

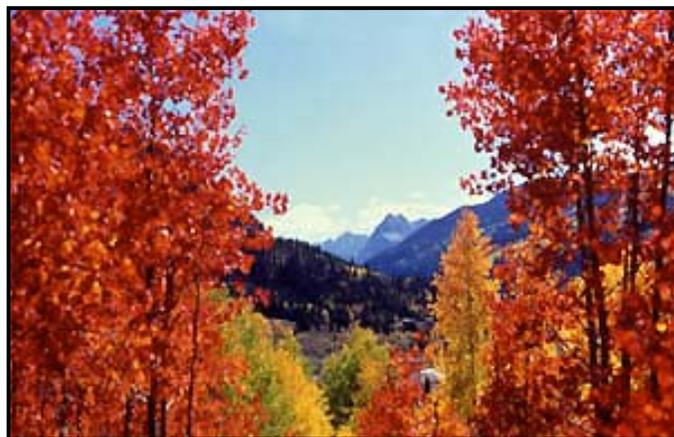


## *Paleo Connections Between the Sun, Climate, and Culture –*

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

Solar activity, the Earth's climate and human culture, all undergo change. An increasing number of paleoclimate records, for example in ice-cores, ocean sediments, lake levels and tree-rings, suggest a solar contribution to past climate change because many records correlate strongly with the  $^{10}\text{Be}$  and  $^{14}\text{C}$  cosmogenic isotopes. The cosmogenic isotopes are considered to be proxies of solar activity, because solar modulation of the heliosphere alters the flux of incoming galactic cosmic rays which produce the isotopes. Furthermore, comparisons of paleoclimate records with archaeological evidence of past human cultures suggests that solar-driven climate change may have contributed to the prosperity and demise of various civilizations, for example in the Yucatan and East Africa.

The 3<sup>rd</sup> Annual SORCE Science Meeting will concentrate on both the empirical evidence and physical processes that link the sun, climate and culture in the distant past. This includes understanding the relationship between solar irradiance and cosmogenic isotopes,



The San Juan Mountains in the fall outside of Durango.

which are typically assumed to reflect changes in solar brightness since this energy modulation is a million times larger than that of cosmic rays themselves. The lack of global climate records makes it difficult to discern the spatial pattern of the apparent climate response to past solar variability, which can provide clues about possible mechanisms. Nevertheless, from assorted paleo evidence at equatorial, mid- and high-latitudes, sometimes in combination with more recent datasets, a number of processes have been suggested. These include changes in the location of the intertropical convergence zone and in various dynamical modes including the North Atlantic Oscillation, the El Niño Southern Oscillation, and in the Hadley and Walker Circulations. Civilizations most susceptible to solar-driven climate change appear to be those located in regions where rainfall and drought are especially vulnerable to changes in these climate variability modes and circulation patterns. This emphasizes the need to understand the role of the hydrological cycle in the sun, climate, culture connection.

### **Proposed Sessions:**

- Evidence for long-term solar activity and reconstructions of past solar irradiance.
- Interpreting the solar and climate sources of cosmogenic isotope variations, and their relationship to solar irradiance.
- Empirical evidence for climate responses to solar variability, and cultural impacts.
- Physical processes linking climate and cultural responses to solar variability.



Although never completed, Sun Temple in Mesa Verde National Park reflects a great construction effort by the people who once lived there. In the SW corner is an eroded stone with three small indentations that may have served as a sun dial to mark the change of seasons.

Everyone is welcome to the 2005 meeting as we vastly extend the time domain to paleoclimate and the very longest-term changes in the solar output. The meeting will be held at the Doubletree Durango Hotel. The changing aspen leaves should be spectacular at this time of year! Additional information will be posted on the [SORCE Meeting website](http://lasp.colorado.edu/sorce/meetings.html) –

<http://lasp.colorado.edu/sorce/meetings.html>. Mark your calendar today! The call for abstracts and registration materials will be coming out in May. The abstract/pre-registration deadline is early August.

***Gary Rottman***  
***Special Session***  
***Tuesday, Sept. 13, afternoon***

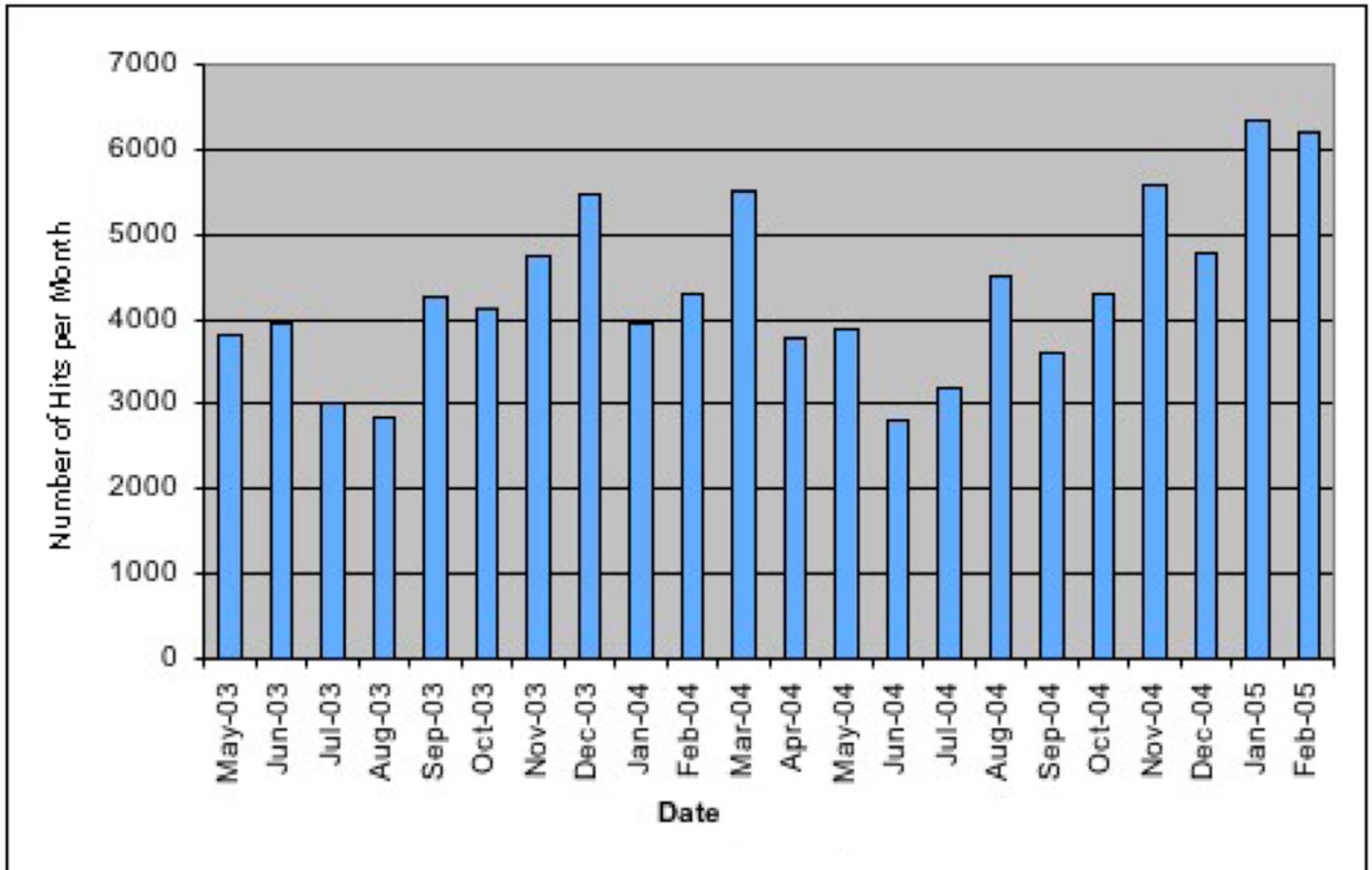
In recognition of Gary Rottman’s retirement, a special session is planned in his honor just prior to the [SORCE Meeting](http://lasp.colorado.edu/sorce/meetings.html). A few colleagues and his former graduate students will be gathering on Tuesday afternoon, September 13, to share science and personal experiences in working with Gary. The afternoon will end with a reception, which will also be the kick-off for the 3<sup>rd</sup> Annual [SORCE Meeting](http://lasp.colorado.edu/sorce/meetings.html). Everyone is invited to attend this special session and the reception.

## *SORCE Website Exceeds 100,000 Hits!*

The first week in March the [SORCE website](http://lasp.colorado.edu/sorce/) topped 100,000 hits. The formal count began in April 2003 – 12 weeks after launch. Below is a graph showing how website use has grown over the months. We have not yet analyzed exactly what the specific targets are on the [SORCE site](http://lasp.colorado.edu/sorce/), but plan to soon.

The site’s growing popularity is due to increasing [SORCE science data availability](http://lasp.colorado.edu/sorce/). Total Solar Irradiance (TSI) and Spectral Solar Irradiance (SSI) data products can be accessed on the [SORCE website](http://lasp.colorado.edu/sorce/tsi_data.html) at [http://lasp.colorado.edu/sorce/tsi\\_data.html](http://lasp.colorado.edu/sorce/tsi_data.html) or at [http://lasp.colorado.edu/sorce/ssi\\_data.html](http://lasp.colorado.edu/sorce/ssi_data.html), respectively. The data are accessible in several formats – automatically updated plots and interactive query/plot tools.

**100,325**  
**Hits to the SORCE Website**  
*(Since 4/21/03, As of 3/14/05)*



Hits to the [SORCE website](http://lasp.colorado.edu/sorce/) on a monthly basis.

## ***Upcoming Meetings / Talks –***

*SORCE scientists plan to present papers or attend the following 2005 meetings:*

Space Weather Week, April 5-8,

Broomfield, Colorado

AGU Spring Meeting / AAS Solar Physics Division,

May 23-27, New Orleans, Louisiana

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

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

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