

# THE STAR DIAGONAL

THE JOURNAL OF THE OGDEN ASTRONOMICAL SOCIETY

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## Meeting Announcement

Our meeting for January will be on the 14<sup>th</sup>. It will begin at 7:30pm in the Ott Planetarium and WSU.

## OAS Minutes – December 2009

The December meeting of the Ogden Astronomical Society was held on December 10, 2009 in the Ott Planetarium at Weber State University. The meeting was called to order by President Dustin Klein at 7:30. The executive committee met earlier in the week to discuss the 2010 Calendar, some finalizing by the University and Antelope Island will be done shortly and the calendar will be posted on the OAS website.

A few camping trips still need to be voted on by the club. In June the choices are Parowan Gap or Craters of the Moon. Also discussed was changing the August Monte Cristo to possibly Soap Stone in the Uintas. According to Snow Basin management there may be 1 star party in September. The floor was opened to any ideas for star parties during the next year. One idea was to possibly hold a star party at the Bird Refuge, the skies are not extremely dark but the parking is great and it is free.

Lee brought in the desk calendars, if you ordered one make sure to pick it up at the next meeting. Dustin is trying to get a Stacey Palen as the next guest speaker to discuss her sabbatical in Chile. The last month's meeting was recapped. Ron wanted to know whether anyone else saw the meteorite, or the spiral light from the night before that turned out to be an out of control missile from Russia. Wayne asked for opinions on an inflatable planetarium—a Davis county junior high is in the market to buy one. Kay received another shipment of green lasers. He has 12 of them for sale, for \$31 each. Dale brought in a movie produced by The History Channel entitled "The Outer Planets."

## Star Party Schedule

### Proposed Public Parties

April 17	Antelope Island
May 8	Antelope Island
June 12	Antelope Island
August 14	Antelope Island
September 11	Antelope Island
October 2	Antelope Island

Our Private Star Parties are as follows.

Feb 12-14	St. George
Mar 12-14	Curlew
May 12-16	Dead Horse Point
June 3 – 6	Craters or Parowan Gap
July 6-11	Monte Cristo
Aug 3-8	Monte or Unitas
Sept 1-6	Campout TBA
Nov 5-7	Curlew

## "Year in Space" Calendars

The "Year in Space" Calendars have arrived. For those that ordered them, Lee will have them at the meeting for you to pickup.

## Green Lasers for Sale

Kay Hargis has Jasper green laser pointers for sale. Kay purchased them at a volume discount. They are \$31 each and come with 2 AAA batteries and a plastic case. Kay will be at the meeting on the 14<sup>th</sup>. You can also reach Kay at [n7kh@juno.com](mailto:n7kh@juno.com).

# They're Back!

By Jim McCormick

Everyone knows the sunspot cycle from minimum to minimum lasts, on average, eleven years. The “solar cycle” is actually twice as long due to a reversal of the magnetic fields of the sunspots. Consider the Sun’s northern hemisphere. Sunspots tend to appear in pairs that travel across the Sun from left to right (the Sun’s western limb to its eastern limb). If the leading spot of the pair has a north polarity, the trailing spot has a south polarity. During an eleven-year sunspot cycle, pairs in the southern hemisphere will have opposite polarities (i.e., the leading spot will have a south polarity). This configuration last throughout the eleven-year cycle. For the next eleven year cycle, all these polarities will reverse. During each eleven year cycle sunspot activity increases, reaches a maximum, then decreases back to minimum. At the beginning of the cycle, sunspot groups first appear at higher latitudes and form at latitudes increasingly closer to the solar equator as the cycle progresses.

The current cycle, cycle 24, should have begun around January, 2008, according to some prognosticators. One would think that one cycle would decrease activity to zero level and then sunspots from the subsequent cycle would start to appear. This is not how it goes, however. For a time, sunspots from both cycles develop and appear concurrently; there is an overlapping of the cycles. If you were to assign a particular date as marking the transition from one cycle to the next, it would be a period when the number of new spots, match the number of old spots. From January to September in 2008, 82% of sunspots were cycle 23 spots. The breakeven point occurred in October, 2008.

In 2008, reminders of the “Maunder minimum” began to appear in the blogs. The Maunder minimum was the name given to a period that extended from 1645 to 1710 and was correlated with a period of long, cold winters in Europe known as “The Little Ice Age.” It was also a span of years during which the sunspot counts approached zero. There is a bit of controversy associated with the Maunder minimum in that many sunspots may have escaped detection, that the sunspot count was not as

low as reported even though there is little doubt that the sunspot count was unusually low. Could a new minimum and little ice age be coming our way? Would this maybe counter global warming?

A year ago I began checking the SOHO website regularly, looking for for some nice juicy sunspot groups suitable for imaging. The candidates were few and very far between. There was a small group consisting of a half dozen or so spots that appeared from January 10 to 13, but weather prevented me from getting images. This was followed by a stretch that extended to May 31 that showed only a few tiny individual spots and some faculae. Finally, a small group of sunspots developed during a 12 hour period on May 31. It traveled about 90° across the Sun, fading away by June 6.

I did no imaging at all in June and July, being focused on getting my observatory built. This was too bad because an opportunity to capture one of the best groups of 2009 occurring from July 3 to July 10 was missed. On the 3<sup>rd</sup>, a small sunspot turned into a group of five or six in about two hours. These continued to grow and spread out as they moved eastward across the Sun. On July 7, a few of the spots combined to form one large leading spot. The next day, more smaller spots combined forming a large trailing spot. The entire configuration faded away on July 8 as it approached the Sun’s eastern limb. To see the whole sequence, go to the SOHO website at [http://sohowww.nascom.gov/data/realtime/mdi\\_igr/512](http://sohowww.nascom.gov/data/realtime/mdi_igr/512) and click on “SOHO Movie Theater” and choose “MDI Continuum” and 2009-07-03 and 2009-07-10 for the start and end dates. The birth and death of this group is interest to watch.

Because the remainder of July, the whole month of August and the first three weeks of September showed little activity, I was beginning to wonder about this Maunder minimum business. Relief came on September 21 and 22 when spots appeared in both the north and south hemispheres. These were not spectacular in size or complexity, but the northern group was interesting in the way it faded and regrouped. The leading spot faded away by the 27<sup>th</sup> while the trailing spot continued toward the east limb. A new spot appeared near it and the “new” group developed, reaching a maximum size

on the 28th. The group quickly began to fall apart and was gone by September 30.

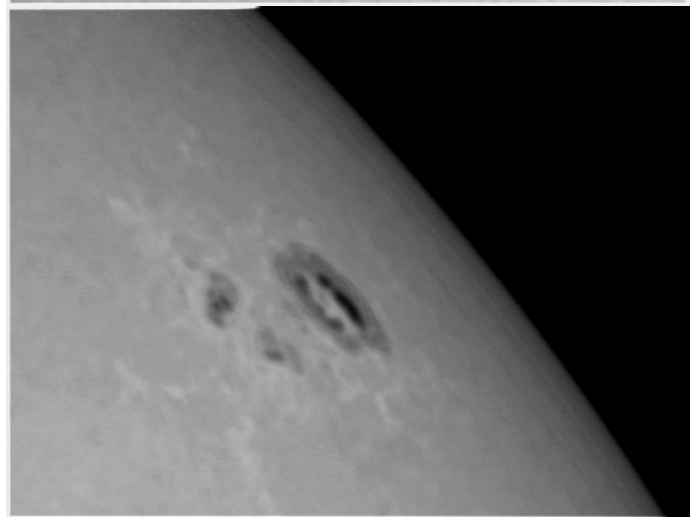
October started badly with nothing seen until the 23<sup>rd</sup> when a group of small spots appeared in the north, close to the meridian. This developed into a nice group reaching maximum size and complexity on October 27. I was able to get images of this group before it went around the east limb on the 30<sup>th</sup>.

November produced more spots, a short-lived pair on the 9<sup>th</sup> and 10<sup>th</sup>, a small loner for three days beginning November 14 and a sunspot group which grew on the 18th, faded and then darkened again before disappearing near the meridian on November 22.

A small spot appeared around the west limb on December 9, but quickly vanished. This may have been the remains of a spot or a group that developed on the Sun's far side. A group of small spots appeared in the northern hemisphere on December 13. As these moved eastward, a new group formed about 15° north of them. Both groups were visible on the 14<sup>th</sup>, but the southern group faded while the northern group enlarged later that day. By December 15<sup>th</sup> the number of spots within the group had increased. More than 16 individual spots can be seen in the SOHO image on December 15<sup>th</sup>. The group peaked on the 17<sup>th</sup> (see SOHO image). Three days later this beautiful group is gone, but two new groups formed, one in northern hemisphere and the other in the south, the more prominent of the two. Both groups faded, showing only faculae on the 23<sup>rd</sup>.

To bring us up to date, one more group formed on December 26 and is still going strong as I write (December 30). It is a group consisting of a half dozen spots of respectable size.

So as we head into a new year, it would seem that there will be no Maunder type minimum this time around. For those of you with cameras (either CCD or film), 2010 appears to be promising. For those interested in expanding their hobby, planetary, lunar and solar imaging is a good and inexpensive way to start. For solar imaging, of course, a solar filter will be needed, but these are not terribly expensive. For a CCD camera, I would recommend the Celestron Neximage camera or a Meade DSI. Another choice might be any of a number of webcams. I have seen some superb lunar images taken with webcams and processed with Registax (freeware). Look into it. You won't be disappointed.



SOHO image