



2011 SORCE Meeting –

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

Sept. 13-16, 2011 ♦ Sedona, Arizona



Sedona, Arizona – “Red Rock Country”

Abstracts – Due Friday, June 12

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>.

Confirmed Speakers (as of 5/24/2011)

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 Irradiance Variability
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 TSIS
Werner Schmutz, PMOD/WRC, Davos, Switzerland
PREMOS TSI Results
Yvonne Unruh, Imperial College, London
Modeling SSI
Richard Willson, NASA Jet Propulsion Laboratory
Recent ACRIM Calibrations

Session 2 – Comparative Sun-Star Cycles

Tom Ayres, CASA, Univ. of Colorado
What about the other Suns?
Ben Brown, University of Wisconsin-Madison
Modeling Sun-like Stars
Wes Lockwood, Lowell Observatory, Flagstaff, Arizona
Solar Variability after Dark: Photometric Evidence from Stars and Planets
Travis Metcalfe, NCAR, Boulder, Colorado
Monitoring CA II H and K for Southern Solar-type Stars
Richard Radick, Air Force Res. Lab., NSO, Sunspot, NM
Sun-like Stars Cycle Variations

Session 3 – Climate Sensitivity and Global Energy Imbalance

Andrew Dessler, Texas A&M University
Observational Constraints on the Water Vapor and Cloud 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
Kevin E. Trenberth, NCAR, Boulder, Colorado
Tracking Earth's Energy: From El Niño to Global Warming

Session 4 – Climate System Decadal Variability

Pat Hamill, San Jose State Univ., California
Stratospheric Aerosols
Karin Labitzke, Prof.em. Freie Universität Berlin
On the QBO-Solar Relationship Throughout the Year
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

2011 SORCE Meeting Website

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

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

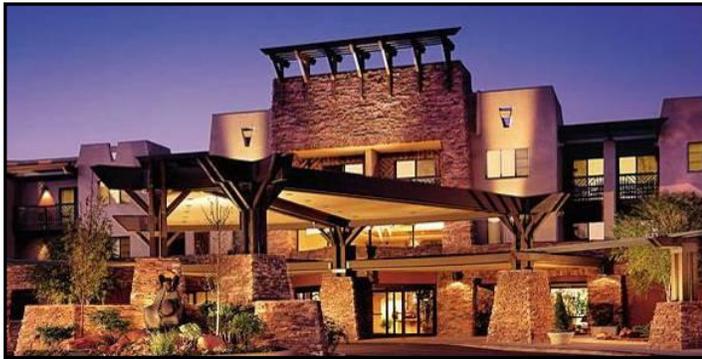
Forecasting Solar Irradiance and Climate Change

Kyle Swanson, Univ. of Wisconsin-Milwaukee

Climate Regime Shifts

Tom Woods, LASP, Univ. of Colorado

State of Sun – SC 24



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

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 and meeting registration, please visit the *SORCE* Meeting website.

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

Important Deadlines:

Abstracts Due: June 12

Pre-Registration: August 12

Lodging Cut-off: August 12

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-base, airborne, and space-based telescopes, Lowell Observatory plays an important role in the advancement of astronomy and our knowledge of the solar system.

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 SIM Operations—

By Tom Woods, Jerry Harder, and Sean Ryan, LASP, Univ. of Colorado

The SIM operations has changed to a mode of being power cycled every orbit, starting on Monday May 9, 2011. Consequently, the SIM data processing is being halted while we evaluate the SIM data quality and revise the data processing algorithms.

This change in SIM operations concept is due to the loss of a spacecraft battery cell on May 1st. The *SORCE* batteries have shown steady degradation since 2009, and this loss of one of the 22 cells is not unexpected. Power management on *SORCE* (e.g. changing battery charging profiles) has been at an elevated level since 2009, and battery experts at OSC, GSFC, and Aerospace Corp. have provided excellent advice and regular reviews of the battery performance. We were expecting to



have to power cycle SIM next year, but this plan had to be accelerated after losing one of the battery cells this week. *SORCE* operations are continuing with daily solar observations; we expect to be able to continue normal operations for many more months.

With this lower battery capacity, the SIM instrument is now being power cycled every orbit. This power cycling mode is causing the SIM temperature to vary over an orbit by up to 5 C as the SIM heaters cannot be operated while SIM is powered off. From initial analysis, the second half of the day-side of the orbit (about 30 minutes) is the most thermally stable part of the orbit and thus will be used for continuing daily solar irradiance observations for SIM. The quality of SIM irradiance measurements is expected to degrade due to these temperature swings, but the amount of degradation of the SIM irradiance data in this mode is not yet characterized. There will not be any SIM Level 3 data products available for some time while the SIM data quality is evaluated and as any updates of the SIM data processing algorithms are being developed and tested.

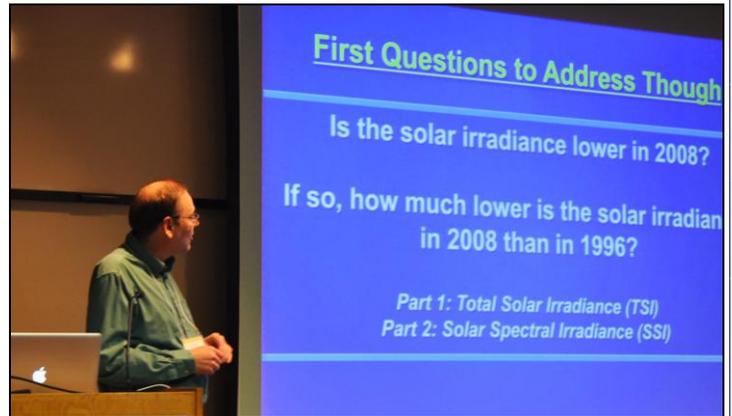
The operation of the other solar instruments are continuing as before, namely there is no power cycling for TIM, but power cycling of XPS and SOLSTICE instruments. The XPS and SOLSTICE instruments have been in this power cycling mode for several months already, and their data have minor degradation due to temperature swings during each orbit. The frequency of the stellar calibrations for SOLSTICE has been reduced to about 5 calibration campaigns per year during times of short orbit eclipse periods. The TIM TSI data products and XPS and SOLSTICE SSI data products continue to be available from the *SORCE* web site.

We will provide more detailed, status and operation updates, as well as reports on science data quality in this power cycling mode in future *SORCE* newsletter.

SORCE Scientists Participate in NASA Workshop –

By Marty Snow, LASP, Univ. of Colorado

NASA's Heliophysics Division hosted a workshop on the "***Causes and Consequences of the Minimum of Solar Cycle 23/24***" in Boulder on May 17 through 19, 2011. The topics of this workshop included the Sun, the heliosphere, the magnetosphere, and the atmosphere and their condition during the most recent solar minimum. Keynote talks on each subject area were followed by invited talks and 1-hour panel discussions. The presentations and discussion summaries will be available on <http://heliophysics.nasa.gov/SolarMinimum24/SolarMinimum24.html> in the near future. One of the workshop outcomes was to form a committee to organize a Chapman Conference for August 2012 (location TBD).



SORCE PI Tom Woods gave an invited talk, "Why is the Solar Irradiance Lower in 2008?" on unusually low values of solar irradiance during the most recent solar minimum. The workshop was organized by the NASA. Tom Woods chaired the Ionosphere/Atmosphere session.

One of the main conclusions of this workshop was to recognize that the extended solar minimum allows us to examine the effects of different irradiance and solar wind forcing on the atmosphere and magnetosphere. The irradiance was very stable and at a low level for multiple years, but geomagnetic activity was much higher in 2008 than in 2009. We therefore have the opportunity to study the effect of high speed streams and corotating interaction regions during periods of low irradiance variability in addition to a period of low activity in both irradiance and the solar wind. Measurements from *SORCE* are crucial to understanding the response of the Sun-Earth system to the solar minimum irradiance.

The Magnesium II Index measured by *SORCE* was featured in talks on the thermospheric density as well as the total electron content (TEC) of the atmosphere. The thermospheric density shows a large decrease in the recent minimum (based on satellite drag observations). The TEC measurements from GPS occultations indicate that the density of the upper atmosphere may not have decreased as much as the drag observations indicate. Resolving this disagreement will greatly increase our understanding of how the ultraviolet solar irradiance influences the upper atmosphere.

SORCE scientist Aimee Merkel also gave a talk on the results of atmospheric modeling using the solar spectral irradiance variability measured by *SORCE* SIM. She showed that the resulting ozone profiles in the model agree better with measurements from the Sounding of the Atmosphere using Broadband Emission Radiometry (SABER) instrument than the profiles predicted by standard proxy models for the irradiance. The paper describing these results has just been accepted by *GRL* and will appear in print later this year.



Upcoming Meetings / Talks –

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

ISSI Working Group – Cross-calibration of 30 years of FUV instruments, May 25-27, Bern, Switzerland

IUGG, June 28-July 7, Melbourne, Australia

SHINE Conference, July 11-15, Snowmass, Colorado

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

2,860,900

Hits to the SORCE Website

(Since 4/21/03, As of 5/13/11)