

October, 2007

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The Official Newsletter of the Prairie Astronomy Club

## PAC Program

Taylor Chonis will talk about his internship at Mauna Kea.

In January he was selected to be a part of the University of Hawaii's Research Experiences for Undergraduates (REU) program funded through the National Science Foundation (NSF). He was in Hawaii at the Institute for Astronomy in Hilo for the entire summer. His work included refurbishing an Infrared camera on the 2.2m telescope on Mauna Kea.

## In This Issue

## Featured Astrophoto

Dave Knisely's Observing Report, Pete Schulz to speak at Hyde Observatory, October 26th.

#### Comet Ikeya-Seki -- by Earl Moser.

This comet was named after the 2 Japanese astronomers who discovered it. I took this photo on November  $3^{rd}$ , 1965. I used a 30 minute exposure with a 50mm lens @ f 1.9.

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



## A Cool September Night-- David Knisely

DATE: September 12, 2007, 0130 to 0300 hrs UTC. LOCATION: Rockford Lake, Nebr. 40.227N 96.580W, elev. 1400 ft (427m) INSTRUMENTS: NexStar 9.25 inch f/10 SCT: 59x, 73x, 98x, 118x, 169x, 235x, 297x, 479x 8 inch f/5 Newtonian (owner: John Lammers): 32x, 42x, 51x, 64x, 102x, 129x, 207x. CONDITIONS: Clear, Temp: 57F (14C), Wind: E. 1-3 mph UNAIDED-EYE ZENITH LIMITING MAGNITUDE: 6.8 SEEING (above 45 deg. altitude): 1 to 1.5 arc sec. (Antonaidi II).

OBJECT'S OBSERVED: Jupiter, NGC 6302, NGC 6522, NGC 6528, Barnard 86, M6, M7, M8, M20, M22, NGC 6565, NGC 6578, NGC 6589, NGC 6590, IC 1283, M24, M16, M17, NGC 6741, M57, NGC 6960-79-92, NGC 7000, IC 5070, NGC 6888 IC 1318, NGC 7331, NGC 7335, NGC 7330, Stephan's Quintet, M45, M74, M77, NGC 1499, NGC 1514, IC 405, NGC 2174, M42

OBSERVATIONS: After several weeks of marginal weather, we finally got a nice break with beautifully clear skies and rather seasonable temperatures. As I was preparing my equipment in the late afternoon, my friend from Fairbury, John Lammers, showed up at my door with a van full of "new telescope fever". He and another club member Brian Sivill have been working on modifying his old 8 inch f/5 into a new and powerful rich-field Dobsonian, and from the looks of things, they have succeeded. In any event, we loaded up things and went to have dinner at a local restaurant before heading out to Rockford Lake southeast of Beatrice. We got to the site just after sundown, and needless to say, his Dob was set up much faster than my scope was. We did the usual pre-dark sight seeing with a slightly fuzzy Jupiter showing 5 to 7 belts low in the southwest, followed by the close colorful double star Epsilon Bootis. Once it got nice and dark, it was clear it would be a great night, as later, I noted that I could see the Gegenschein and hints of the Zodiacal band. In the course of the night, we did a lot of eyepiece and filter comparisons, along with a full checkout of how his new scope behaved, so that final modifications could be completed the next evening by Brian.

I started my viewing down south in the southern Milky Way. I thought I might just catch the "Bug" nebula NGC 6302, but it was so low that all I saw was the central star and a fuzzy diffuse elongated glow around it. We did the usual shots of the "twin globulars" in Sagittarius: NGC 6522 and 6528, which both easily fit in the one degree field of my 40mm Mk-70 Konig. John got them in his scope as well, but with a 2.3 degree field at 32x, he got in a lot more as well. The star fields in the area are incredibly rich, with many fine dark lanes and smaller dark nebulae in the area. The clusters are not really identical, as the western one (NGC 6522) is somewhat larger than 6528. Both looked a little granular at 169x, but only NGC 6522 showed very many stars and was still largely unresolved. We also hit the "ink spot" of Barnard 86 next to the small open cluster NGC 6520, and it appeared to be noticeably oval with some interesting irregular outer structure rather than more typical view of just a darker spot.

John did some eyepiece comparisons on M6 and M7 before moving on to the Lagoon and Trifid Nebulae. I lent him my 2" DGM Optics NPB filter and we were stunned by the view. Both M8 and M20 were visible in the 2.3 degree field of his 32mm Burgess eyepiece, and M8 was just gigantic when compared to "little" M20. Indeed, M8 looked to be a little over a degree in length, with some tenuous wispy outer structure. When I put the NPB filter back in my 9.25 inch SCT, I could see incredible structure. While some may like the contrast which the OIII gives to this object, I just like the brightness and extreme extent which the narrowband NPB filter tends to give. Indeed,

### **Club Events**

Astronomy Class - Field School Friday, October 19, 2007 7:00 pm @ Hyde Observatory

Pete Schulz will speak at Hyde: "Is the Moon a "dead" world, without change and totally inactive? Or could it be "alive" with change?" Friday, October 26, 2007 7:30pm @ Hyde Observatory

PAC Club Meeting Tuesday, October 30, 2007 7:30pm @ Hyde Observatory.

Astronomy Class - Seminar Thursday, November 08, 2007 7:00 pm @ Hyde Introduction to the night sky

Club Star Party Friday, November 09, 2007

PAC Club Meeting Tuesday, November 27, 2007 7:30pm @ Hyde Obsv.

Club Star Party Friday, December 07, 2007

Next newsletter submission deadline: November 17th.

## **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

<u>PAC-LIST</u>: You may subscribe to the PAC listserv by sending an email message to: imailsrv@prairieastronomyclub.or g. In the body of the message, write "Subscribe PAC-List youremail-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.



## **Club Business**

Ron Veys called the meeting to order. Attendance: 16 PAC members and 3 visitors. Ron discussed upcoming club events:

\* The next club star party will be held Friday, September 7 at the farm.

\* The next club meeting will be Tuesday, October 30.

\* An Astronomy Field School will be held on October 19.

\* The Homestead National Monument's "Howling Homestead" event will be held October 27. Contact Dave Churilla for more information.

\* An Astronomy Seminar will be held on November 8.

\* Hyde Observatory is open from sundown to 11:00 pm on Saturdays.

Treasurers 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 Acct 1,970.56 PAC Savings Acct 9,137.77 Total 36,778.11

Observing Chairman's report: Jim Kvasnicka discussed the September star party and upcoming observing highlights for the month of October.

Outreach Coordinator's report: Dave Churilla reported that the "Twilight on the Tallgrass" festival at Spring Creek Prairie was a big success. He discussed upcoming plans for the event at Homestead National Monument. He also talked about two classes that will be held this fall, an Astronomy Field School on October 19 and an Astronomy Seminar on November 8.

John Lammers discussed his trip to the Panhandle Astronomy Club's star party. The star party was held on September 7-9 at a site south of Bridgeport, Nebraska.

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

President: Dan Delzell, Jack Dunn, Brian Sivill

Vice-President: Cassie Etmund, Brian Sivill

Secretary: Bob Kacvinsky, Lee Taylor

Treasurer: Lee Thomas

2nd Vice President: Jack Dunn

The meeting was adjourned to the program. Ron Veys gave a program called "How to buy a laser pointer for \$5.00." Jack Dunn showed pictures taken by Clayton Anderson on the ISS.

Submitted by,

Bob Leavitt

## **Observing: What to View in October -- Jim Kvasnicka**

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

#### Leonid Meteor Shower

The weak Leonid meteor shower peaks on the night of November 17-18. Expect to see the most 2-3 hours before sunrise, about 10 per hour.

#### **Planets**

**Jupiter:** Shines at magnitude -1.8 in the southwest lurking very low at dusk. Starting November Jupiter will set about 2.5 hours after the sun. By the end of the month it will be setting 70 minutes after the sun.

**Mars:** Rises about 8:30 as November starts and 6:30 by month's end. Mars will increase in magnitude in November from -0.6 to -1.3. Mars will also increase in size from 12" to 14".

**Saturn:** Magnitude 0.8 in Leo in the morning sky. The rings appear closer to edgeon than they've been in a decade.

**Venus:** Brilliant in the morning sky at magnitude -4.2. In a telescope you will see a 18" wide gibbous disk.

Uranus: Magnitude 5.8 in Aquarius.

Neptune: Magnitude 7.9 in Capricornus.

**Mercury:** Far below Venus at dawn. On November 1<sup>st</sup> it shines at magnitude 0.7. By November 8<sup>th</sup> it increases to magnitude -0.5 when it reaches greatest elongation

#### November Messier List

M57: The famous Ring Nebula in Lyra.

**M56**: A globular cluster in also in Lyra.

M27: The Dumbbell Nebula in Vulpecula.

M71: Globular cluster in Sagitta.

M30: Globular cluster in Capricornus.

M72: A small faint globular cluster in Aquarius.

M73: An asterism located near M72 in Aquarius.

Last Month: M11, M16, M17, M18, M24, M25, M26, M55, M75 Next Month: M2, M15, M29, M31, M32, M39, M52, M110

#### NGC Objects

NGC 129: Open cluster in Cassiopeia.
NGC 772: Spiral galaxy in Aries.
NGC 936: Galaxy in Cetus near M77.
NGC 1023: Bright, lens shaped galaxy near M34 in Perseus.
NGC 1501: Faint planetary nebula in Camelopardalis.

#### Double Stars

Struve 326: Beautiful pair of orange and dull red stars in Aries. 1 Arietis: Yellow and pale blue.

Lambda Arietis: Easy pair of yellowish-white and pale blue stars. Gamma Arietis: Pair of bluish white stars.

38 Piscium: Pair of yellow stars in a field sprinkled with faint stars.

#### Challenge Object

**IC 342**: Large and diffuse face-on spiral galaxy; member of the UMa-Cam cloud. Kemble's Cascade is also in this chart.

### 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.

#### A Cool September Night, continued from page 2.

at times, I thought I could detect just a little pink in some parts of M8. On M20, I borrowed John's 20mm Nagler, and the three irregular dark lanes and nearby reflection nebulosity came out unusually well. The NPB filter helped, but the object looked very nice even without a filter.

We wanted to get John's scope on M22 at 101x, but after a few frustrating attempts we discovered that his Telrad had been well out of alignment. I don't know how many times that the little fuzzy spot "companion" globular NGC 6642 kept showing up in the field every time I put M22 in the center of the three red Telrad rings! We finally got the Telrad properly lined up with where the scope was pointing and John was a happy camper. The big cluster is noticeably oval, and that really showed up well in John's scope along with being fairly well resolved even at 101x. I slewed the NexStar to M22 at 169x, and the view was simply glorious, with a tremendous number of stars nearly filling the field of my 14mm Ultrawide.

After a few more sight-seeing diversions, I got down to business. I just love tracking down small obscure planetary nebulae, and Sagittarius is just loaded with them! My first target was little NGC 6565, a 14 arc second faint spot of light that was tough to see at 59x without the OIII filter. It blinked fairly well, so it wasn't long before I identified which "star" in the field wasn't really a star. 235x showed the disk fairly well, although the object is fairly faint. It did seem to show hints of annularity with a brighter center, but seeing down that low wasn't good enough to try a lot more power.

Next was little NGC 6578, a real stinker that sits right next to an 11th magnitude star. When the OIII filter was used, what looked like a single star became a clear double, as the star dimmed and the planetary nebula began to look nearly as bright as the filtered star. 235x showed a faint slightly diffuse disk perhaps nine arc seconds in diameter.

I pushed the scope to the north and ran into what looked like a large rather faint diffuse nebula. Indeed, it was several: the emission nebula IC 1283 and a pair of adjacent reflection nebulae: NGC's 6589 and 6590. I first noted the glow around the 9th magnitude central star of NGC 6589 even without a filter, and filters did not help it much. NGC 6590 was fainter but about the same size (perhaps 3 or 4 arc minutes across). To the northeast was the large diffuse glow of IC 1283, and this one \*was\* helped by filters. It was perhaps 15 arc minutes in diameter and not quite circular, anchored by a 7th magnitude star. The edges were somewhat irregular, and the southwestern side appeared almost as if a vague dark lane or darker cutoff ran down towards the two reflection nebulae. To my surprise, this one was helped most by the H-Beta filter, although the NPB and OIII also improved the contrast. Thus, I later had to add yet one more object to my filter survey project. We put John's 8 inch RFT on it with the H-Beta, and the object was easily visible although fairly faint.

I used John's 8 inch at low power to show him the dark nebulae in and around the Small Sagittarius Star Cloud M24. We played around with filters in his scope on M17 and M16. John was really impressed with M17 in the NPB filter, as the faint outer loop was clearly visible running to the east and then back around to stop north of the main "swan" complex. The OIII filter provided more contrast, making a dark area just west of the neck of the swan look more prominent, but overall, I kind of liked the view in the NPB Just a bit better. In my NexStar 9.25, M16 showed its usual faint "fuzzy mushroom" shape with notable dark inclusions along the western and northern sides. The dark finger that contains the "Pillars of Creation" was just barely visible with averted vision near the center of the object as a tiny darker bar that connected to a slightly darker region that ran to the southeast across the nebula.

I went farther north into Aquila to check on a planetary nebula which was under discussion in the AMASTRO mailing list: NGC 6741. Again, this was a rather small faint target only about eight arc seconds across, and was located in a fairly rich starfield. It blinked fairly well with the OIII filter, and the filter was still of some use even at higher power. The object appears stellar at powers under 200x, and even at 297x was only a tiny disk. I did kick things up to 480x, and the object seemed slightly oval with a brighter middle. John had M57 in his scope and with the NPB and OIII filters was able to see hints of the outer tattered shell which surround the main ring.

We had some fun up in Cygnus with some of the "usual suspects". With the wide field of John's 8 inch, the North America Nebula became an obvious target. However, when John tried to find it, he ended up on the Veil by accident, as his scope was getting temporarily unbalanced with his heavier eyepieces. In the 2.3 degrees of field, both arcs could be seen in their entirety, but not quite at the same time. With the OIII filter, the detail was very nice, and even Pickering's Triangle and another faint patch of nebulosity were visible. Once finally on the North America Nebula, the shape of NGC 7000 was very easy to see, with the brightness spine in "Mexico" really standing out well. The Pelican nebula IC 5070 was also seen, although the shape didn't really resemble the bird all that much. The NPB filter gave a very nice view of both objects, but the OIII still provided the edge on contrast. I moved the scope to the south to find the "Crescent" Nebula NGC 6888, and noted it almost immediately. It showed a faint but rather complete oval area of haze with some hazy detail in the interior. The northern edge of the oval was the brightest, appearing as a distinct arc that ran most of the way around the northern and western edges of the nebula before fading along the southeastern side. In my NexStar 9.25 using the OIII filter, I could see some hints of patchy detail along the arc, and a faint wisp of light could be seen running from the main arc to the 7th magnitude central star and perhaps a bit beyond.

One thing I had wanted to try in John's 8 inch f/5 was the large faint multi-component emission nebula IC 1318, otherwise known as the "Gamma Cygni Complex". I had previously observed it in my 10 inch, but with its limited field of view and higher power, I had not gotten a good survey of all of its many segments that are within 2.5 degrees of Gamma. The nebulae are mainly H-Beta objects, so in went the H-Beta filter. I was surprised at how well it all appeared, as there were numerous large patches and puffs all over the place. However, the real surprise came when I put in the NPB filter. WOW! While the contrast was not as high as in the H-Beta filter, I could see larger areas of nebulosity over a huge region. Perhaps the brightest areas were about a degree east of Gamma and separated by a dark lane, but the segment about a degree to the southeast was nearly as bright and quite large. This nebula is definitely going to get another look!

John went back to playing with open star clusters for a while, so I went after a few galaxies. NGC 7331 in Pegasus was nice, appearing at 59x as a diffuse elongated oval of haze with a small noticeably brighter core. Kicking the power to 98x really helped things as the galaxy gained some contrast. The outer haze seemed larger and better defined with some very faint mottling, while the western side of the galaxy was flanked by a narrow dark lane. Off the eastern edge were two small companion galaxies: NGC 7335 and NGC 7340. NGC 7335 was the brighter and larger of the two, although both were rather small and faint. Of course, with Stephan's Quintet only half a degree to the south-southeast, I just had to make a stop there. Four of the five galaxies were fairly noticeable but still quite faint. At 98x, I had trouble distinguishing the two parts of NGC 7318 from each other, so my tally stood at four confirmed galaxies instead of the five that are really there.

We put John's 8 inch RFT on the Helix (NGC 7293), and at 32x with the OIII filter were greeted with a giant version of M57. The big fuzzy donut was rather easy to see, but in my NexStar at higher power, the NPB filter gave nearly as good a view as the OIII. John put his scope on the Double Cluster and it blew us both away, as the 2.3 degree field nicely framed the group including the outer halo of faint stars that envelopes both clusters. We took a

break for a while and then resumed with the globular M2, which my NexStar did a fairly good job at resolving, although the core was still somewhat tight and slightly hazy.

We spent quite a lot of time on M31 with John's scope. It showed the big galaxy very well at 32x, but to see the dark lanes well required a bit more power. His scope showed the fainter northeastern arm of the galaxy better than I have seen in a while, along with the more patchy southwestern arm and the NGC 206 star cloud. M33 was also quite good, with faint but very patchy spiral structure visible again at somewhat higher powers, although 32x did show the faint outer halo which makes the galaxy nearly a degree across. We then put the "Silver Coin" galaxy NGC 253 in his scope. That one again showed its best detail at between 102x and 207x, as it was littered with mottling. I put my NexStar on it and studied the object for quite a while. Indeed, it was nice to have John's eyepiece selection, as in our club, he is known as "Have Eyepiece, Will Travel". His 20mm Nagler and 2x Powermate did a bang-up job on NGC 253, as it gave me a 20 arc minute field at 235x. I could see a huge amount of fine patchy detail, including a short dark lane along a segment of the northwestern side. I also used that 20mm Nagler on M74, and for once, I could see a little of its spiral structure, although it wasn't quite as visible as that in M101. I also tried M77, and at 169x, the inner spiral structure was visible with averted vision around the bright star-like nucleus. However, at 59x in my NexStar, we both thought we could see a hint of nearly circular ring-like arcs surrounding the inner parts of the galaxy.

I was getting just a little tired and John had to be in Lincoln the following afternoon, so we decided to end up with only a few more objects. We put his scope on the California Nebula with the H-Beta filter, and did see two large fat filaments which make up much of its structure, although the field of view still wasn't enough to get the whole thing in. The Pleiades were stunning in his scope (no filter), with the Merope Nebula was fairly obvious. Indeed, there were hints of other areas of nebulosity, including a sort of strand which went north of Maia.

I showed John M1 at 235x, but he wasn't all that impressed, despite the fact that I though the view was pretty good. I then let him have a look at "the Crystal Ball" nebula, NGC 1514, and with both the NPB and OIII, it showed a faint fuzzy sphere with brighter arc-like patches on the northwest and southeastern sides. We picked up the "Skull", the large faint planetary NGC 246, and while it looked nice in the NPB, it showed a little more contrast in the OIII filter despite being somewhat fainter. John was going up and down the Milky Way in Auriga looking at all the open clusters when I interrupted him to try, "The Flaming Star" nebula IC 405. This one is also an H-Beta object, but I guess I should have called it the "flaming out" nebula, as I saw less of it in his scope than I thought I might. I guess field of view wasn't what it needed, as it was only a bit of faint glow right next to the variable star AE Aur. I found NGC 2174 more interesting, as I could see that one in northern Orion even without a filter. It was best in the NPB, appearing as a circular glow with rather tattered edges. We finished off with a view of M42 in John's scope with the NPB filter. The whopping 2.3 degree field showed the entire sword and all the nebulosity including the faint southern loop and the nearby "running man" nebula. I could even see faint pinks in parts of M42 itself. We packed up and went home happy that we got one of the best nights out under the stars we had had since the Nebraska Star Party.

## Is the Moon a "dead" world, without change and totally inactive? Or could it be "alive" with change?

Dr. Peter Schultz of Brown University will present: "The Moon: Dead or Alive" in a public talk at Hyde Observatory, Friday night, October 26th starting at 7 p.m. No admission is charged and this presentation is open to the public. The observatory building will close at 10 p.m. Hyde Observatory is located in Holmes Park in SE Lincoln, Nebraska.



Dr. Schultz grew up in Lincoln, NE and was one of the founding members of the Prairie Astronomy Club. He has had a distinguished career in Geosciences, having

been a Co-Investigator on the Deep Impact mission which crashed a probe into a comet in 2005 Dr. Schultz's specialty is impact cratering processes. And his research leads him to study bodies like our Moon, that are rich with cratering. Dr. Schultz is also known for his outreach educational activities through NASA and the NASA.

His entire Curriculum Vitae can be found on his personal web pages at Brown University <u>http://www.geo.brown.edu/Faculty/Schultz/SchultzFrameset.htm</u>

This program is sponsored by Hyde Observatory and 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.

PRESIDENT:	Ron Veys
	(402) 486-1449
	RVeys@southeast.edu
VICE	
PRESIDENT:	Brian Sivill
	(402) 325-0997
	nanoamps@windstream.net
2nd VICE	
PRESIDENT	Jack Dunn
(PROGRAM	jdunn@spacelaser.com
CHAIR):	
SECRETARY	Bob Leavitt
	(402) 488-5335
	bob.leavitt@alltel.net
<b>TREASURER:</b>	Lee Thomas
	lleet@alltel.net
Club Observing Ch	air: Jim Kvasnicka
	(402) 423-7390
	jim.kvasnicka@pfizer.com
Outreach Coordina	tor: Dave Churilla
Outreacti Coordina	weber?@inebraska.com
Newsletter and We	bsite Editor: Mark Dahmke

(402) 475-3150

The Prairie Astronomer c/o The Prairie Astronomy Club, Inc. P.O. Box 5585 Lincoln, NE 68505-0585

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Next PAC Meeting October 30, 2007 7:30 PM