

MISCELLANEOUS
NOTES
CONCERNING
US



the MONTHLY
NOTICES of the
SOUTH SHORE
ASTRONOMICAL
SOCIETY

PRESIDENT . . . John Nicholson
Editor Mark Gibson

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Number 24

- October 4 Wednesday: Meeting of the SSAS at the Nature Center - 8 p.m.
October 6 Friday: Deep sky observing at Wompatuck State Park 9:30 p.m.
Contact Don Greeley at 749-3645.
October 8 Sunday: Lunar & planetary observing session at the Nature
Center at dusk. BRING INSECT REPELLENT!
October 23 or 30 Monday: Astrophotography at home of George East - Call
for time (963-2265). Will be photographing moon.
2nd & 4th Sundays: Solar observing at Nature Center. 10:30-12:00 noon.

THE SUN RECENTLY

During this period the Sun has had numerous sunspots but generally low activity. The sunspot number went from a low of 36 on August 20 to a high of 245 on September 3. Activity became moderate about 30 August. On September 3, region 1276 began a rapid expansion to a Delta formation. As the spot structure spread, the trailing spot nearly joined with the leading spot of region 1271. This near collision of two spots of opposite polarity was expected to set off some flare activity but this did not occur. On 28 August, a major magnetic storm occurred and lasted through 2 September. This disturbance was caused by the disruption of a filament (Hyder Flare) on the central meridian. The extended radiation from this disruption was caused by the existence of a coronal hole. Radiometers were saturated with up to 100,000 flux units at 43 and 80 MHz. Many of you probably read about this filament flare in the newspapers or heard about it on TV. Activity fell off to low by the end of the period.

While I am writing this report (9-27), a major proton event and magnetic storm is just coming to an end. This event began on September 27. I have not heard of or observed any Aurora from it.

Reminder! Solar Section will hold meetings on the second and fourth Sundays of each month from 10:30 a.m. to 12:30 p.m. Sky conditions permitting.

J.A.N.

THEN AND NOW

Neptune	Then	Now
Distance from Sun	2,800,000,000 miles	2,790,000,000 miles
Diameter	37,000 miles	30,075.76 miles
Orbital period	167 years	164.78 years
Moons	1	2
Orbital speed	3.33 m/s	3.37 m/s
Rotation period	---	15.80 days

Mark Gibson

SORRY FOR THE DELAY IN SENDING OUT OF THIS NEWSLETTER.

M.G.

LUNAR PHOTOGRAPHY

By George East

The Moon is one of the easiest astronomical objects to photograph, and also one of the most interesting. Perhaps the most important consideration in Lunar photography is image size or its equivalent, the focal length of the lens. With the exception of scenics, such as Moon-rise, it is important to have a large image if any lunar detail is to be seen. The optimum image size ranges from a minimum of about 1/2 inch diameter up to a maximum of about 10 inches. This requires a focal length of 55 to 1100 inches. Using the shortest focal length, one can expect to record the phases, the lunar seas and major craters, and also eclipses. Detail work generally requires focal lengths over 150 inches.

Obviously a telescope must be used to get these very long equivalent focal lengths, but even most telescopes will not be long enough. Thus it is normally necessary to project the image onto the film much the same as an eyepiece is used to project an image of the sun onto a sheet of paper. Don't make the image too big for your telescope. In general don't use a focal ratio greater than f/120 (about one inch of image per inch of telescope aperture). With the very large image sizes the image will be much larger than the film so you will be making a very detailed picture of a very small lunar region.

Exposures will last from fractions of a second to many seconds. Since the Moon moves through the sky about once per day, the exposure must be short enough so the image does not trail. If no clock drive is used, exposures should be limited to about 1/10 second with these long focal lengths. This means a very fast film must be used, or some compromise of smaller image or a little trailing of the image. Even with a clock drive there are limits imposed by the motion of the moon with respect to the background stars. This limits exposures to about five seconds.

To get the image properly exposed requires the proper combination of focal ratio, film speed, and exposure duration. The phase of the moon also enters into the exposure since the surface brightness of the crescent Moon is much less than the brightness of the full Moon. Also the brightness is less at the terminator where all the interesting shadow detail is. As a trial exposure use f/32 at 1 second for the quarter Moon (ASA 64).

By all means experiment. Don't be disappointed by a number of improperly exposed or blurred photos. Expect to throw away most of the pictures you take. This is true of most astrophotography. Remember the pictures you see in the magazines are the best of the lot. Good luck.