

Session 3 – Climate Sensitivity and Global Energy Imbalance

Andrew Dessler, TEXAS A&M University
Water Vapor Feedbacks

Seiji Kato, NASA Langley Research Center
Constancy/Stability of Earth's Albedo

Gerald North, Texas A&M University
Climate Sensitivity

Brian Soden, Rosenstiel School, Univ. of Miami, FL
Climate Feedbacks

Session 4 – Climate System Decadal Variability

Pat Hamill, San Jose State Univ., California
Stratospheric Aerosols

Karin Labitzke, Prof.em. Freie Universität Berlin
Solar-Stratosphere Coupling

Vikram Mehta, CRCES, Maryland
Sun-Climate Variability

Mark Serreze, National Snow & Ice Data Center, CIRES, Univ. of Colorado
Ice and Snow

Bill Swartz, John Hopkins University, APL
Decadal Variability in the Atmosphere

Session 5 – Modeling and Forecasting Solar Cycles and Climate Impacts

Robert Cahalan, NASA GSFC
Modeling Climate Change with SSI Variations

Judith Lean, NRL, Washington, DC
Forecasting Solar Irradiance and Climate Change

Kyle Swanson, Univ. of Wisconsin-Milwaukee
Climate Regime Shifts

Tom Woods, LASP, Univ. of Colorado
State of Sun – SC 24



Meeting Location

The 2011 *SORCE* Symposium will take place at the beautiful *Hilton Sedona Resort*, just 90 miles north of Phoenix, Arizona. The meeting facilities are first-class and attendees will be inspired with the dramatic Red Rock views. For further information on this special venue, you can visit their website at: <http://www.hiltonsedonaresort.com/>.

For hotel reservations (ready now) and meeting registration (coming soon), please visit the *SORCE* Meeting website.

<http://lasp.colorado.edu/sorce/news/Meetings.htm>

Special Events

A very special evening at the Lowell Observatory has been arranged for the traditional Science Dinner. The trip to the Lowell Observatory will begin by boarding a private coach to take us to Flagstaff – a beautiful 30-minute ride through the spectacular Oak Creek Canyon. At the Lowell Observatory we will tour the facility and learn about their research contributions as one of the major U.S. astronomical research facilities. Using ground-based, airborne, and space-based telescopes, Lowell Observatory plays an important role in the advancement of astronomy and our knowledge of the solar system. Lowell Observatory currently has four research telescopes at this site, and they are building a 4-meter class research telescope, the Discovery Channel Telescope (\$50M), due to be unveiled late Fall 2011.

Following our tour, we will enjoy a delicious dinner catered by a Flagstaff local favorite restaurant. We will complete our day by taking advantage of the onsite telescopes to view the evening sky. This special event will be available on the registration form for attendees and their guests.



~ Please join us! ~

SORCE Extended Mission Proposal Submitted –

The SORCE team submitted the SORCE Extended Mission Proposal for 2012-2015 in early March. All NASA Earth Science Missions submit proposals for senior review every two years. SORCE has successfully completed its 5-year core mission (Jan. 2003-Jan. 2008) and is currently in the fourth year of its extended mission. It has achieved its primary mission goal of measuring total solar irradiance (TSI) and solar spectral irradiance (SSI) in the 0.1-27 nm and 115-2400 nm wavelength ranges with unprecedented accuracy and precision. The main objectives of the SORCE extended mission are very much aligned with the original SORCE mission objectives, but have new focus with the current state of NASA missions and solar activity over the new solar cycle 24.



The Glory launch failure on March 4, 2011, is particularly significant to SORCE because the Total Irradiance Monitor (TIM) onboard Glory was the next-generation TIM which would have replaced the SORCE TIM. Until another TIM instrument can be launched it is very important that SORCE spacecraft and TIM remain healthy for as long as possible to continue the 32-year record of TSI measurements. The spacecraft battery is the most likely life-limiting factor for the SORCE Mission, so all efforts will be made to ensure that it stays as healthy as possible. With proper management of spacecraft resources, we predict that we can continue making good quality solar irradiance measurements throughout the extended mission timeframe. There is hope that the NOAA TSIS mission can be accelerated for a launch in 2013 so that TSI and SSI records would not have a data gap.

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Hits to the SORCE Website

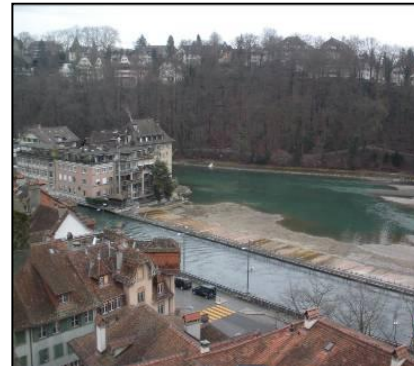
(Since 4/21/03, As of 3/18/11)



SORCE Scientists Participate in Two ISSI Working Groups –

By Marty Snow, LASP, Univ. of Colorado

SORCE scientists took part in two Working Groups at the International Space Science Institute (ISSI) in Bern, Switzerland in January 2011. For more information on the ISSI organization, please visit their website at <http://www.issibern.ch/>. Below is a brief summary of the two January gatherings.



Cross-Calibration of FUV Datasets

Marty Snow attended the working group on *Cross-Calibration of FUV Datasets*, Jan. 10-11. The solar, stellar, lunar, and cometary observations from SORCE SOLSTICE are a critical element in transferring absolute calibration to instruments on Mars Express, Venus Express, SOHO, Voyager, etc. The results of this working group will be assembled into a single volume that will be published by Springer later this year.

Observing and Modeling Earth's Energy Flows

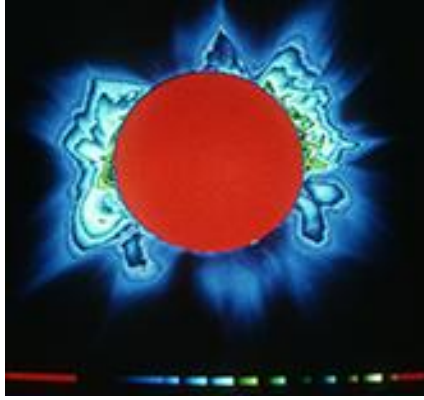
That same week, Peter Pilewskie participated in a workshop entitled *Observing and Modeling Earth's Energy Flows*. They focused on the significant uncertainties in a number of key energy exchange and feedback processes in the climate system which limit the accuracy in the projections of climate change. Attendees identified and discussed the most critical of these processes, those that cause the largest uncertainties, and attempted to identify the experimental and theoretical studies that are needed to reduce these uncertainties. ISSI invited over 60 leading scientists to this workshop, covering a wide range of disciplines, to make a comprehensive assessment of the ongoing research. What makes this ISSI workshop different than a typical conference is that scientists from very diverse fields were involved in a very fruitful, cross-disciplinary discussion. The proceedings of this workshop will appear in a volume of ISSI's Space Sciences series in the spring of 2012.



Boulder Solar Day –

By Marty Snow, LASP, Univ. of Colorado

SORCE solar scientists met with the solar groups from all of Boulder for the annual Boulder Solar Day (BSD) on March 18th. Scientists from LASP, HAO, SWPC, SwRI, CoRA, and JILA met to share



research about the Sun, the Heliosphere, and the Atmosphere. The keynote presentation was given by SORCE PI Tom Woods. His talk “Red Hot Sun: 2011 Valentine Storm as Seen by the Solar Dynamics Observatory” was informative as well as entertaining. In addition to Tom’s presentation, Peter Pilewskie and Greg Kopp gave talks on Solar Irradiance and Climate, and there were several posters by others from LASP.

Boulder Solar Day is an event organized by all the institutes of the Boulder Solar Alliance (BSA). The BSA was formed to foster collaboration among heliospheric scientists at the local level. BSD has evolved from its humble beginnings as a monthly lunchtime seminar that rotated among the various institutes, to a full-day conference.

Upcoming Meetings / Talks –

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

SpaceWeather Workshop, April 26-29, Boulder, Colorado

ISSI Working Group – Cross-calibration of 30 years of

FUV instruments, May 25-27, Bern, Switzerland

IUGG, June 28-July 7, Melbourne, Australia

SORCE Science Meeting, Sept. 13-16, Sedona, Arizona