



## *SORCE Represented at National and International Meetings –*

The spring/summer months are busy times for solar conferences, and the SORCE scientists are actively involved. The Spring AGU Meeting in New Orleans attracted several SORCE team members. Using SOLSTICE instrument data, Marty Snow presented a poster called “*The Magnesium II Index at High Spectral and Temporal Resolution*”. Greg Kopp presented a poster, “*A Comparison of TSI to Mg II Index based on SORCE Measurements*”, and Chris Pankratz presented a poster on the “*SORCE Solar Irradiance Data Products*”. Tom Woods, SORCE Project Scientist, presented information on solar ultraviolet variability from XPS measurements obtained from the TIMED and SORCE missions in his invited presentation called “*Recent Measurements of the Solar UV Irradiance Variability and Application for Planetary Atmospheric Research*”.

Gary Rottman was invited to speak at the ISSI Workshop on Solar Variability and Planetary Climates, June 6-10, in Bern, Switzerland. The goal of this exclusive workshop was to examine in detail the chemical and dynamical processes leading to atmospheric change, driven directly and indirectly by solar variability. Gary presented “*Measurement of Total and Spectral Solar Irradiance*”.

The program committee for the June Solar Variability and Earth Climate Symposium in Italy invited Jerry Harder and Juan Fontenla to each speak on the latest SIM data. Jerry spoke on “*Solar Spectral Irradiance Variability Comparisons of the SORCE SIM Instrument with Monitors of Solar Activity and Spectral Synthesis*”. Juan gave a talk on “*Physical Models for Understanding the Solar Irradiance Variations*”. This meeting reviewed the most recent knowledge of solar variability and its effects on the Earth’s climate system.

Coming up later this summer is a TSI Calibration Workshop in Gaithersburg, Maryland, and the annual SPIE Conference in San Diego. SORCE co-investigator, Peter Fox from NCAR, will be representing SORCE at the IAMAS 9<sup>th</sup> Scientific Assembly in Beijing, China. Jerry Harder will be co-chairing a session at the Characterization and Radiometric Calibration for Remote Sensing Conference in Logan, Utah, August 23-25.

## *2005 SORCE Science Meeting September 14-16 Durango, Colorado*

**Abstract Deadline – August 1**

**Registration / Lodging Deadline – August 12**



Aspens in the fall outside of Durango.

Everyone is invited to attend the 3<sup>rd</sup> Annual SORCE Science Meeting – ***Paleo Connections Between the Sun, Climate, and Culture*** – as we vastly extend the time domain to paleoclimate and very long-term changes in the solar output.

The meeting will take place in **Durango, Colorado**, a town rich in history, beauty, and southwest culture. The fall is always a very special time in this area, as the aspen leaves put on their annual performance. Please make hotel reservations early!

Complete meeting information is available at – <http://iasp.colorado.edu/sorce/2005ScienceMeeting/>, where you will find a detailed science program description, tentative agenda, confirmed speakers, online abstract and registration forms, as well as lodging and other logistical information. We encourage your participation and hope that you will share this announcement with colleagues.

## Solar Physics Special Issue –



The SORCE team has been very busy over the past year preparing 18 individual papers to be published in a special issue of *Solar Physics*. This “topical issue” will be devoted exclusively to the SORCE mission, and will later be published

in a hard cover version. All papers have been submitted and are in the final editing/proofing stages. This SORCE issue is expected to be published in August.

The papers provide detailed information on the SORCE mission, goals, spacecraft, instruments, planning software, ground operations, data processing, early science results, and science implications. Each instrument has several papers which are addressing instrument concept, design, science requirements, calibration, performance, and science results. The papers and their first authors are:

- **The SORCE Mission for the NASA Earth Observing System (EOS)**,  
by Don Anderson and Bob Cahalan
- **The SORCE Mission**, by Gary Rottman
- **The SORCE Spacecraft and Operations**,  
by Tom Sparn
- **The SORCE Science Data System**,  
by Christopher Pankratz
- **SORCE Contributions to New Understanding of Global Change and Solar Variability**,  
by Judith Lean
- **An Overview of the Disposition of Solar Radiation in the Lower Atmosphere: Connections to the SORCE Mission and Climate Change**,  
by Peter Pilewskie
- **TIM: Instrument Design**, by Greg Kopp
- **TIM: Instrument Calibration**, by Greg Kopp
- **TIM: Science Results**, by Greg Kopp
- **SIM Scientific Requirements, Instrument Design, and Operation Modes**, by Jerry Harder
- **SIM: Measurement Equation and Calibration**,  
by Jerry Harder
- **SIM: Early Observations**, by Gary Rottman
- **SOLSTICE II: Instrument Concept and Design**,  
by Bill McClintock
- **SOLSTICE II: Pre-Launch and On-Orbit Calibrations**, by Bill McClintock
- **SOLSTICE II: Examination of the Solar-Stellar Comparison Technique**, by Marty Snow
- **The Magnesium II Index from SORCE**,  
by Marty Snow

- **XPS: Overview and Calibrations**, by Tom Woods

- **XPS: Solar Variations During the SORCE Mission**, by Tom Woods

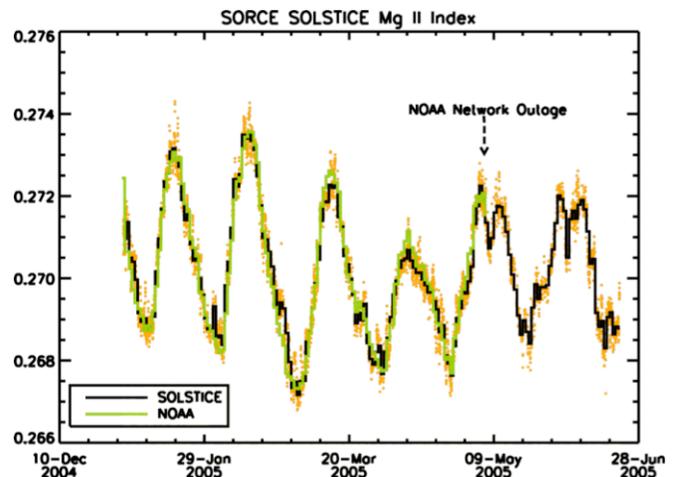
As soon as reprints are available, an announcement will go out to the solar community. We are expecting this to be in the fall. We plan to have copies of the papers available at the SORCE Science Meeting in September in Durango. The hard cover volume will most likely be available in early 2006.

## Marty Snow Provides Space Weather Data for NOAA –

The primary mission of SORCE is to provide measurements of the solar input to the Earth's environment for climate research. That is what the "C" in SORCE represents. But the data can also be used to study much shorter timescale solar influences. In particular, the variation in the solar irradiance is an important driver of changes in the upper atmosphere on a daily basis. Space Weather is the term used to describe the “weather” in the upper atmosphere that responds quickly to changes of the solar UV radiation and particle fluxes.

Just as the study of weather at the Earth's surface requires a steady supply of nearly real-time data, the study of the near-Earth environment also requires a stream of nearly real-time data. One of the important proxies for solar irradiance variability is the Magnesium II core-to-wing ratio. The SOLSTICE instrument on SORCE observes this part of the solar spectrum on a regular basis, and is therefore in a position to provide this index measurement shortly after every spacecraft downlink (generally twice per day).

The standard source for the Mg II index is the NOAA Space Environment Center, but starting in early



This is an example of the daily averaged measurement of the Mg II index available on the LASP anonymous FTP site.

May 2005, problems with the computer network made their data unavailable. To help fill this gap in current data, the SOLSTICE team has put their daily averaged measurement of the Mg II index on the LASP anonymous FTP site --

([laspftp.colorado.edu/pub/solstice/sorce\\_solstice\\_mg2\\_index.txt](ftp://laspftp.colorado.edu/pub/solstice/sorce_solstice_mg2_index.txt))

This file is updated twice per day with the most current observations and is freely available to anyone.

Expanding the availability of near real-time data from SORCE to include other spectral bands and line emissions that are useful to the Space Weather community are planned for the near future, and more details will be provided once the system is up and running. For further information, contact Marty Snow ([snow@lasp.colorado.edu](mailto:snow@lasp.colorado.edu)).

### ***SORCE Plans Deep Impact Supporting Observations –***

On July 3, 2005, the Deep Impact mission will hit comet Tempel 1 with a 370 kg block of copper at a speed of 10 km/s. The matter ejected from the impact will form a cloud around the comet. Sunlight will ionize and excite the atoms in the cloud, and the fluorescent emissions from hydrogen, carbon, oxygen, and carbon monoxide may be visible with the SORCE SOLSTICE instrument.

Ken Griest, SORCE observation planner, will carefully schedule the spacecraft attitude to optimize visibility of the comet. SOLSTICE will take FUV and MUV spectra of the comet every orbit for a few days following the impact. The comet won't come into view until about an hour after impact, so no observations will be possible until then. Depending on how large the cloud of debris is, SOLSTICE may or may not be able to detect any signal. But we have our fingers crossed!

**119,910**

**Hits to the SORCE Website**

*(Since 4/21/03, As of 6/20/05)*

### ***Upcoming Meetings / Talks – SORCE scientists plan to present papers or attend the following 2005 meetings:***

ISSI Workshop on Solar Variability and Planetary  
Climates, June 6-10, Bern, Switzerland  
Solar Variability and Earth Climate Symposium,  
June 27-July 1, Monte Porzio Catone (Rome), Italy  
TSI Calibration Workshop, July 18-20,  
NIST, Gaithersburg, Maryland  
SPIE, July 31-August 3, San Diego, California  
IAMAS 9<sup>th</sup> Scientific Assembly, August 2-11,  
Beijing, China  
Characterization and Radiometric Calibration for  
Remote Sensing, August 23-25, Logan, Utah  
SORCE Science Meeting, September 14-16,  
Durango, Colorado

**To submit information to this newsletter, please contact:  
[vanessa.george@lasp.colorado.edu](mailto:vanessa.george@lasp.colorado.edu).**