



SORCE Science Meeting December 4-6, Sonoma, California –

The registration numbers for the upcoming SOLRCE Science Meeting – **Physical Processes Linking Solar Radiation and Solar Variability with Global Climate Change** – are up and the meeting is sure to be exciting. If you haven't registered yet, there is still space available to attend. The early registration and hotel reservation deadline is **November 1**. The abstract deadline was October 15 and the response was excellent. A tentative science program will be posted on the SOLRCE meeting website soon. The meeting will be devoted to our understanding of the physical processes that connect the Sun's radiation and its variability to our terrestrial environment, including the processes involved with climate and ozone response to solar radiative forcing and the mechanisms that cause solar activity and radiation variations. The agenda will consist of both invited and contributed oral presentations and posters. The meeting will include the following overview presentations:

- J. Eddy – Current status of Sun-climate connections and possible processes
- V. Ramaswamy – Current status of the Sun's role in global change
- J. Hall – Current status of Solar-stellar relationships

Scientific sessions planned for the meeting, with the following confirmed speakers, are:



Sonoma Valley

- Solar Radiation – Status of Current Measurements
 - Gary Rottman, C. Fröhlich, SOLRCE Instrument Teams
- Climate Change Processes Involving Solar Radiation in the Troposphere
 - G. Meehl, S. Hameed, S. Platnick, R. Cess,
 - G. Bond, E. Cook, N. Loeb
- Global Change Processes Involving Solar Radiation in the Stratosphere
 - R. Stolarski, M. Salby, D. Rind, R. Hudson
- Processes and Evidence for Long-Term Irradiance Variations
 - P. Goode, M. Dikpati, Y.M. Wang
- Future Directions in Sun-Climate Research

The featured speaker at the meeting dinner on Thursday evening, Dec. 4, will be Dr. John Eddy. He will speak on "Tales of the Sun and Climate".

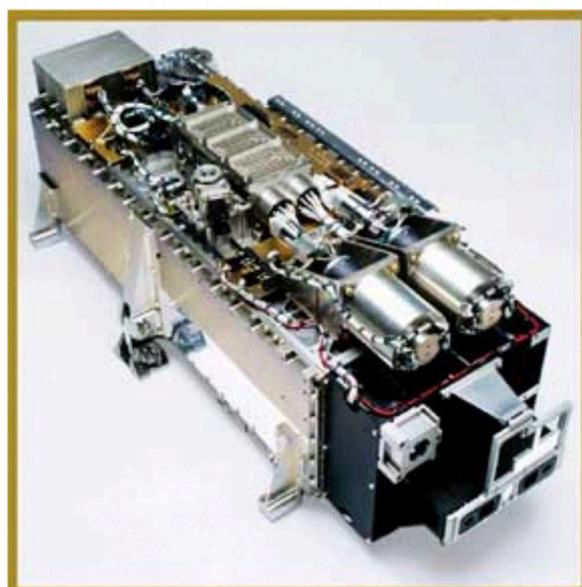
The scientific organizing committee members are Judith Lean from NRL, Peter Pilewskie from NASA Ames Research Center, and Doug Rabin from GSFC. They are currently putting together an exciting agenda and a schedule of talks and posters should be available in early November. Presenters will be notified and the schedule will be posted on the meeting website. Please refer to the SOLRCE meeting website for complete information on the science program, agenda, registration, and travel and lodging – [Dec03ScienceMeeting.html](#). The website will be updated regularly with the latest science program additions.



A Closer Look: The SIM Instrument –

The Spectral Irradiance Monitor (SIM) is making the first continuous record of the top of the atmosphere spectral solar irradiance in the visible/near infrared region. The SIM provides spectral irradiance measurements with a newly developed prism spectrometer, which includes a miniaturized electrical substitution radiometer (ESR). It provides spectral measurements in the near-ultraviolet, visible, and near infrared – from 200 to 2000 nm. Jerry Harder is the SIM instrument scientist at LASP.

The SOLRCE spacecraft has been on orbit for about 300 days, and SIM's performance has met expectations for the full duration of that time; all of the detectors and mechanisms are performing to design specifications. Nonetheless, at this point in time scientists are still learning how to best use the instrument and are 'tweaking' the instrument's operation plans to maximize the scientific output of the flight instrument. Laboratory studies at LASP are continuing to refine the in-flight instrument calibration. Of particular scientific interest is the new insight researchers are gaining from SIM's infrared measurements. Juan Fontenla (a member of the SIM analysis team since October 2002) is the lead author on a paper entitled "The Signature of Solar Activity in the Infrared Spectral Irradiance" that describes a comparison of solar irradiance trends predicted by a solar irradiance model and observed by SIM. This comparison indicates that in the visible there is agreement between SIM and the model, but the same model is inaccurate in the infrared because it predicts darkening of plage/faculae regions near 1.6 microns where SIM observations indicate an increase in the spectral irradiance at these wavelengths. This paper has just been submitted to *The Astrophysical Journal Letters*. Interested readers can obtain preprints



Spectral Irradiance Monitor (SIM)

of the paper after it passes through the initial review process.

To demonstrate the solar variability that SIM can now observe, Figure 1 shows concurrent data for TIM (blue data on right hand axis 6-hour averaged data) and SIM (red data on left-hand axis at 885.7 nm) for a time period covering a single solar rotation period in June of 2003. The graph is set up so that fractionally the full-scale reading is the same for both instruments. Notice that the amplitude and phase of the two data sets compare very well, and scientists will be able to study the time series for each wavelength cover by SIM. Further study of the SIM diode responsivity function is still needed to understand the small discontinuous jumps seen in these data sets. The ESR data is still being analyzed and has yet to be fully incorporated in these diode data.

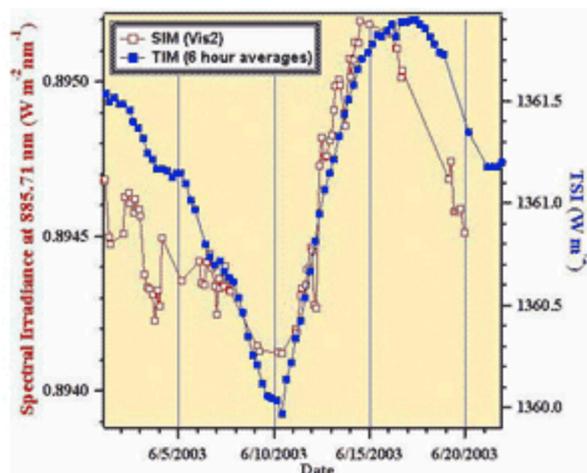


Figure 1. (to the left) Concurrent time series for TIM and SIM in June of this year. The irradiance scale for the TIM solar irradiance is on the right, and the spectral irradiance for SIM at 885.71 nm is on the left. Notice the concurrence in amplitude and phase of the time series showing that both instruments are following sunspot irradiance modulation during this time period.



Upcoming Meetings / Talks –

SOLRCE scientists plan to present papers or attend the following 2003 meetings:

- SOLRCE Science Team Meeting, Dec. 4-6, Sonoma, California
- AGU Fall Meeting, Dec. 8-12, San Francisco, California

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