



SORCE Science Meeting **Sept. 20-22, 2006 –**

Earth's Radiative Energy Budget Related to SORCE is the topic of the next SORCE Science Meeting. This 2½-day meeting will focus on radiative forcing, feedbacks, and climate response. Specifically the meeting will address:

- The Earth's radiative energy budget: Top of the atmosphere radiative balance and imbalance, albedo and "global dimming", energy budgets at the surface and within the troposphere and stratosphere.
- Radiative forcings: Solar, greenhouse gases, O₃, aerosols (natural and anthropogenic, direct and indirect), measurements and models.
- Climate responses and feedbacks: Hydrological cycle, ice feedbacks (albedo and ocean salinity), climate sensitivity, slow versus rapid responses, linear versus nonlinear responses.
- Role of the biosphere: Response to solar variations, feedbacks through surface albedo and clouds.

Confirmed speakers (*as of March 27*) include:

Al Arking, Johns Hopkins University, Baltimore, MD
(Short- and long-wave surface radiation budgets: implications for climate)

Roni Avissar, Duke University, Durham, NC
(Land use/land change)

Robert Cahalan, GSFC, NASA, Greenbelt, MD
(Clouds and radiation)

Jim Coakley, Oregon State University, Corvallis
(The aerosol indirect effect)

Bill Collins, NCAR, Boulder, CO
(Radiative forcing by greenhouse gases)

Judy Curry, Georgia Institute of Technology, Atlanta
(Hurricane response in the climate system)

Ellsworth Dutton, NOAA, Boulder, CO
(The surface radiative energy budgets)

Jerry Harder, LASP, University of Colorado, Boulder
(The role of VIS-IR / SIM in climate science)

Jay Herman, GSFC, NASA, Greenbelt, MD
(Ozone variability and the biosphere)

Ken Jezek, Ohio State University, Columbus
(The ice feedback)



Rosario Resort, Orcas Island, San Juan Islands off the west coast of Washington state.

Greg Kopp, LASP, University of Colorado, Boulder
(The role of TSI / TIM in climate science)

Judith Lean, Naval Research Lab, Washington, DC
(Solar radiative forcing)

Norm Loeb, NASA Langley Res. Ctr., Hampton, VA
(The accuracy of TSI / SSI in climate models)

Bill McClintock, LASP, University of Colorado, Boulder
(The role of UV / SOLSTICE in climate science)

Roger Pielke Sr., University of Colorado, Boulder
(Regional climate response)

Peter Pilewskie, LASP, University of Colorado, Boulder
(Overview of the radiation budget in the lower atmosphere)

V. Ramanathan, Scripps, Univ. of California, San Diego
(The regulation of Earth's albedo)

Graeme Stephens, Colorado State Univ., Fort Collins
(The cloud-climate feedback)

Ka-Kit (KK) Tung, University of Washington, Seattle
(Climate responses to forcing)

Bruce Wielicki, NASA Langley Res. Ctr., Hampton, VA
(Earth's radiation budget from space)

Tom Woods, LASP, University of Colorado, Boulder
(SORCE mission update, The role of EUV/XUV / XPS in climate science)

Logistical details are still in the planning stages, but mark your calendar now. The dates are Wednesday – Friday, **September 20-22, 2006**. The meeting will be at **Rosario Resort and Spa** on Orcas Island in the **San Juan Islands** off the coast of Washington state. Additional information is available on the meeting website: <http://lasp.colorado.edu/sorce/2006ScienceMeeting/>.

SORCE Data Access Through LISIRD –

By Marty Snow, LASP, University of Colorado

Users can now access SORCE data through the LASP Interactive Solar Irradiance Datacenter (LISIRD) at <http://lasp.colorado.edu/lisird>. Although the interface is still in the development stage, many features are already available. In particular, one can retrieve spectra and time series from any of the SORCE instruments. Data from other LASP projects (UARS SOLSTICE, TIMED SEE, SME, and SNOE) are also currently in the LISIRD database, and may be accessed through the exact same interface as for the SORCE data. Figure 1 shows the initial LISIRD catalog of observations. The goal of LISIRD is to make access to the data as easy as possible for the users, and we solicit input on ways that we can better achieve that goal.

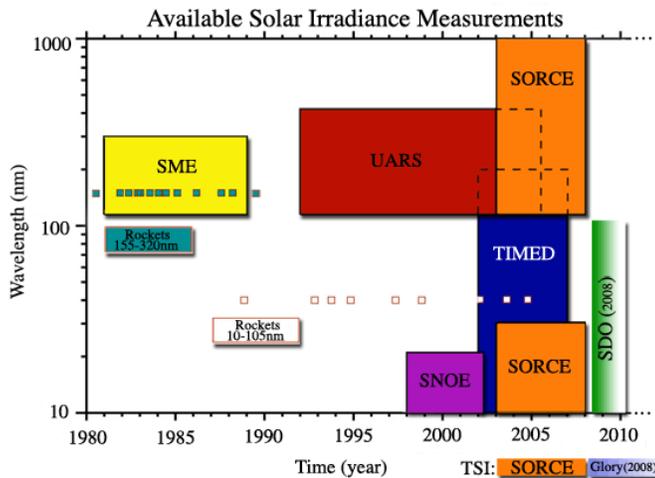


Figure 1. LASP solar irradiance observation history. The time and wavelength coverage of each mission is shown. Future missions are also indicated. TSI measurements are shown below the time axis.

In addition to current and archival measurements of the solar irradiance, LISIRD also offers synthetic spectra from the FISM and SRPM models. The Flare Irradiance Spectral Model provides a high time cadence EUV and FUV spectrum for use in studying the effects of flares (Chamberlin 2005, Ph.D. thesis, University of Colorado). Juan Fontenla's Solar Radiation Physical Model uses images from the Precision Solar Photometric Telescope (PSPT) and a sophisticated non-LTE radiative transfer code to produce a daily spectrum from the MUV to the IR.

LISIRD also provides access to data that is relevant to space weather applications from the SORCE and TIMED missions. Soon after each spacecraft contact, a subset of the data products are reduced and placed on the LASP ftp site. The Mg II index, He II 30.4 nm emission, and a number of other important emission lines are available for download. These datasets don't have quite

as small a latency as an operational satellite might provide, since there are only a few contacts per day. However, the data can still be very useful as inputs to near real-time atmospheric or solar models. At least one user has found our system to be an excellent way to fill in gaps in the NOAA data stream.

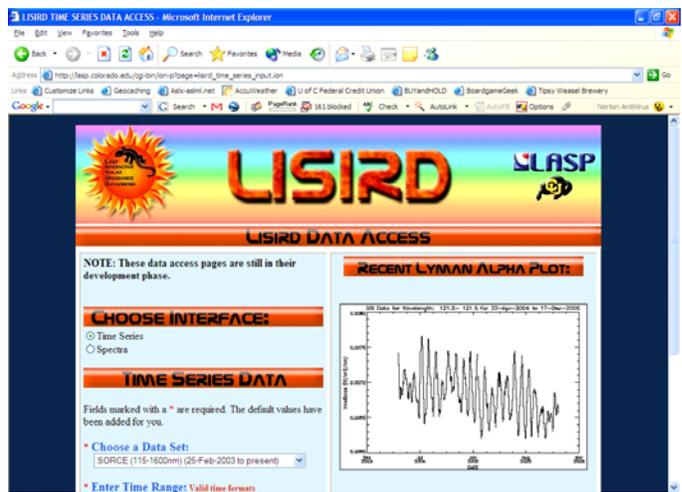


Figure 2. Screen shot of current LISIRD data access web page. The user can select a time range, instrument, and wavelength range. The data can be plotted on the screen or downloaded in a variety of formats.

Many of the features listed earlier are still in the preliminary stages of implementation, but work on the interface continues at full speed. Figure 2 shows the current version of the web interface. The user can select a time interval and wavelength range, and then see the result plotted on the screen or saved to a file which can be downloaded. We expect to have many improvements to the LISIRD web page in the coming months, so let us know how we're doing!

SORCE Presentation at SCOSTEP STP-11 Conference –

By Tom Woods, LASP, University of Colorado

SORCE PI, Tom Woods participated in the 11th Quadrennial Solar Terrestrial Physics Symposium, “Sun, Space Physics and Climate”, which took place March 6-10 in Rio de Janeiro, Brazil. He was invited to speak on satellite measurements of solar spectral irradiance. His talk introduced the motivation of the solar irradiance measurements for atmospheric and climates studies and then concentrated on some



View of Atlantic Ocean from downtown Rio de Janeiro, Brazil.

recent results about the solar irradiance results as given in the *SORCE* book (*Solar Physics* special issue).

This SCOSTEP (Scientific Committee on Solar Terrestrial Physics) Conference included talks on "Climate and Weather of the Sun-Earth System: CAWSES", and specifically addressed 1) Solar Influence on Climate, 2) Space Weather: Science and Applications, 3) Atmospheric Coupling Processes, and 4) Space Climatology.

188,145
Hits to the *SORCE* Website
(Since 4/21/03, As of 03/20/06)

Upcoming Meetings / Talks –
SORCE scientists plan to present papers or attend the following 2006 meetings:

- ASIC 3 Workshop, May 16-18,
Lansdowne, VA
- American Astronomical Society, June 4-8,
Calgary, Alberta, Canada
- SORCE* Science Meeting, Sept. 20-22,
San Juan Islands, WA



Instrument Anomaly Conclusion –

The XPS and SOLSTICE instrument anomalies have been thoroughly investigated and the appropriate actions have been taken to maximize science data and minimize risk to the instruments.

XPS is making the majority of the solar observations in filter wheel position 6 to obtain the solar irradiance in the 0.1 to 18 nm range and with 1 minute cadence. In addition, the XPS will operate in filter wheel position 4 for about 20 minutes once a month to provide in-flight tracking of the small photometer responsivity, visible light signal contributions, and to provide the solar Lyman-alpha irradiance measurement that is useful for *SORCE* SOLSTICE validation. XPS continues to collect good solar irradiance data, and the only data gap in the XPS Level 3 (daily averaged) data product is on 20 December 2005.



On 27 January 2006, the entrance slit mechanism on SOLSTICE A did not respond to two commands for the slit mechanism to move from the stellar aperture to the solar aperture. SOLSTICE A will be left in solar mode, and no science will be lost. SOLSTICE B's stellar observations can be used for tracking SOLSTICE A's degradation through cross calibration of the two instruments. Operating procedures have



been modified to reduce the number of slit mechanism movements on SOLSTICE B during spacecraft slew maneuvers between stars.

To submit information to this newsletter, please contact:
vanessa.george@lasp.colorado.edu.