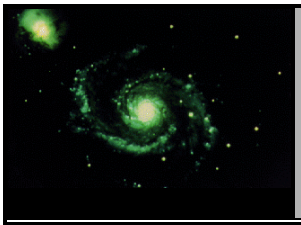


The Prairie Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.

October 2006 **Volume 47 Issue #10**

Internet Addresses

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

Club Events

Club Star Party
Friday, October 20, 2006

PAC Club Meeting
Tuesday, October 24, 2006 7:30pm
ELECTION NIGHT!

Club Star Party
Friday, November 17, 2006

PAC Club Meeting
Tuesday, November 28, 2006 7:30pm

Program

Video: "Mars Exploration Rover" – Jim Rice, Astrogeologist on the MER Team.
This is a replay of a talk given by Mr. Rice in Lincoln on September 15th at the Cornhusker Hotel for Jack Dunn's regional planetarium conference. [Note – we were going to run this video at the last meeting, but didn't have time]

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 stargazer@myISP.com

To post messages to the list, send to the address **pac-list@prairieastronomyclub.org**

Reminder – elections for club officers will be held this month. You can still nominate someone (or yourself) for office at the October meeting. Please try to attend this meeting!

Contents:

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 on the last page of this newsletter. Newsletter comments and articles should be submitted to: **Mark Dahmke, PO Box 80266, Lincoln, NE 68501 or mdahmke@4w.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.

Secretary's Report

Ron Veys called the meeting to order. There were 2 visitors. Ron discussed current and upcoming club events:

- The next club star party will be held Friday, October 20 at the farm.
- The next club meeting will be Tuesday, October 24. The meeting date was changed due to Halloween.
- The election of club officers for next year will be held at the October meeting.
- On October 7th Kris Miller will present a special program at Hyde Observatory during the regular public open hours (7:00 - 10:00 pm). The program is called "Things I Only Dreamed of As A Kid: New Science At Lick Observatory". It will be presented several times throughout the evening.
- The PAC/OAS Annual Banquet is scheduled for October 15 at the SAC Museum. The cost is $11.00 per person, which includes free admission to the museum. Rick Johnson is the scheduled speaker. Catering is by "Uncle Ernie's Riverside Inn" of Cedar Creek. Awards and door prizes will be given out.

Treasurer's report: Lee Thomas reported that there are sufficient operating funds in the PAC checking and savings accounts.

Nominations were taken for PAC officer positions. Nominations will remain open until the October meeting, at which time elections will be held. Current nominations:

President: Ron Veys
Vice-President: Mark Dahmke, Brian Sivill
Treasurer: Lee Thomas
Secretary: Bob Leavitt
2nd Vice-President: Jack Dunn

Outreach activities:

- The "Twilight on the Prairie Festival" was held on Saturday Sept. 16 at Spring Creek Prairie. Erik Hubl reported that due to an approaching storm the observing session was cancelled. Erik thanked all the volunteers who signed up to participate.
- Morley elementary school's Family Fun Night will be held Friday Sept. 29. Bob Leavitt, Jim Kvasnicka, and Dave Churilla are scheduled to do this event.
- Homestead National Monument will be having its annual "Howling Homestead" event on Saturday, October 28. Volunteers with scopes are needed. Contact Dave Knisely.

The PAC Board has decided to offer a 10% discount to members who renew before their membership renewal date. The incentive program began on September 1.

Ron reviewed upcoming observing highlights for the month of October.

The meeting was adjourned to the program. Erik Hubl presented slides from his trip to California's Lick Observatory. Jack Dunn presented the video: "Mars Exploration Rover", a replay of a talk given by Jim Rice at the planetarium conference.

Submitted by,
Bob Leavitt

Club Telescopes – Checkout Policy

To check out one of the club telescopes, contact Mark Dahmke (475-3150) or mdahmke@4w.com. If you keep a scope for more than a week, please check in with Mark 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.

Hyde Observatory Volunteer Schedule

Date	Team Leader	Operators		Supervisor	Events
October					
10/28/2006	Dave Churilla	Bob Leavitt	Joey Churilla		
November					
11/4/2006	Jeff King	Mitch Paine	Josh Machacek	Dan Delzell	
11/11/2006	Dave Churilla	Joey Churilla	Dave Brokofsky		
11/18/2006	Bill Wells	Jim Kvasnicka	Bob Kacvinsky		
11/25/2006	Dan Delzell	Steve Lloyd	Dave Hamilton		
December					
12/2/2006	Bill Wells	Jim Kvasniska	Mitch Paine		
12/9/2006	Dave Churilla	Joey Churilla	Josh Machacek		
12/16/2006	Bob Leavitt	Dan Delzell	Bob Kacvinsky		
12/23/2006	Jeff King	Dave Brokofsky	Steve Lloyd		
12/30/2006	Dave Hamilton	Mitch Paine	Bill Wells		
Summer Hours: April through September (Sundown to 11:00 PM)					
Winter Hours: October through March (7:00 PM to 10:00 PM)					

PAC/OAS Banquet

The PAC/OAS Annual Banquet was held on Sunday, October 15 at the SAC Museum. Over 90 people attended, making this the best turn-out ever. Al Dorn and Ron Veys introduced club officers and banquet volunteers.

PAC club member Earl Moser donated his 8" Meade telescope to the club with the request that it be given to a young amateur astronomer. The PAC officers voted to give the telescope to Joey Churilla, and the scope was presented to Joey at the banquet.

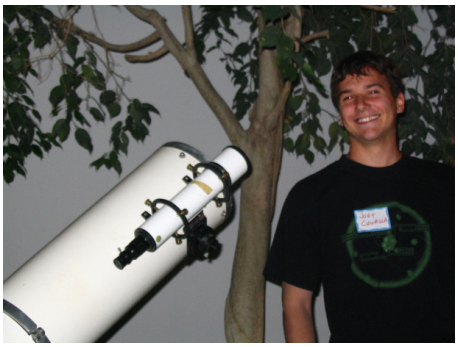
Rick Johnson, the guest speaker, was also roasted by Ron Veys, and presented a lifetime achievement award, signed by Lincoln mayor Colleen Seng.

Rick talked about his "Armchair Astronomer's Observatory" and presented dozens of beautiful images taken with both his 6" and 14" telescopes.

Atrium of the SAC Museum

Buffet line

Rick Johnson receives Lifetime Achievement Award from Ron Veys



Joey Churilla receives telescope donated by Earl Moser

Sami Veys checks out the cakes brought by OAS

The plaque reads: "Lifetime Achievement Award. Presented to Rick Johnson by the Prairie Astronomy Club and Hyde Observatory Supervisors in Lincoln, Nebraska. For a lifetime of dedicated service to the amateur astronomy community."

Morley School Family Fun Night – Bob Leavitt

On September 29, Morley Elementary School held their annual Family Fun Night. The theme for this year's event was "Space." Several weeks ago, the vice-president of the school's PTA contacted me to see if PAC would be interested in participating. I said sure! Then I enlisted Dave Churilla and Jim Kvasnicka.

The event was scheduled to run from 5:30 pm to 8:00 pm. With sunset at 7:12, it was clear we would need things to do during daylight as well as after dark. The afternoon and evening were mostly cloudy. So we had to forgo our plans for observing the sun in the late afternoon and the first-quarter moon around sunset. But we had plenty of other things for the visitors to see and do.

Dave brought his 10" scope, web cam, and TV monitor. He taped a picture of Saturn to the side of the school and pointed his scope at it. As a result people got to see "Saturn" on TV. Jim brought his 10" scope and I brought the club refractor. While it was daylight I pointed the refractor at distant terrestrial objects like streetlights and chimneys. People were amazed at how close the objects appeared in the scopes. Jim talked about the features of his telescope to the many kids and adults who stopped by.

We had plenty of handouts, including, star charts, club brochures, and an assortment of other materials left over from Astronomy Day.

Dave brought some books, astrophotos, and star atlases and I brought the posters we have used at past Astronomy Days.

As it began to get dark we kept hoping for a break in the clouds. Then we began to see the moon emerging through the haze. Conditions weren't the best, but it was clear enough to point the scopes and web cam at the moon. Many people were impressed that they could actually see the moon on TV. Finally, just before the end of the evening we got a clear sharp view of the moon. Success at last!

See the PAC website for additional pictures.

Early Fall Observations—Dave Knisely

DATE: September 20th, 2006, 0230 to 0815 hrs UTC.

LOCATION: Rockford Lake, Nebraska 40.224N, 96.578W, 1400 ft (427m) elev.

INSTRUMENTS: NexStar 9.25 inch SCT: 59x, 78x, 98x, 168x, 235x, 297x, 480x. 100mm f/6 refractor: 15x, 25xCONDITIONS: Clear, Temp 45F (7.2C), Wind E at 1-5 mph

UNAIDED-EYE ZENITH LIMITING MAGNITUDE: 6.7SEEING (above 45 deg. altitude): 1" arc (Antoniadi II) OBJECTS OBSERVED: M17, M16, NGC 6058, IC 5076, NGC 6888, NGC 7000, NGC 7008, NGC 7293, NGC 7789, NGC 7635, IC 1613, NGC 253, NGC 247, NGC 246, M31 M32, NGC 205, NGC 206, G76, M33, NGC 604, NGC 891, M45, IC 1396, NGC 1360, NGC 1514, M74, M77, M76, NGC 1499, Sh2-132, IC 405

After observing for a number of weeks just from my driveway, I was itching for a good night out away from city lights. I loaded about everything I could into my minivan (2-scopes, power supplies, laptop computer, my "portable library", etc.), and after stopping at a local fast food place, I was out for the 18 minute drive to a dark sky above the shores of Rockford Lake. The air was slightly humid, which made me glad I had the NexStar's long dewcap available, but I was a little worried that even that would not be enough. I kept all the caps on my 100mm f/6 refractor and kept my SCT's finder covered, but it was all unnecessary, as everything stayed nice and clear. I had only two items on my "agenda", and after getting these done, I didn't even fire up the laptop, spending most of the time doing some sight-seeing or just taking a quick look at Sky Atlas 2000 or Uranometria to decide what to look at. I spent my first few minutes aligning the NexStar and testing some different methods of doing the GPS alignment. After some experimentation, it soon became clear that no matter what I might do, consistently improving on the current pointing accuracy (typical pointing errors from 5 to as much as 20 arc minutes) in the scope's altazimuth mode was simply not possible.

I made a few quick "sight seeing" stops to test my filter slide on M17 and M16 before they became to low in the sky. M17 was *very* nice in the DGM Optics NPB filter (similar to the UHC, but a hair narrower), showing lots of detail in the main portions, as well as the very faint outer arc which sometimes gives the object the name "the Omega Nebula". I tried the OIII, and the contrast went up, although the outermost detail became a little harder to see. The dark detail was particularly striking, with an almost black area appearing just ahead of the Swan's head and neck. M16 was not as detailed, but was still worth a look. Again, the narrow-band filter provided the largest and brightest area of nebulosity while the OIII did show more contrast and dark detail. The nebula is a sort of diffuse "T" shaped area that sits across the cluster. With the OIII filter, I could occasionally glimpse a vague dark "finger" that extends into the nebula from the southeast.

My next object was a planetary I had tried for the previous night but which had been too low. NGC 6058 in Hercules was visible without a filter, but was a bit easier with the UHC or OIII filters in place. It is fairly faint, appearing as a small round puff of light perhaps 30 arc seconds across. Higher power revealed a slightly brighter middle and more diffuse outer edges. At 169x the core looked almost doubled at times until the seeing settled down and the 13th magnitude central star became visible. In fact, the nebula did show some vague brightness variation which at low power reminded me a little of NGC 1514.

With this success, I decided to revisit an object that I had wanted to study with my Lumicon series of filters: IC 5076 in Cygnus. This is a rather faint diffuse emission nebula which sits around a small sub-cluster of stars in the larger cluster NGC 6991. From my driveway in town a few nights earlier, I could see the cluster in the NexStar quite easily, and the smaller sub-cluster was almost masquerading as the nebula at lower power. However, with all the filters in my Lumicon Multi-filter selector, at that time, I could not really tell for certain whether there was a nebula in that area or not. The sub-cluster consists of about 20 faint stars of magnitudes 12 to 14 in a small oval band about 4' x 3' in size. There was also a magnitude 5.7 star on the eastern end of the main cluster that was a tad annoying to me at least from in-town. However, once I started studying the object from the dark skies of Rockford Lake, it soon became apparent that there was indeed a rather faint glow over the small sub-cluster. I first noticed it with much certainty in the H-Beta filter, as it was covering much of the sub-cluster, with a few patchy extensions also noted to the south and east. There was also a separate smaller irregular nebulous band or arc just to the north that ran through an arc of about three 13th magnitude stars. Once I knew what to look for, I could also faintly see the nebula in the UHC filter and hints of it in the OIII and Deep-sky filters. While it was also faint in the H-Beta, it was best in that filter. This makes the nebula the 18th "H-Beta object" that I have found.

I had been looking for something to compare NGC 5076 to, so my mind quickly came up with "the Crescent Nebula", NGC 6888. However, the Crescent was both brighter and more detailed than my previous object, so the comparison wasn't all that fair. In the NexStar, the object looked best in the UHC and OIII filters, appearing as a

large oval patchy glow with a brighter arc-like rim, especially along the northern and western side. The OIII provided noticeably higher contrast, but the object was somewhat fainter than it was in the UHC. Without filters, only a brighter section of the northern outer rim and a hint of a glow elsewhere were the only things visible.
Of course, being "in the area", I had to have a quick look at the North America Nebula NGC 7000. The NexStar's 1.1 degree maximum field of view at 59x wasn't up to the task of showing the whole thing, but I could easily view the "Mexico" and "Florida" sections with the UHC and OIII filters. The OIII in particular brings out a sort of "spine" along the western rim of the Mexico portion which has some fine almost linear detail to it. Since I had concluded my two objectives for my "serious work" on this session, I could now turn loose and just observe for the fun of it, going from target to target at my whim.

I spent some time on the planetary nebula NGC 7008. It has been a favorite of mine, but it was always a bit of a pain to find using my old equatorial Newtonian and my tried-and-true "right-angle sweep" technique, as there aren't a lot of good take-off stars in the area. Now, with the NexStar's Go-To ability, it was a piece of cake! This is a rather unusual object, in that it isn't exactly a disk or a dumbell, or anything other than a roughly oval patch next to a 10th magnitude pair of stars with a dark narrow inclusion into the nebula from the south. It seemed to be made up of two irregular fat arcs which were sort of dove-tailed together like "Yin and Yang". Filters again helped bring out the detail at low to moderate powers, while higher power showed three stars on it including the faint 13th magnitude central star.

With planetaries in mind, I went after NGC 7293, the Giant Helical Nebula in Aquarius. In the 100mm f/6, it was fairly easy to find, although the OIII filter helped a lot to reveal the little donut at 15x. Through the NexStar however, the "donut" was HUGE, and showed noticeable detail using both the UHC and OIII filters. I liked the brightness of the object in the UHC, but the OIII again sharpened the nebula's appearance and added a little more contrast, so the choice between the two filters for this object is a tough one.

After this, I went up to the large "Magnificent Cluster", NGC 7789. I had tried it in the binoviewer from my driveway and was somewhat less than impressed with the view at 118x, but tonight, things were *much* better. While the cluster was easy at 59x, the object was fascinating at 97x in the 24mm Panoptic. Aside from the huge number of faint stars visible, the cluster seemed to have sinuous dark lanes that gave it a rather mysterious quality to it.

I had decided to study M31 with my 100mm f/6, but had forgotten that I had left the DGM Optics NPB filter in the 40mm Mk-70 Konig (15x) from the viewing of NGC 7293. I had pointed the scope somewhat randomly towards the east, and as luck would have it, it was pointed directly at the Pleiades! The view was rather surprising, as the Merope Nebula was strikingly visible with the narrowband filter, so who says that reflection nebulae aren't viewable in a "nebula" filter! Once I pulled out the filter, I pushed the scope up to M31 and had a long look. The galaxy was nicely shown with hints of both main spiral arms and a faint outer glow that I roughly measured out to be at least 3.5 degrees in overall length. However, I got a better view of the detail in the galaxy at 25x using the 24 Pan. With that eyepiece, I got hints of the two dark lanes along the northwest side of the nuclear bulge, as well as seeing the star cloud NGC 206 shining faintly in the glow of the southwestern arm. I put the 24mm Panoptic back in the Nexstar and put it on M31. The huge oval glow of the core dominated things, but also shown beautifully at 97x were the two dark lanes. Each lane looked a bit irregular or tattered on the edges, and I could follow both for quite some distance to the southwest. NGC 206 appeared slightly mottled, and with a quick consult of a chart in the Night Sky Observer's Guide, I quickly located the M31 globular G76 in a small asterism of stars well south of the star cloud. I tried the Lumicon Deep-sky filter, and the contrast of the details went up just a bit, especially the darker areas between the large diffuse star clouds of the spiral arms.

With the Deep-sky filter still in place, I commanded the NexStar to M33. However, the object which ended up almost dead-center in the field was NGC 604. This is a little oval HII region which I sometimes call "Ricky's Friend", after a good friend of mine who once though it might be a comet. The galaxy as usual showed a wealth of fine faint detail. I could trace out both main spiral arms faintly, but the entire 40' arc field looked rather mottled. The galaxy was brighter without a filter, but again, the contrast was just a tad better with the Deep-sky filter in the scope. I guess I have to get a 2" Deep-sky filter now!

I made brief stops at the galaxies NGC 891 and M74, and saw at least some detail in both objects. NGC 891 showed its irregular dark lane best at 97x, while M74 showed mottling and hints of one of the arms at both 97x and 169x. From there, it was on to NGC 253. In the NexStar, the galaxy was very nice, showing extensive mottling over the entire object. I also viewed the galaxy briefly in my 100mm f/6, and after bumping into to the scope, I noticed that it now showed a small fuzzy ball in the field. This was the globular NGC 288, which was quite easy but showed no stars at low power in the little refractor. I have sometimes harped a little too much on one of the objects on the Caldwell "list", the Cetus Dwarf galaxy IC 1613. The one time I saw it in my 10 inch, it was so marginal that I had difficulty really telling that there was anything there other than a very dim enhancement of the sky background. This time, however, things were a little different. I have had my Nexstar 9.25 SCT for about two years, yet this "little" scope still continues to surprise me now and then. Again, with the push of a few buttons, the scope obediently slewed and stopped on something. My first glance in the eyepiece was followed by the words, "Hey, there *IS* something there!" Right in the center of the field was a large very dim diffuse roughly oval glow with some faint stars superimposed on it. Right next to it was another smaller fainter glow that looked a little granular with perhaps a few very faint field stars superimposed on it. This galaxy was definitely easier than it had been several years before, possibly due to the right combination of power and field. I would put it up with Leo-1 as far as difficulty is concerned, so it is no "showpiece", but it's not impossible by any means. I put the 100mm f/6 on the area and when moving the scope, I might have glimpsed something, but I was rather uncertain about it. Still, as a member of the "local group" of galaxies, IC 1613 is probably worth the effort to go after.

Still in Cetus, I hit the Seyfert galaxy M77 and kicked up the power to 169x and 235x. I was surprised that there was so much detail visible in the object. The bright star-like nucleus was almost blazing out of the center, surrounded by a small bright oval of haze with some patchy detail around its edges. Surrounding this is a more amorphous haze containing hints of two very dim arcs of the outer spiral arm structure. The outer arms were quite vague, but I would consistently catch glimpses of them as I moved the scope around. I didn't recall ever trying the "Bubble" Nebula (NGC 7635) in the NexStar before, so I slewed up to it and put in my filter slide. At 59, there was the usual small oval glow around the 7th magnitude star with the UHC, but surprisingly, so was the very faint patchy outer elongated band of nebulosity that extends well to the northwest and southeast of the brighter central section. In fact, some of that patchy outer glow was visible in the H-Beta filter, something I hadn't ever noticed before. I could see the "V" shaped patch just north of the central star, along with the brighter oval section of the bubble's arc. With averted vision, I could get glimpses of the arcs of the bubble, but only with the UHC filter.
I noticed a moderate-sized emission nebula Sh2-132 in Cepheus on Sky Atlas 2000, and not recalling whether I had observed it before or not, sent the scope to the area. It is a very large elongated (E-W) area of haze in a very rich starfield, with a few faint extensions to the southwest. It tended to respond well to the UHC, as that filter revealed some patchy lane-like detail in the nebula, although in the 9.25 inch, it was fairly faint. The OIII filter however showed more contrast so would probably get the nod as the filter that worked best. It turned out later that I had visited this one in my multi-filter nebula survey, so I couldn't add it to my survey.

While up in the area, I thought I would do some detailed observations of the very large diffuse nebula IC 1396 in both my scopes. This object is so large that I thought the only way to get a good look at it would be in the 100mm f/6 refractor at 15x. On this account, I was in error, as it turned out that the view in the NexStar was much more interesting. In the refractor, the nebula is indeed quite visible, but doesn't show a great deal of fine detail. It is a large irregular glow almost three degrees across around a coarse star cluster. The UHC helped the most, but it was visible in the OIII, H-Beta, and Deep-sky filters as well. In the NexStar at 59x, the nebula and cluster are anchored by a nice triple star at the center (Struve 2816) in a very rich starfield. With the DGM Optics NPB filter (a narrowband filter), the nebula showed a wealth of light and dark detail. A large irregular narrow dark bay extends into the nebula from the north, with a second dark lane coming in from the west. The southern tip of the northern bay (the dark nebula Barnard 161) was particularly dark, and several dark spots and lanes were visible running through the whole region. Some of the brighter areas showed a little almost filamentary structure, although in general, the nebulosity is fairly faint and diffuse. Still, with a little aperture and a good filter like the NPB, this object is worth a lot of study.

I took a quick look at the moderate-sized planetary nebula NGC 1514 in Taurus, which I sometimes call, "The Crystal Ball". It appears as a circular glow about 1.9' arc in diameter around a 9th magnitude star, but with the UHC or OIII filters, shows delicate interior structure consisting of two fat irregular arcs on opposite sides of the nebula. I also took a quick look at M76 in Perseus, and noticed hints of the very faint outer "wings" off the sides of the little dumbell at only 97x when using the UHC filter. Usually, these features require a little more power, but tonight, objects just seemed to be giving up their detail a bit more easily for a change.

With Perseus now fairly high in the sky, I went after the California Nebula NGC 1499. In the 100mm f/6 at 15x with the H-Beta filter, the object was a large elongated glowing mass made up of two broad filamentary sections along the northern and southern sides, with some hints of inner detail. I could see it with the UHC, but it was nowhere near as easy as it was in the H-Beta filter. Just for fun. I took the 40mm eyepiece and H-Beta filter out and put it in the NexStar to see what it would show of the nebula. After a short slew by the NexStar, I was greeted with the sight of an *enormous* filament stretching through the field like the "Witches Broom" section of the Veil! Moving the NexStar around brought additional faint filamentary detail into the view, but that section on the northeast end really stood out well! It got noticeably broader as I moved the scope to the west, but then faded somewhat as I entered the remaining glow of the central portion of the nebula. The second filament on the southern side showed a sort of small fat "V" shape appearing in the middle of the southern side of the nebula. After scanning around for a few minutes, I took the H-beta filter and held it up to my unaided eye to look up at the sky towards Xi Persei. Sure enough, I could just see the elongated glow of the California Nebula just north of that star. And to think, some people believe that the H-Beta is only useful in *large* apertures!

I was getting a little cold, so I decided to wrap up by getting just two more objects in. NGC 1360 down in Fornax was a big planetary (about 8' x 5' arc) appearing easily in both the 100mm f/6 and the NexStar. In the NexStar, it was a large oval blob with a brighter core and a faint central star, and with the filters showed hints of inner dark diffuse detail. My final target was the faint "Flaming Star Nebula", IC 405 in Auriga. This one is rather faint as well, but with the NPB filter appeared almost immediately as an irregular glow around and to the southeast of 6th magnitude AE Aur. The extension to the southeast was the brightest area, and was roughly triangular in shape with some irregularity in its outer edges. There was also a faint irregular arc to the north with hints of other patchiness, but none of this detail as bright as the main section east and southeast of AE Aur. Both the NPB and the H-Beta filter were useful on this nebula, although for a "one filter" recommendation, I would have to give the nod to the NPB.

Events Calendar

November 2006

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 Sun: 06:56 - 17:22	2 Sun: 06:58 - 17:21	3 Sun: 06:59 - 17:20	4 Sun: 07:00 - 17:19 Hyde Observatory Open to the Public
5 Sun: 07:01 - 17:18	6 Sun: 07:02 - 17:17	7 Sun: 07:04 - 17:15 Mercury close to Venus	8 Sun: 07:05 - 17:14 Transit of Mercury	9 Sun: 07:06 - 17:13	10 Sun: 07:07 - 17:12	11 Sun: 07:08 - 17:11 Mercury close to Mars; Hyde Observatory Open to the Public
12 Sun: 07:09 - 17:11	13 Sun: 07:11 - 17:10 Moon close to Saturn	14 Sun: 07:12 - 17:09	15 Sun: 07:13 - 17:08 Venus close to Jupiter	16 Sun: 07:14 - 17:07	17 Sun: 07:15 - 17:06 Club Star Party	18 Sun: 07:17 - 17:06 Leonids; Hyde Observatory Open to the Public
19 Sun: 07:18 - 17:05	20 Sun: 07:19 - 17:04	21 Sun: 07:20 - 17:04	22 Sun: 07:21 - 17:03	23 Sun: 07:22 - 17:02	24 Sun: 07:23 - 17:02	25 Sun: 07:24 - 17:01 Venus close to Antares; Hyde Observatory Open to the Public
26 Sun: 07:26 - 17:01	27 Sun: 07:27 - 17:00	28 Sun: 07:28 - 17:00 PAC Club Meeting	29 Sun: 07:29 - 17:00	30 Sun: 07:30 - 16:59		

Moon phase images by: António Cidadão

Directions to Olive Creek Observing Site

Shorter:

Take Hwy 77 South out of Lincoln until you get to the Crete corner (junction Hwy 77 and Hwy 33). Go West on Hwy 33 (toward Crete) until you get to SW 72 St. Turn Left (South) on SW 72 St. and go about 5 miles until you get to SW Panama Rd. Turn right (West) until you get to SW 100 St. (SW 100 St does NOT go through to Hwy 33). Turn Left (South) on SW 100 St and go about 1 to 1 1/2 miles until you see the sign and entrance to Olive Creek (this is the West side of the Park). It's on your left (East) side of the road.
More Black Top:

Take Hwy 77 South out of Lincoln until you get to the Crete corner (junction Hwy 77 and Hwy 33). Go West on Hwy 33 (toward Crete) until you get to about SW 114 St. - the first intersection after SW 100 St. (forgot to look at this street sign, sorry - you'll see a sign for Olive Creek though at this road- but don't count on anymore signs after that, I didn't see any). Turn Left (South) on SW 114 St and go about 5 miles or so until you get to SW Panama Rd (you'll see a church and small school on your right). Turn Left (East) and go about a mile to SW 100 St, then turn Right (South) and go 1 to 1 1/2 miles until you see the Olive Creek entrance and sign (on your left hand side of the road).

OFFICERS
OF THE PRAIRIE ASTRONOMY CLUB

PRESIDENT: Ron Veys
(402) 486-1449
RVeys@southeast.edu

VICE PRESIDENT: Mark Dahmke
(402) 475-3150
Mark.Dahmke@4w.com

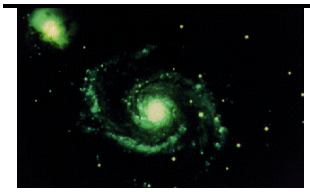
2nd VICE PRESIDENT (PROGRAM CHAIR): Jack Dunn
jdunn@spacelaser.com

SECRETARY: Bob Leavitt
(402) 488-5335
bob.leavitt@alltel.net

TREASURER: Lee Thomas
lleet@alltel.net

Club Observing Chair Jeff King
483-0599

Hyde Volunteer Coordinator: Dave Churilla
(402) 467-1514
weber2@inebraska.com



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