

SNS – **SORCE News Source**

Solar Radiation and Climate Experiment Monthly Newsletter

February 2008



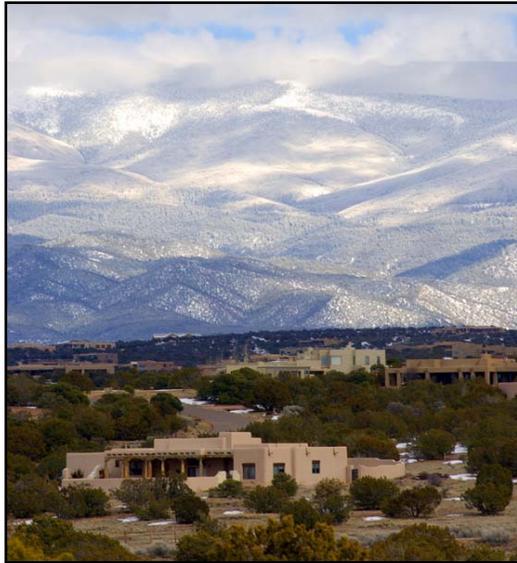
5-Year Anniversary SORCE Science Meeting – “SORCE’s Past, Present, and Future Role in Earth Science Research”

Approximately 75 scientists gathered for the 5th SORCE Science Team Meeting, *SORCE’s Past, Present, and Future Role in Earth Science Research*, and to celebrate SORCE’s fifth year in-orbit. The group, which met at La Posada Resort in Santa Fe, New Mexico, Feb. 5-7, engaged in stimulating discussions covering a wide range of current solar and earth science research. A summary of the meeting, including .pdf versions of the many excellent presentations, is available at:

<http://lasp.colorado.edu/sorce/news/2008ScienceMeeting/>. (“Meetings” are under “News and Events” on the SORCE main web page.)



The primary focus of the 2008 Science Team Meeting was to discuss utilization of improved solar irradiance measurements and models, such as being developed by *SORCE*, to help advance climate and atmospheric models, in conjunction with ongoing Earth Science measurements. Included were presentations and discussions of solar variability measurements, models and predictions and the modeled and measured response to this variability of Earth's atmosphere and climate. Of particular interest were models that incorporate the physical processes thought to facilitate the Sun-Earth connection. Coupled with accurate solar and climate measurements, these models are critical in determining and understanding climate sensitivities to solar forcing.



The *SORCE* Meeting was held in beautiful Santa Fe, New Mexico, which is nestled in the picturesque Sangre de Cristo Mountains.

Caspar Ammann (NCAR) and Gavin Schmidt (GISS) both gave talks in Session 4, *Climate Models, Processes, and Solar Irradiance*.



LASP Science program organizers, Erik Richard and Greg Kopp, visit with George Lawrence. Judith Lean (NRL) was also a member of the organizing committee.

Key questions motivating the meeting agenda were:

- 1) *What is the present state of knowledge of the total solar irradiance (TSI) and solar spectral irradiance (SSI) in the ultraviolet, visible, and near infrared spectral ranges?*
- 2) *How have the key radiative, photochemical and dynamical processes affecting Earth's atmosphere and ozone, changed over the past few decades, in comparison with other influences?*
- 3) *How much of the stratospheric heating by the solar ultraviolet radiation couples to the lower atmosphere and surface?*
- 4) *How do the water cycle and cloud coverage respond to solar forcing, and how do these processes affect the long-term climate?*
- 5) *How can drivers in the Sun causing solar cycle variations be better quantified to estimate past and future solar irradiance changes, such as in times like the Maunder Minimum?*

The *SORCE Meeting* got underway with a Welcoming Reception on Monday evening, Feb. 4. This reception began just as a *SORCE Workshop, Towards the Development of a Full Solar Reference Spectrum*, concluded. A summary of that 1/2-day workshop will appear in next month's *SNS newsletter*.



< < Guoyong Wen (GSFC) and Bob Cahalan (GSFC) discuss their poster, "Modeling Lunar Borehole Temperature in Order to Reconstruct Historical TSI and Estimate Surface Temperature in Permanently Shadowed Regions".



^^ Gary Rottman (LASP), original *SORCE* PI, and Carey Lively (GSFC) catch up during a break.



Tom Woods (LASP) visits with Karel Schrijver (Lockheed Martin), who spoke on "Magnetic Flux Transport Modeling" in Session 3. v v

Jerry Harder (LASP) and Gérard Thuillier (Service d'Aéronomie du CNRS, France) attended the Monday evening Welcoming Reception. v v



^^ Kiyotaka Shibata (Meteorological Research Center, Japan) and Judith Lean (NRL) were both invited speakers at the 2008 *SORCE Meeting*.



Tuesday morning Tom Woods, *SORCE* Principal Investigator, kicked-off *SORCE*'s 5th Anniversary Science Meeting. He began with an overview on "What We've Learned from *SORCE* – Solar Cycle Maximum to Minimum". There were 10 additional speakers in Session 1, *Variability of the Solar Irradiance Over the Solar Cycle*.



<< *SORCE* PI, Tom Woods (LASP), opened and closed the 2008 Meeting.



^^ Tom Woods (LASP) and Michael King (GSFC). Session 2 keynote speaker, Michael spoke on "NASA's Earth Observations of the Global Environment: Our Changing Planet and the View from Space".

Doug Biesecker (NOAA), Mark Miesch (HAO, NCAR), and Sheila Lynch (NAVC) discussed Sheila's poster. >>



^^ Cathedral Basilica of St. Francis of Assisi in downtown Santa Fe. Meeting attendees enjoyed several inches of snow during the week (!?!).

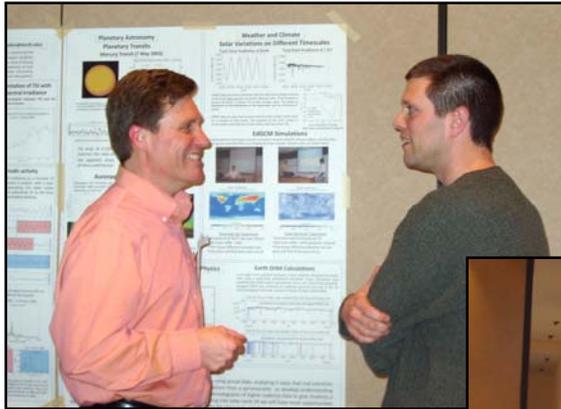
A special Poster Session/Reception completed the first day of the meeting. Following a brief overview by Marty Snow (LASP) of the 2008 posters, the group enjoyed local culinary specialties while they wandered through the poster area and discussed their content with the authors.



Tom Crowley (U of Edinburgh, Scotland) and Ray Bradley (U of MA). >>

<< Angie Cookson (San Fernando Observatory) explains her poster, "TSI and Ground-Based Data: What Can Be Learned", to Mark Rast (LASP).





<< Paul Newman (GSFC) talks with Doug Allen (Dordt College, IA), who presented a poster on "Using SORCE Data in the College Classroom".



^^ Leif Svalgaard (Houston, TX) and Gavin Schmidt (GISS).



>> Juan Fontenla (LASP) asks Jae Lee (Stony Brook Univ., NY) questions about her poster, "The Role of Solar Forcing in the Tropical Circulation", as Joan Feynman (JPL) listens in.



<< Dora Preminger (San Fernando Observatory) explains her poster, "The Relationship between Sunspots and the Variability of the Solar Corona", to Barry Knapp (LASP) and David Hathaway (NASA Marshall).



<< Long-time SORCE Meeting attendee Alexander Ruzmaiken (JPL) visits with first-timer Mark Miesch (HAO, NCAR). Mark was an invited keynote speaker in Session 3, *Models of Solar Processes Affecting Climate*.

Session 2, *Atmospheric Models, Processes, and Solar Irradiance* continued the next morning. The session explored current atmospheric models and chemical and dynamical processes related to stratospheric and tropospheric chemistry. Late morning Session 3, *Models of Solar Processes Affecting Climate*, commenced. This session was about current theoretical understanding of the Sun and solar variability, which is ultimately needed to provide a scientific underpinning of observed (and forecast) irradiance variations that force climate change.



<< For the afternoon break, attendees celebrated *SORCE's* 5-Year Anniversary in orbit (January 25, 2003).



<< Gary Rottman (LASP) chats with LASP SOLSTICE scientists Marty Snow and Bill McClintock.

Bob Cahalan (GSFC) chaired the last day of Session 4, *Climate Models, Processes, and Solar Irradiance*. v v



<< David Young (NASA Langley) gave a talk on the CLARREO (Climate Absolute Radiance and Refractivity Observatory) Mission in Session 4.



After a full day of talks, the group continued the day's science discussions during a special dinner at *La Casa Sena*, a local Santa Fe favorite in the heart of old town. The warm ambiance, delicious northern New Mexican cuisine, and award winning wine list set the stage for in-depth science debate late into the evening.



>> Tom Woods (LASP) and Claus Fröhlich (Phys.-Meteor. Observatorium Davos, Switzerland) having a friendly discussion on the latest TSI values.





The final day, a continuation of Session 4, began with a keynote talk by Tom Crowley (Univ. of Edinburgh) on volcanoes and solar variability. Late morning Tom Woods concluded the 5th Anniversary SORCE Meeting by summarizing with several key questions that SORCE hopes to answer during its extended mission.



^^ Steve Volz (NASA Headquarters) gave the last talk of the meeting, "NASA ES New Mission Concepts for the Future".

>> Paul Newman (GSFC) and Stella Melo (Canadian Space Agency). Paul gave an invited talk entitled "Estimating When the Antarctic Ozone Hole Will Recover".



^^ Claus Fröhlich (Phys.-Meteor. Observatorium Davos) and Jerry Harder (LASP) discuss Jerry's poster, "Spectral Decomposition of the TSI Record Using SORCE TIM and SIM".

The SORCE team extends a hearty thanks to all participants for making the 5th Science Team Meeting so enjoyable, and such a success (even if it was cold in Santa Fe!).



>> Leif Svalgaard (Houston, TX) and Ed Cliver (Air Force Research Lab, Hanscom AFB, MA).



Mark your calendar: 2009 SORCE Science Meeting

Future plans are to meet next in **Montreal, Canada**, as part of the IAMAS Symposia, **July 19-29, 2009**. SORCE will participate in a special 3-day session titled “The Impact of Solar Variability on Earth” during the second week of the conference. The session will address all aspects of the impact of solar variations on the Earth’s climate, atmosphere, and oceans. As new information becomes available, it will be posted to the SORCE Science Meetings website – <http://lasp.colorado.edu/sorce/meetings.html>.



>>
Historic old Montréal,
Quebec, Canada -
Summer at
Place Jacques-Cartier.



***For complete 2008 Meeting information visit –
<http://lasp.colorado.edu/sorce/news/2008ScienceMeeting/>.
The agenda, abstracts, and presentations are all on-line,
as well as a fun Photo Gallery!***

