



November Solar Storms and Aurora –

By Tom Woods, SORCE LASP Project Scientist

In 2003 the October solar storms obtained significant attention from the scientific community as well as from the press and public. These storms upset the Earth's magnetic field, and disrupted satellite communications worldwide. In 2004 the Sun again put on a fascinating show during the Halloween season with several large flares and coronal mass ejections (CMEs). During late October and early November 2004, there were 22 M-class flares and 3 X-class flares as shown in Figure 1. Of these 25 large flares, the SORCE XPS instrument observed the peaks during 16 flares and observed the irradiance decay during all of the flares. The largest flares observed by XPS have increases in the 0.1-7 nm range by factors of 17 and 20 on November 7 and November 10, respectively.

One of the largest CMEs during this period arrived at Earth on November 7, 2004, and aurora was observed as far south as 35° latitude, including in Boulder, Colorado. Auroral lights are caused when the high speed particles from the Sun collide with the nitrogen and oxygen gases. While these flares and CMEs in November 2004



Figure 2. Red and green aurora was observed in Colorado on November 7, 2004. Photo was taken by Darrell Spangler (<http://www.spaceweather.com>).

were not as large as the ones in 2003, this active time will be another interesting period to study the effects of solar activity on the Earth system.

SORCE Science Meeting Update –

2004 – A summary article of the SORCE Science Meeting in New Hampshire will be published in the November/December issue of EOS's The Earth Observer. This article will also be posted on the SORCE website when it becomes available.

2005 – The confirmed meeting dates are September 14-16, and the site will be Durango, Colorado. The changing aspen leaves make Durango the perfect destination in the fall. The 2005 meeting will vastly extend the time domain to paleoclimate and the very longest-term changes in the solar output. Everyone is welcome. The meeting will be held at the Doubletree Durango Hotel downtown.

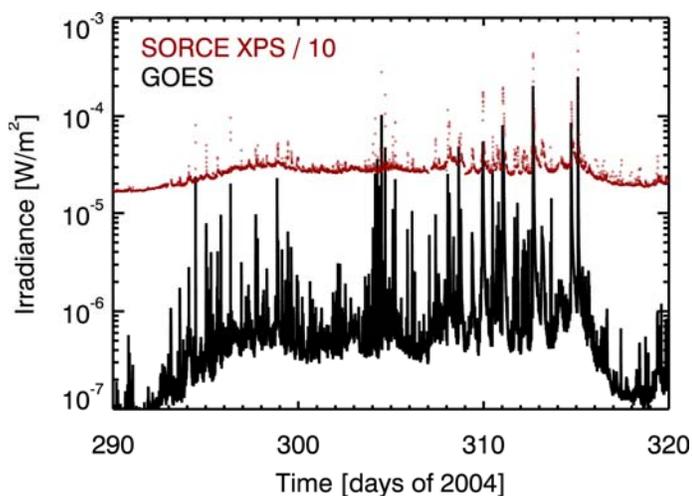


Figure 1. Solar X-ray time series during the Halloween 2004 solar storm period. The GOES X-ray 0.1-0.8 nm irradiance is shown in black, and the SORCE XPS 0.1-7 nm irradiance, which is reduced by a factor of 10, is shown in red. An M-class flare has a GOES X-ray irradiance above $1 \times 10^{-5} \text{ W/m}^2$, and an X-class flare has a GOES X-ray irradiance above $1 \times 10^{-6} \text{ W/m}^2$.

83,240
Hits to the SORCE Website
(Since 4/21/03, As of 12/20/04)

Upcoming Meetings / Talks –

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

Space Weather Week, April 5-8,
Broomfield, Colorado

European Geosciences Union (EGU), April 25-29,
Vienna, Austria

AGU Spring Meeting / AAS Solar Physics Division,
May 23-27, New Orleans, Louisiana

Solar Variability and Earth Climate, June 27 - July 1
Monte Porzio Catone (Rome), Italy

IAGA General Assembly / IUGG, July 18-29,
Toulouse, France

SPIE, July 31 - August 3, San Diego, California

**To submit information to this newsletter, please contact:
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Happy Holidays!