



The Prairie Astronomer

July, 2007

Volume 48, Issue #7

The Official Newsletter of the Prairie Astronomy Club

PAC Program

At the July PAC Meeting: report and slide show on the Nebraska Star Party, and if time permits, a new video from the Chandra Office called: "The X-Ray Universe."

In This Issue

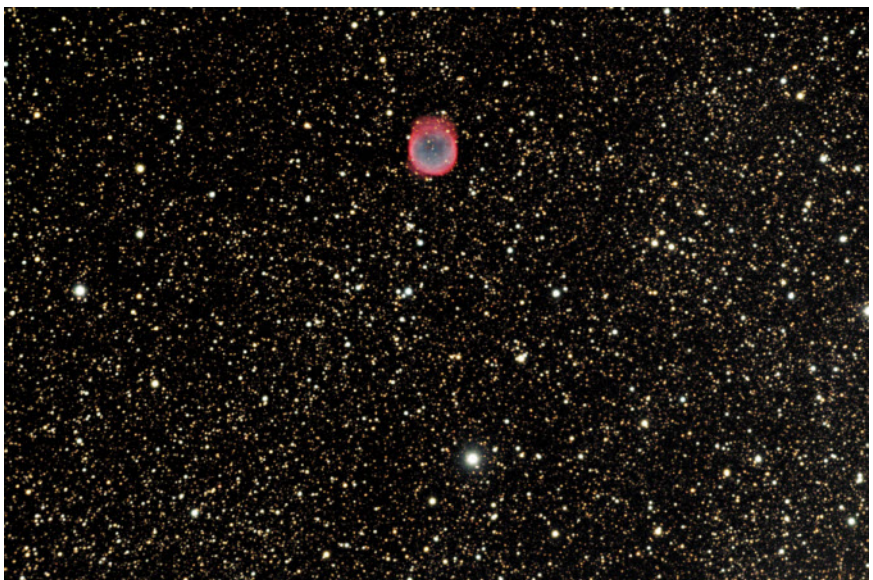
Dave Knisely's review of the 14th Annual Nebraska Star Party.

Featured Astrophoto

Please send your
astrophotos to
Mark Dahmke to
be added to the
PAC website and
the newsletter.

This photo of NGC 6781 was taken by Rick Johnson.

"This is NGC 6781, a planetary nebula in Aquila the eagle. It was taken the only clear night we've had this month that wasn't so dominated by the near full moon as to be worthless to me. NGC 6781 is located right in the Milky Way so there are a ton of stars in this image. Trying to find the distance to this nebula is a problem. Most places I've checked say it is about 2 minutes of arc across, 2,800 light years away and 2 light years across. The problem is the math doesn't work. If you say it is 2 minutes of arc across and 2800 light years away then it is only 1.6 light years across. If it is 2 light years across and 2 minutes across it is about 3600 light years away. The three figures can't all be right. So your guess is as good as mine on its size and distance. I do agree it is about 2 minutes of arc across, I get 115" by my measurement, about 1.9 minutes." -- Rick Johnson



Saturn image courtesy NASA.

The Prairie Astronomer

NEWSLETTER

The 14th Annual Nebraska Star Party -- David Knisely

This year's Nebraska Star Party once again was a wonderful week of fun and relaxation high in the Nebraska Sandhills (elev. 3100 ft) above Merritt Reservoir. Unlike previous years when I stayed in a cabin at the resort on the lake, this time I was staying in nearby Valentine and commuting to the observing fields (a pleasant 33 mile drive). I left bright and early on the morning of Friday, July 13th, but it turned out that despite the date, nothing really bad happened (other than the gas prices being somewhat high). I arrived at my motel around 3 p.m. and after a short fight with my laptop (the motel's wireless Internet wasn't up), a nap, and some dinner, I headed out to the lake. There had been a line of severe thunderstorms developing to the south of Merritt, but they were rapidly moving away, so the sky was mostly clear by the time I pulled into the observing fields. Curiously, very few people were there, so after a short discussion, we "early birds" moved most of our scopes into unoccupied Dob Row to begin our observing. The winds were brisk at times, but they helped keep the mosquitoes away as night fell. Even as the sun just began to go behind the 200 foot high dunes to the north of the lake, I was searching the sky to find Venus. I used the "quick align" feature of my NexStar 9.25 inch SCT and quickly had the scope on the planet to see its crescent phase. Once a tweak of the alignment was done to refine it using Venus, I slewed to Jupiter in the blue sky of early twilight. Although the seeing was somewhat unstable to the south, the big planet still shows its belts and moons. We spend a lot of the "twilight time" just sitting in our chairs and pleasantly talking about various things or looking at our setups and discussing what we would do later on.

As the sky got darker, I had the scope's alignment fine-tuned enough to begin looking at a few double stars in Lyra that I had wanted to pick up. I hit a number of fine doubles including a second "double-double" (Otto Struve 2470-74). The surprise came with the double Otto Struve 525, as it showed a beautiful color contrast of a yellowish primary and a bluish companion star. It is less than a degree north of M57, the Ring Nebula, so it makes a good starting point for an evening of observation. The Ring was looking nice as well, but with

the Milky Way starting to come out in the south, most of us pointed our scopes that direction initially. We tried for the companion to Antares, but the seeing just wouldn't permit anything other than a faint flicker of blue on one edge to be seen. M7 was nice in binoculars, and M6 showed its "butterfly" form very nicely in my NexStar. Someone asked about M5, so I slewed to it and pointed it out using a laser pointer stuck in my finderscope's eyepiece. It was visible with averted vision to the unaided eye as a faint fuzzy spot right next to the fifth magnitude star 5 Serpentis. M5 itself was simply



glorious, as I kicked the power well past 230x and gazed into the heart of that mass of ancient suns.

While taking a break, I looked up at the head of Draco to do my usual star count for limiting magnitude estimates and quickly saw that I was definitely going past 7th magnitude! With the night still young, I hit some galaxies. I sent the NexStar to the edge-on spiral NGC 5907 and saw its thin sliver of light look somewhat mottled down its length. M102 (NGC 5866) was also quite nice, with its brighter core and somewhat pointed ends. I sometimes like to play "wheel of fortune" with the NexStar by typing in some random NGC number on the keypad and seeing if I can actually view what the scope points to. Up at Merritt, this was fairly easy, although some of the targets I ran into were rather small and faint. One galaxy I hit was the "big stinker", NGC 4236 in Draco. This one is a rather large tilted barred

Continued on page 7.

Club Events

PAC Club Meeting
Tuesday, July 31, 2007
7:30pm @ Hyde Observatory

Club Star Party
Friday, August 10, 2007

Mahoney Star Party
Friday, August 10, 2007

PAC Club Meeting
Tuesday, August 28, 2007
7:30pm @ Hyde Observatory

Club Star Party
Friday, September 07, 2007

Mahoney Star Party
Friday, September 14, 2007

Astronomy Class Field School - October 19
Astronomy Class Seminar - November 8

Club star parties: August 10, Sept 7, Oct 12, Nov 9, Dec 7.

Mahoney star parties: August 10, Sept 14.

Next newsletter submission deadline: August 20th.

Club Telescopes - Checkout Policy

To check out one of the club telescopes, contact Brian Sivill or nanoamps@windstream.net. If you keep a scope for more than a week, please check in with Brian once a week, to verify the location of the telescope and how long you plan to use it. The checkout time limit will be two weeks, but can be extended if no one else has requested use of a club scope.



ON THE NET

PAC:
www.prairieastronomyclub.org

PAC E-Mail:
info@prairieastronomyclub.org

NSP:
www.nebraskastarparty.org

NSP E-Mail:
info@nebraskastarparty.org

OAS
www.OmahaAstro.com

Hyde Observatory
www.hydeobservatory.info

NEB-STAR
www.neb-star.org

PAC-LIST: You may subscribe to the PAC listserv by sending an e-mail message to: imailsrv@prairieastronomyclub.org. In the body of the message, write "Subscribe PAC-List your-email-address@your-domain.com"

For example:
Subscribe pac-list
me@myISP.com

To post messages to the list, send to the address

pac-list@prairieastronomyclub.org

Buy club apparel through the club website. Shirts, hats, mugs, mouse pads and more.



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NEWSLETTER

Club Business

Secretary's Report

Ron Veys called the meeting to order. Attendance: 18 PAC members and one visitor. Ron discussed upcoming club events:

- * The next club star party will be held Friday, June 15 at the farm.
- * The next Mahoney Star Party will be Friday, June 15.
- * The next club meeting will be Tuesday, June 26.
- * The 14th annual Nebraska Star Party will take place July 15 – 20, 2007.
- * Hyde Observatory is open from 7:00 – 11:00 pm on Saturdays.

The Mid-States Regional Convention of the Astronomical League, planned for June 8 – 9 in Omaha, was canceled due to insufficient advance reservations.

John Johnson discussed NSP plans and encouraged PAC members to send in their reservations. He noted that the reservation fee goes up June 1.

Jim Kvasnicka gave the Observing Chairman's report. There was a good turnout for the May star party and we're hoping for the same in June.

Bob Leavitt attended the Mahoney Star Party in May. He reported that a good-sized crowd was on hand. There were 7 scopes from Omaha and 1 (Bob's) from Lincoln.

Some club members participated in the International Sidewalk Astronomy Night on May 19 by setting up telescopes in their neighborhoods.

Jack Dunn reported that the new Full-Dome system is working well at Mueller Planetarium. He mentioned that an article had been written about it in the Journal-Star.

Treasurer's report: Lee Thomas reported the following account balances:

CD-1 \$16,835.26
CD-2 \$3,726.07
CD-3 \$5,108.45
PAC Checking Account \$2,319.75
PAC Savings Account \$9,057.54
Total \$37,047.07

Jim Kvasnicka reviewed upcoming observing highlights for the month of June.

The meeting was adjourned to the program. Jim Kvasnicka gave a presentation on observing programs of the Astronomical League. Shawn Langan gave a talk on the Behlen Observatory observing programs and on their outreach programs.

Submitted by,
Bob Leavitt

Observing: What to View in August -- Jim Kvasnicka

This is a partial list of objects visible for the upcoming month.

Major Observing Events for August

Total Eclipse of the Moon: The second total eclipse of the Moon this year will take place on Tuesday morning, August 28th. The total eclipse will begin at 4:52 am CDT and end at 6:23 CDT. See page 70 in your August Sky & Telescope issue for more details.

Perseid Meteor Shower: The Perseid meteor shower will peak at midnight our time on Sunday, August 12th. This is also the date for the New Moon in August so viewing will not be distracted by the moonlight. In dark skies you can expect to see 60-90 Perseids per hour.

Planets

Jupiter: Burning bright in the south just 5° above Antares. The asteroid Vesta at magnitude 7.2 passes 0.4° north of Jupiter on the evening of August 29th.

Mars: Rises around 1:00 am at the beginning of August. Mars will pass 5° to the lower right of the Pleiades on the morning of August 7th. Mars is still a tiny telescope object growing from 7" to 8" in August.

Saturn: In conjunction with the Sun on August 21st and remains out of sight all month.

Venus: Venus is in conjunction with the Sun. At the end of August look for Venus low in the east before sunrise. Throughout August Venus is a very thin long crescent.

Uranus: 6th magnitude in Aquarius.

Neptune: 8th magnitude in Capricornus.

Mercury: Still visible before sunrise at the start of August. On August 15th it reaches superior conjunction with the Sun and drops out of sight.

July Messier List

M10 & M12: A pair of globular clusters in the middle of Ophiuchus.

M107: A small, faint globular cluster in Ophiuchus.

M9: Another small, faint globular cluster in Ophiuchus.

M19 & M62: Another pair of globular clusters in Ophiuchus separated by about 4°.

M6 & M7: A pair of bright open clusters in Scorpius. Binoculars provide the best view.

M8: The Lagoon Nebula. A bright emission nebula in Sagittarius.

M20: The Trifid Nebula. Another diffuse nebula in Sagittarius only 1.4° NW of M8.

M21: A small, bright open cluster in Sagittarius next to M20.

M23: A large open cluster in Sagittarius.

Last Month: M3, M4, M5, M53, M68, M80, M83

Next Month: M13, M14, M22, M28, M54, M69, M70, M92

ANNUAL MEMBERSHIP DUES

REGULAR MEMBER - \$30.00 per year. Includes club newsletter, and 1 vote at club meetings, plus all other standard club privileges.

FAMILY MEMBER - \$35.00 per year. Same as regular member except gets 2 votes at club meetings.

If you renew your membership prior to your annual renewal date, you will receive a 10% discount.

Club members are also eligible for special subscription discounts on Sky & Telescope

CLUB STAR PARTIES

Club star parties are held monthly on the Friday night nearest the new moon. Since they are held on private land, they are for club members and invited guests only. If you'd like to attend a star party, please contact one of the club officers. Check the club website members-only area for directions to the site.

Continued on next page.

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NEWSLETTER

Observing, continued from last page.

NGC Objects

NGC 6572: Tiny, bright blue planetary nebula in Ophiuchus.

NGC 6826: The Blinking Planetary. Planetary nebula in Cygnus.

NGC 6940: Fairly rich open cluster in Vulpecula with over 60 stars.

NGC 6960, 6992/6995: The Veil Nebula in Cygnus, Western and Eastern segments. Use an OIII filter for best viewing.

NGC 7006: Globular cluster in Delphinus.

Double Stars

Beta Cygni: Albireo, beautiful yellow and blue stars. The most observed double star.

61 Cygni: Wide pair of bright orange stars.

Omicron Ophiuchi: Orange and yellow stars.

Gamma Delphini: Yellow primary with a greenish colored companion.

Epsilon 1 and Epsilon 2 Lyrae: The Double Double.

Challenge Object

IC 1318: Emission nebula in Cygnus. A large complex of nebulosity 2° NW of Gamma Cygni. Multiple patches in a rich star field. Use an eyepiece that gives you a wide field of view with a filter.

More NSP Photos

Photos provided
by John Johnson,
Lee Taylor and
Dave Knisely.



Nebraska Star Party, continued from page 2.

spiral with an extremely low surface brightness (15 magn. per sq. arc min.), so it has always been tough even from my dark sky site at home. However, tonight, it was surprisingly easy, showing the long bar and some interesting faint mottled detail towards the ends. Of course, with the scope in the area, I had to go after M101. Again, the dark skies of the Sandhills helped make the patchy spiral form start to come out at only about 59x in my 9.25 inch SCT. When one guy from Omaha wanted help to try his 10 inch Dob on M101, I used his Telrad, but ended up initially running across a number of the galaxies *around* M101 but not getting the scope on the galaxy itself until a couple of tries later! M51 showed its spiral structure quite well, including hints of the three faint tidal tails extending away from the companion. Ah, the wonder of dark pristine skies! The comet LINEAR C/2006 VZ13 was also easily visible in binoculars, and comparing it to M101, the comet appeared to be nearly half a magnitude brighter and perhaps a bit larger than the galaxy. In my NexStar, the comet was basically a large diffuse fuzzy ball with a small condensed center and a hint of a vague narrow spike extending from the core region to just beyond the outer edge of the coma.

Then, someone in the group started asking about filters, which basically pushes my "talk" button (it tends to jam in the "on" position). I did an extended demonstration of the various nebula filters starting from M8 and working northward all the way up to the North America and Pelican nebulae. I had my 100mm f/6 refractor out, so I put in the 2" DGM Optics NPB filter and pointed it at both M8 and M20. Both nebulae were shown beautifully in the same field of view, with hints of the three dark lanes of M20 being seen even at low power. The view in the NexStar 9.25 was better, and the Trifid didn't really need the filter, as the lanes were still pretty obvious at 98x. M16 and M17 were also very easy to see in the refractor. The OIII filter with the NexStar 9.25 really stunned some people, as it made M17 look like a long-exposure photo, showing the fainter outer loop that sometimes gives the object the name, "the Omega Nebula". I demonstrated why the narrowband filters are a bit better on M27 than the OIII line filter is by letting people see the way the outer "wings" are enhanced. I also pulled my little "finder" trick by putting my 2" OIII filter in front of my 9x50 RACI finder and letting people see both sides of the Veil. However, the view was better with that same filter properly in its place in my 100mm f/6 refractor, where the two main arcs plus Pickering's triangle were easy to see. In the NexStar 9.25, the fine

filamentary detail in the eastern arc was beautiful in the OIII filter, and Pickering's Triangle showed a narrow faint southerly extension. While we could easily see the North America Nebula's many glowing segments in the NexStar using the OIII filter, the best view came in the 4.4 degree field of my 100mm f/6, where the entire nebula (plus the nearby Pelican Nebula) was shown in all its glory. I even looked at the faint diffuse nebula IC 1396 in Cepheus, and in the NexStar with the NPB filter, it showed some sinuous dark detail intermixed with the faint glow of the nebulosity. We hit the Double Cluster and continued going over many other objects before finishing the night up with the Andromeda Galaxy. In my 100mm f/6, both arms were visible along with the two dust lanes and a faint outer glow beyond the arms that made the overall length of the object appear to be close to four full degrees. By that time, I was getting a bit tired, so I put things back in the van and began the 40 minute return trip to Valentine.

Saturday was again pretty good, with mostly clear skies and warm temperatures. I spent a lot of my time in the motel room going over my presentations for the Beginner's Field School, but again after supper, I headed back out to the lake. This time, there were a *lot* of people setting up, with more arriving every minute. I ran into John Johnson from Omaha and Jim Hopkins from near Chicago, both of whom were going to be involved with the field school, so we had a nice chat. Jim had set up on "the Hill" in the middle of the observing fields with his 14 inch LX200, and several other people were up there as well. I didn't feel like setting up, so I just took pictures and walked around talking to people and looking at their scopes. A large 20 inch fully-driven Obsession caught my eye, as did a number of other large instruments on Dob Row. The skies had a little patchy haze floating around, but it still wasn't too bad. I ended up with John Johnson and his 10 inch LX200 for much of the night, observing doubles and some globulars and planetary nebulae. We watched a shadow transit on Jupiter and a somewhat mysterious marking in the north temperate zone which appeared to be a rather prominent "barge". Again, I called it a night somewhat early and drove back into town to get some more rest.

Sunday ended up being perhaps the best night of the entire star party. We started the evening with a chicken barbecue on the observing fields, followed by an evening of outstanding conditions that lasted until dawn. It was beautifully clear, and the action on the observing fields was extensive, with over 50 instruments present. I set up my NexStar 9.25 SCT and my 100mm f/6 refractor

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NEWSLETTER

in my usual spot near the split in the road where it divides to go down to the lower Snake Campground or over to Dob Row. Unlike previous nights, Dob Row finally had a bunch of big Dobs on it (12" to 20" aperture), in addition to a few other scopes. The rise to its south of Dob Row was covered by a sort of "Meade Row", with several 10 inch SCTs there along with a couple of Newtonians. My "Cloudynights" friend from Florida (Rusty) had his motor home on a rise just to my west and was running his Nexstar 11 and a Takahashi 130 refractor, while Lee Thomas had his 1970's vintage Celestron 8 next to me, along with Dan Delzel's 12 inch Meade Lightbridge Dob. There were also a lot of the "black" 10 inch Dobsonians scattered all over the observing fields, as well as a few other scopes down in the campground. On a walk prior to sunset, I recognized an "oldie but a goodie", as someone had a massive 12.5 inch equatorial Newtonian set up near the water pump above the campground. There were a few refractors present as well, with a couple of six inch versions in the low areas of the fields.

As the sky got dark, the faint whine of the Meade LX200's began to be heard, and people got down to more serious observing. I could see that, as good as Friday night had been, this one was going to be *better*, so I did a little casual observing before getting down to business. I started working on a review of the DGM Optics Oxygen III filter by going on survey of various emission and planetary nebulae, while others just did a lot of sight-seeing around the sky. I got a chance to go up to Rusty's setup and use the big refractor on the North America Nebula, and again, it was stunning. We looked up the comet once again, and then marveled at the naked-eye dome of the Milky Way's central bulge which could be seen extending well into Ophiuchus. I got to try the 40mm TMB Paragon and determined that, while it was a very good eyepiece, in my f/10 SCT, my 40mm Mk-70 Konig was roughly its equal, so there was no need to go eyepiece shopping when the vendors arrived. Much later, I left my scope for a while and started wandering a little over to Dan Delzel, where he was busy with the Lightbridge. After a couple of minutes, I got the scope on an object he had been trying to find earlier, and as I used the 12 inch, I found that I really liked the way it performed. It had almost buttery-smooth motions and a nice eyepiece position which

made using it quite easy. The 12 inch Lightbridge made short work of the faint open cluster NGC 6791 in Lyra, showing a mass of very faint stars at moderate power with fairly high contrast. Dan just had the red-dot finder on the Lightbridge, but I was still able to find about anything I wanted to look at. We spend some time perusing the Veil Nebula and the Crescent Nebula (NGC 6888) using a wide-field Burgess eyepiece and the OIII filter, and, after a short visit to the Saturn Nebula and the Helix, ended up the night with a wonderful view of M31. Later in the week, Jim Hopkins told me that he had worked that sky all night and hit over 400 targets with his 14 inch scope up on "the Hill". He said that it had been the finest night he had ever experienced at NSP.

Monday was fairly clear but rather hazy and hot. I didn't have to start teaching the first session of the Beginner's Field School until the reasonable hour of 3 p.m., so I was able to get enough sleep after the late night of observing. The Field School was based in Valentine at the 4-H building on the fairgrounds. John Johnson and I had about 40 students ranging from grade school age to senior citizens. Registration was held there as well, and the first of the vendors (Astrosystems) made their appearance. Unlike previous years, the swap meet was held all three days, so people had a chance to work their wares a bit each afternoon. After 5 p.m., we shut things down and headed back out to the observing fields for the Barbecue sandwich dinner. During the dinner, another "Cloudynights" person (Jim, A.K.A. "Snaproll") from Wisconsin drove in with a titanic "ExploraDome" observatory on its side in a trailer behind his vehicle. He said he got a lot of strange looks as he was driving, and he thought he might put a sign on it saying, "KEEP BACK: Nuclear Weapon", on it! Jim deployed the dome near the road off the northwest observing field and said it worked pretty well. After sunset, I ranged around again between scopes, settling for a while with a "different" John Johnson, who was running a 20 inch f/5 Obsession equipped with ServoCAT and Argo Navis DSC telescope control. We did a little sight seeing, but eventually settled down to trying some more obscure targets like Campbell's Hydrogen Star. The Cat's Eye Nebula was particularly striking in the 20 inch, as it showed the delicate interior arcs as well as the faint outer shell and pin-point central star. We later tried for Pease-

1, a planetary nebula inside of M15, but we failed to locate it. With the skies getting a bit more hazy, I was headed back towards my van to drive back into town when I stopped by at fellow club member Brian Sivill's setup (Meade 6" SNT and a home-brew six inch f/8 Newtonian). He was having a bit of a problem finding the planetary NGC 7662, otherwise known as, "the Blue Snowball from H*II". He tweaked his finder's alignment, and I then put his six inch on the nebula. It was a small bluish-green oval with just a hint of structure at high power, so we were all pleased that at least that object made it through the haze.

Tuesday started a decline in weather, with thick high haze and eventual thunderstorm development. The temperature went past 100F for a short time, but thunderstorms quickly cooled things down a bit. The Field School and swap meet went on at the 4H Building in Valentine with the 2nd session on Telescopes and Equipment. Once done, we had to spend a lot of time tearing down, as we would be holding everything at the High School on Wednesday. I got a little wet getting stocked up for the evening, but eventually, I got back out to the observing fields for the Hamburger dinner. The skies were mostly cloudy by this time, so we did more talking than observing. The Grand door prize was given out (a Meade 12 inch "Lightbridge"), along with many others.

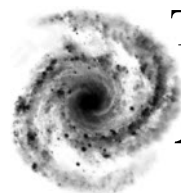
Wednesday was similar in weather to Tuesday but not as hot. Activities shifted to the Valentine High School, where the Field School, Vendors, Swap Meet, and the speakers programs were held. The Field School was lead by Jim Hopkins, who introduced the students to the ins and outs of Deep-sky observing. The vendors were going strong in the main lobby, with Astrosystems, Camera Concepts, AstroGizmos, and Infini-Tees were all set up. AstroGizmos set up a large fabric dome in the lobby which got a lot of attention. At noon, the pizza noon luncheon was held, followed by the Children's activities and three main speakers programs in the auditorium. Jim Hopkins gave an update on the Mars Rovers, while Eric Balcom presented a talk on Summertime Celestial Wonders. John Spack gave a wonderful account of the construction (and the subsequent publicity) of his suburban observatory in Chicago. This was followed by the awards for the observing challenges and the astrophotography contest (as well as by more door prizes). The skies were a bit threatening, so a friend of mine and I went to the Peppermill restaurant for dinner and then to a movie, as did a number of other attendees.

Thursday was beautiful, with clear skies and very mild

temperatures. Many attendees went on the Canoe/Tubing trip down the scenic Niobrara River. I always look forward to the river trip, and this year was one of the best I have ever been on, giving me time to relax and just float down the river with the occasional water cannon battle thrown in for good measure! The trip's midpoint stops at Smith Falls State Park, where Nebraska's highest waterfall sends cascades of icy cold water down into the Niobrara canyon and onto anyone who dares walk to the base of the stream. After a short nap, it was back out to the observing fields for a Brats dinner and some more observing. The moon was a fat crescent and some occasional clouds and haze limited observation at times, but there was still a lot of activity on the observing fields.

Friday was partly cloudy and warm, and was the day I finally had to leave and head home after a week of fun. For those who stayed, there was a public viewing event held at the lake which put the ribbons on the 14th and 15th of the NEBRASKA GREAT RAINBOW





THE *Prairie* *Astronomy* *Club*

Amateur Astronomy --
A Hobby as Big as the Universe

The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc. Membership expiration date is listed on the mailing label. Membership dues are: **Regular \$30/yr, Family \$35/yr.** Address all new memberships and renewals to: **The Prairie Astronomy Club, Inc., PO Box 5585, Lincoln, NE 68505-0585.** For other club information, please contact one of the club officers listed to the right. Newsletter comments and articles should be submitted to: **Mark Dahmke, PO Box 80266, Lincoln, NE 68501 or mark@dahmke.com,** no less than ten days prior to the club meeting. The Prairie Astronomy Club meets the last Tuesday of each month at Hyde Memorial Observatory in Lincoln, NE.

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Next PAC Meeting
July, 31, 2007
7:30 PM