



SORCE Science Meeting Speakers Announced –

2010 SORCE Meeting

Keystone, Colorado

May 19-21, 2010



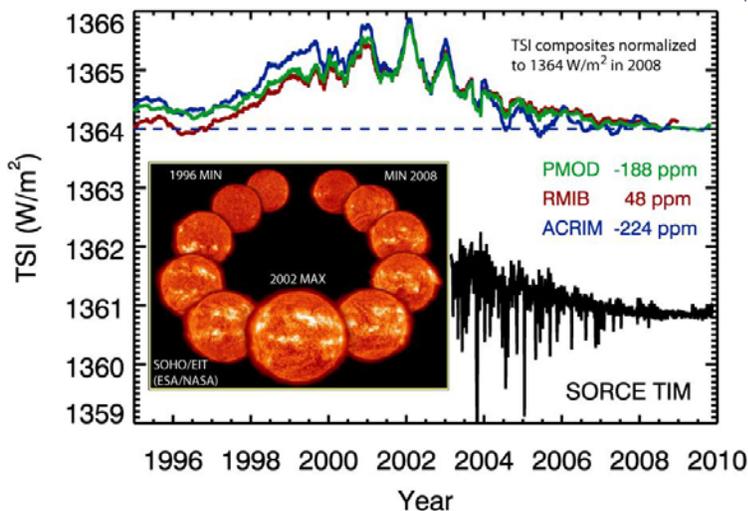
Solar and Anthropogenic Influences on Earth: The Current Solar Minimum and Predictions for Future Decades

We are pleased to announce the next SORCE Science Meeting! The organizing committee (Bob Cahalan, Greg Kopp, Judith Lean, Peter Pilewskie, and Tom Woods) have been honing in on the best sessions to address *Solar and Anthropogenic Impacts on Earth: The Current Solar Minimum and Predictions for Future Decades*. We will be meeting in beautiful Keystone, Colorado, May 19-21, 2010.

As in the past, this interactive meeting will be an opportunity for cross-disciplinary interaction between solar, climate, and atmospheric scientists. The agenda will consist of invited and contributed oral and poster presentations. **Abstracts are due: Feb. 19, 2010.** See the SORCE Meeting website for the **Call for Abstracts**. A brief meeting summary is below.

<http://lasp.colorado.edu/sorce/news/2010ScienceMeeting/index.html>

Relative to the past three solar minimum epochs of the space era (1976, 1986 and 1996) the current solar minimum (2008-2009) between solar cycles 23 and 24 is unusually prolonged, with record numbers of sunspot-free days, record low solar polar magnetic fields, and record high levels of cosmic ray flux. Evidence is accumulating for broad ranging terrestrial responses to the current inactivity of the Sun. The lack of global warming since 2002 can be attributed in part to declining solar irradiance, which, together with La Niña cooling, has cancelled much of recent anthropogenic warming. Reduced solar UV irradiance and corresponding lower ozone levels may be obscuring the recovery from anthropogenic ozone depletion by CFCs. In the upper atmosphere and ionosphere, temperatures are anomalously cool and densities are reduced relative to previous solar minima; but these changes may also be related to accumulated greenhouse gas cooling in the upper atmosphere.



Are spectral and total solar irradiance levels lower now than during past minima, and how much will they increase during solar cycle 24? Are we entering a new prolonged period of anomalously low activity such as the Dalton Minimum in the early 1800s? Can we identify anomalous behavior in the solar dynamo and surface flux transport during the current minimum? How are heliospheric changes altering incident cosmic ray fluxes and the Earth's near-space environment? Can we reliably discern the terrestrial signatures of the current solar inactivity – at the surface, in the stratosphere and in space weather? What does understanding of the present (in the context of the past) infer for the future variability of Earth's environment?

Motivated by these questions, the 2010 **SORCE** Meeting will address the current state of and future expectations for the integrated Sun-Earth system. Below are the proposed sessions. Each of the three sessions, which are briefly described below, include the following confirmed speakers in alphabetical order.



Proposed Sessions:

1. This Unique Solar Cycle Minimum

A broad range of spaceborne and ground-based measurements are characterizing the current solar minimum better than any prior.

- Paul Charbonneau, University of Montreal, Canada
- Matt DeLand, SSAI, Maryland
- Steven Dewitte, Royal Meteor. Inst. of Belgium, Brussels
- Wolfgang Finsterle, Physikalisch-Meteorologisches Observ. Davos, Switzerland
- Claus Fröhlich, Physikalisch-Meteorologisches Observ. Davos, Switzerland
- Jerry Harder, LASP, Univ. of Colorado
- David Hathaway, NASA Marshall Space Flight Center, Huntsville, Alabama
- Greg Kopp, LASP, Univ. of Colorado
- Bill Livingston, NSO, Tucson, Arizona
- Dick Mewaldt, Caltech, Pasadena, California
- Marty Snow, LASP, Univ. of Colorado
- Ken Tapping, Natl. Research Council, Herzberg Inst. of Astrophysics, BC, Canada
- David Webb, Boston College, Chestnut Hill, Massachusetts
- Dick White, LASP, Univ. of Colorado
- Dick Willson, NASA JPL, Pasadena, California
- Tom Woods, LASP, Univ. of Colorado

2. Forcings During This Minimum and Forecasts for the Next Solar Cycle

What is the latest knowledge of the climate forcing agents, and what climate predictions can we draw?

- Waleed Abdalati, CIRES, Univ. of Colorado
- Dieter Bilitza, NASA GSFC
- John Emmert, NRL, Washington, DC
- Georg Feulner, Potsdam Inst. for Climate Impact Research, Germany
- Rich Stolarski, NASA GSFC
- Thomas Stocker, Univ. of Bern, Switzerland
- KK Tung, Univ. of Washington, Seattle
- Mark Weber, Univ. of Bremen, Germany

3. Recommendations for the Future: How to Improve the Climate Data Record?

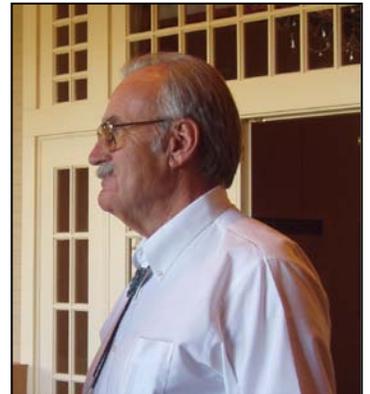
Future missions promise further improvements in climate data records.

- John Bates, NOAA, Boulder, Colorado
- Bill Collins, Univ. of California, Berkeley
- Dean Pesnell, NASA GSFC
- Peter Pilewski, LASP, Univ. of Colorado
- Gérard Thuillier, Service d'Aéronomie du CNRS, France

Meeting details will be posted on the **SORCE** website (<http://lasp.colorado.edu/sorce/news/meetings.htm>) as they become available. **Abstracts** are due **Feb. 19** and the Abstract Form is available online. Registration and lodging materials will be available in early 2010, but mark your calendar today! The **lodging and pre-registration** (discounted fee) deadline is **April 16**. We encourage your participation and hope you will join us. The meeting will be held at the *Keystone Resort and Conference Center*. Stay tuned for additional details!

Dick White Tribute

There will be a special session in recognition of O. R. (Dick) White's contributions to solar Physics on Tuesday, May 18, just before the **SORCE** Meeting begins. Gary Rottman will chair the session called *Where did the first 50 years go?* Speakers who will reflect on Dick's contributions include Kim Malville, Bill Livingston, Tom Bogdan, and Gary Rottman. Comments from attendees are welcome (20 minute max), and anyone interested should contact Gary, gary.rottman@lasp.colorado.edu. Please visit the **SORCE** Meeting website for updates.



~~ Please join us! ~~

1,242,517
Hits to the SORCE Website
(Since 4/21/03, As of 12/11/09)

SORCE Participates in WHI Workshop –

By Marty Snow, LASP, Univ. of Colorado

On November 10-13, several SORCE Science Team members participated in the second Whole Heliosphere Interval (WHI) Workshop at HAO in Boulder, Colorado. Tom Woods, SORCE PI, was part of the workshop organizing committee, and SORCE scientists Jerry Harder, Marty Snow, Margit Haberreiter, and Dick White attended. WHI is an international coordinated observing and modeling effort to characterize the 3-dimensional interconnected solar-heliospheric-planetary system, i.e., the "heliophysical" system, during Carrington Rotation 2068 (March/April 2008). WHI is part of the International Heliophysical Year (IHY), on the 50th anniversary of the International Geophysical Year (IGY), and takes advantage of hundreds of observatories and instruments participating in IHY activities. Observations and models of the outer heliosphere and planetary impacts extend beyond those dates as necessary; for example, the solar wind transit time to outer planets can take months (specific dates are determined according to each science topic).

Sessions included discussion of the definition of solar minimum, the origins of solar variability, boundary conditions for solar models, origins and impacts of the solar wind, and the origins of irradiance variability. Several splinter groups also met to discuss coronal mass ejections, active regions, and interactions with the magnetosphere. The format of the each session was an invited presentation, followed by a plenary session where other workshop participants could show a few slides and a general discussion would follow each one. The debate about the definition of solar minimum was extremely lively, but luckily none of the participants were injured.



SORCE Battery Plan –

By Tom Woods, LASP, Univ. of Colorado

In early 2009 during routine housekeeping observations, the operations team noticed that the SORCE spacecraft battery was showing signs of degradation. After months of intensely watching the battery function and discussing developments via weekly telecons, the SORCE project team has recently decided to reduce instrument power during orbit eclipse (night-side of orbit) to help extend the SORCE battery life while still maintaining its full observation set of solar irradiance measurements. The SORCE battery continues to show degradation of Common Pressure Vessel (CPV) #4, 9, and 10. Small changes in routine operations that have minimal, if any, effects on data quality are being considered to help slow the battery degradation. The ultimate goal of these low-risk changes is to maximize battery life



The near-term plan is to power cycle the XPS and SOLSTICE-A instrument during orbit eclipse and to adjust the battery charging profile after evaluating power performance from these instrument operational changes. LASP, GSFC, and Orbital Sciences Corporation (OSC) are also planning to have a battery technical interchange meeting in early January to evaluate battery performance and to discuss additional options to optimize its performance during an extended mission. Some key goals for the SORCE extended mission are to measure the rise of activity for solar cycle 24 and to overlap with the new SDO EVE and Glory TIM observations, which both are anticipated to begin in 2010. With these recent changes in SORCE operations, we expect to surely achieve these goals during the SORCE extended mission.

Except for our concern of the battery life, the SORCE extended mission operations and solar observations are going very well. In the last Senior Review proposal, we had an estimate of 2015 or later for the SORCE battery life. This estimate will likely be reduced now; we plan to have new estimate for battery life after our battery meeting in January.

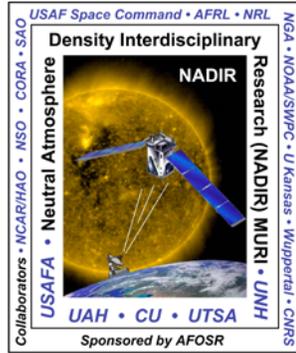


Leonard Strachan (Harvard Smithsonian CFA) led a Plenary discussion with Kristin Simunac (Univ. of New Hampshire) at the WHI Workshop. Their session was on solar wind origins and impacts on the Earth.

Fontenla Convenes Session at MURI Meeting –

By Juan Fontenla, LASP, Univ. of Colorado

The *Multidisciplinary University Research Initiative (MURI)* Meeting, was held Nov. 18-19, in Boulder, Colorado at the University of Colorado's Discovery Learning Center. This particular gathering was called *NADIR: Neutral Atmosphere Density Interdisciplinary Research*. SIM instrument scientist, Juan Fontenla was the convener for the "Forecasting Solar Radiation" session. Juan also gave a talk in this session called "*Current Status of the XUV/EUV/UV Forecast*". In addition, Tom Woods and Margit Haberreiter each gave talks called "*Comparison of Solar EUV Irradiances from TIMED*" and "*Update of the calculation of the solar UV/EUV*", respectively. The other sessions were: 1) L1-Thermosphere Coupling, 2) Lower Atmosphere Coupling, and 3) Forecasting Solar Wind Conditions at L1. For additional information, please visit the meeting website at: <http://ccar.colorado.edu/muri/meetings.htm>.



Upcoming Meetings / Talks – SORCE scientists plan to present papers or attend the following 2009-2010 meetings:

- WHI (Whole Heliosphere Interval) Workshop, Nov. 10-13, Boulder, Colorado
- MURI (Multidisciplinary University Research Initiative) Meeting, Nov. 18-19, Boulder, Colorado
- ISSI Working Group – Modeling of Solar Spectral Irradiance Measurements, Dec. 9-11, Bern, Switzerland
- AGU Fall Meeting, December 14-18, San Francisco, California
- ISSI Working Group – Cross-Calibration of past FUV Experiments, Jan. 11-12, 2010, Bern, Switzerland
- SORCE Science Meeting**
May 19-21, 2010, Keystone, Colorado

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



Happy Holidays!