

THE PRAIRIE ASTRONOMER

The Official Newsletter Of The Prairie Astronomy Club, Inc.

August 2004

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 Hyde Observatory www.hydeobservatory.info
 NEB-STAR www.neb-star.org

PROGRAM

August program: Martin Gaskell (Dept. Physics & Astronomy, UNL), "Astronomy Ancient and Modern in the Steppes of Central Asia" -- Martin will give a slide show and account of his extended visit this spring to some of the world's premier astro-sites in Central Asia, almost exactly on the opposite side of the planet from Nebraska. He will also show pictures of observing the transit of Venus from Moscow. This should be an educational program for people of all ages! If you came to Martin's talk two years ago about astronomy in Russia and Ukraine, you'll know what to expect!

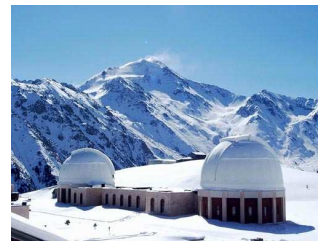


Photo caption: Tian Shan High Altitude Observatory in Kazakhstan. One of the Central Asian observatories visited by Martin Gaskell in May.

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

CLUB EVENTS

PAC Meeting 7:30pm
Tuesday, August 31, 2004

Club Star Party
Friday, September 10, 2004

Mahoney Star Party
Friday, September 17, 2004

PAC Meeting 7:30pm
Tuesday, September 28, 2004

PAC/OAS Banquet
Friday, October 08, 2004
Sapp Lodge, Mahoney

Club Star Party
Friday, October 15, 2004

READ THIS NEWSLETTER ONLINE

Those who wish to help with publishing and postage costs by receiving only the on-line version of the newsletter should contact Liz Bergstrom at 464-2038. Mark Dahmke or Liz can give you the logon account and password for access. You may receive both the mailed version and the on-line version if you wish. A printable PDF version of this newsletter is also available through the website.

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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 \$20/yr, Family \$22/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

Minutes for the Meeting of July 27, 2004.

President Dave Knisely called the meeting to order.

The last PAC star party had three or four people, with a decent night of observing. The next PAC star party will be Friday August 13, 2004.

If you'd like to do some observing, put a note on the PAC-list and you might get some company.

The eleventh annual Nebraska Star Party was a great success with 344 participants, and 10 from PAC. Most of the time was great with one night of wind, taking out several telescopes.

The next Nebraska Star Party will be July 31 to August 5, 2005.

The next PAC/OAS banquet will be Friday October 8, 2004 at the Sapp Lodge at Mahoney State Park.

The next Mahoney Star Party will be August 13 and September 17.

Club outreach coordinator Jeff Campbell reports several events in the near future with a church event tonight and two events for the Washiska Audubon Society on August 8 and September 11.

If you have any ideas for PAC programs, contact club program chair, Jack Dunn.

Hyde events: Hyde will be open on October 20 for the lunar eclipse, with a 1 hour totality. Hyde volunteer coordinator, Dave Churilla is always looking for new volunteers, to get started, contact Dave.

Both club telescopes are available, the reflector surviving the wind of NSP. To check out either the refractor or reflector, contact Dave Brokofsky.

Treasurer's report: The Astronomical League has raised its membership dues for the club from \$3.50/member to \$5.00/member. Liz reported on some research of other club's dues structures and those of PAC are the lowest. The executive committee will be discussing options for increased dues in the near future, with some formal proposals to be discussed at the next meeting.

Erik Hubl reported on viewing the occultation Dr. Gaskell mentioned last month. There was a disappearance of 8.3 seconds.

There will be another occultation on Friday August 6 for an estimated 19 seconds. Plans are being made to coordinate PAC and/or OAS observations of this event.

Dave Churilla motioned to adjourn and Lee Taylor seconded.

Adjourn to Jacks presentation of Hubble Highlights 2004 and a review of NSP 11.

Respectfully submitted by,

Lee Taylor

Hyde Observatory Volunteer Schedule

Date	Team Leader	Operators		Supervisor	Events
September					
9/4/04	Bill Wells	Erica Block	Jeff Campbell	Jack Dunn	
9/11/04	Dan Delzell	Jared Delzell	Joey Churilla	Dave Churilla	
9/18/04	Bob Leavitt	Dave Brokofsky	Cece Hedrick		
9/25/04	Jeff King	Josh Machacek	Bob Kacvinsky		
October					
10/2/04	Brian Sivill	Cece Hedrick	Jeff Campbell		
10/9/04	Dave Hamilton	AJ Benker	Steve Lloyd		
10/16/04	Bob Leavitt	Joey Churilla	Erica Block	Dave Churilla	
10/20/04					
10/23/04	Jeff King	Josh Machacek	Bob Kacvinsky		
10/27/04	Scopes On Lawn	Joey C / Bob K		Dave C - Outside	Lunar Eclipse
10/27/04	NEED	Josh Machacek	Jeff Campbell	Dave Knisely	Lunar Eclipse 7 - midnight
10/30/04	Dan Delzell	Jared Delzell	Dave Brokofsky		
Summer Hours: April through September (Sundown to 11:00 PM)					

Proposed Dues Increase– Dave Knisely

Recently, due to increased expenses from increased Astronomical League dues as well as a substantial increase in the cost of reserving the Helen Sapp Lodge at Mahoney for the Fall Banquet, the cash flow for PAC has run into the red by a little over \$300 this year, and was also in the red last year (we are still solvent for the time being). We have been forced to dip into our savings, but when we sold the Atlas site, we stated that we did not want the money received from this to go to funding of regular "routine" club activities, as that money was to be reserved for special projects (like the purchase of the 4 inch Club loaner scope). We of the executive board have taken some steps to reduce the future Banquet cost to the club, and we have stated that, in the future, it will have to more or less support itself. However, it looks like, in order to stay in a positive or neutral cash flow range (and to prepare for any future unforeseen expenses), we will need to raise the club dues *very* soon.

The following are the proposals for the new Dues. Each has consequences for the club's financial picture.

- 1) Individual membership: \$25.00/year. Family membership: \$30.00/year
- 2) Individual membership: \$30.00/year. Family membership: \$35.00/year

The most significant consequences are in regard to the annual PAC/OAS banquet.

The lower cost one would allow for no subsidy of things like the club banquet, and would be a "bare-bones" increase, with the possibility of further increases next year if other costs to the club rise (which they may do, as postage alone is a big problem, not to mention club insurance). The higher one would give us some breathing room and allow for possible support (in a minor way) of something like a small portion of the Banquet's cost (but not all of the Lodge reservation fee, as we still need to come close to getting it to support itself). I did some comparisons to clubs in our region, and even the higher option is very similar to what I saw a few other clubs charging for membership. In any event, this is what the executive board is proposing. The board could just raise the dues on its own, but we have chosen not to follow this route without club input, so the two options will be up for **voting by the membership** at the August 31st meeting. I hope to see many of you there.

The 11th Annual Nebraska Star Party – Dave Knisely

Once again, the Nebraska Star Party gave me the nice vacation and observing experience which I look forward to each year. 344 attendees and their families from many U.S. states, Canada, and even England were in attendance for a

week's worth of fun. I was off at 8:35 a.m. on Saturday the 17th from my home in Beatrice for the 6 hour drive up into the high sparsely-populated Sandhills country, where the skies are legendary for their clarity and darkness. The obligatory stop for gas at the "robot" station near tiny Mason City was somewhat more financially painful than in previous years, but it was no worse than I expected, and was offset by the beautiful weather (70 degrees F.) and the views of the tall fixed dunes that make this part of Nebraska so scenic. The star party is held each year at Merritt Reservoir, which is a fish-hook shaped lake about 11 miles long located 28 miles southwest of Valentine, Nebraska. I arrived at Merritt Resort near the dam and checked into our 4-bed cabin, being the first of our little "Cabin 14 party" to show up. After a short nap, I was up making the rounds of the resort to see who had arrived. I linked up with some friends from Omaha and we all had dinner at, "The Water's Edge", the resort's restaurant. Finally, two of my cabin mates Eric Balcom (the NSP Coordinator) and Clete Baker (NSP publications chairman) arrived and we all headed out along the winding road to the observing fields a few miles away above the Snake Campground.

The sky was nice and clear, with many people setting up all over the high rolling grass-covered dunes. I like something a bit more accessible, so I set up in my usual lower spot near to where the blacktop road splits to go down to the campground or over to "Dob Row." This year, I had the new Nexstar 9.25GPS SCT with me, along with an as of yet untested "X-Power" battery supply, so it would be a little different experience than it had in past years. I made the rounds on the observing fields to see who the "early birds" were before sundown. There were at least 40 telescopes already on the fields with more being setup both there and down in the campground next to the lakeshore. I heard from those who had come up on Friday that there had been an Auroral display as well as clear skies on the previous night, making me wish I had come up a day early. Some of the big Dobs were setting up on Dob row, but I wanted the first night for myself, so I headed back to my own setup and sat back to watch it get dark.

One of the things which tells you that it is going to be a good night is the deepness of the blue twilight sky which lets the Milky Way start to come out well before twilight ends. This night was no exception, as the darkening sky let the Milky Way take on a spectacular grainy structure as if someone sprinkled sugar grains all over the heavens. The number of stars visible rapidly made picking out some of the constellations difficult for those new to the star party. We looked at some of the more colorful double stars in twilight before going "deep". I could barely see the companion to Antares as a blue spot on the edge of its rather disturbed diffraction pattern, so seeing that far down wasn't quite rock-solid although transparency was excellent as usual. M57 was an early target, as its smoke-ring form was almost blazing out in a rich field of stars. I kicked up the power on the NexStar, and at very high power, I could occasionally see the very faint central star winking in and out. I had the NexStar slewing from object to object in rapid succession, observing the spiral arms of M51 with ease, and even revealing the spiral structure of M101 at 78x. I spent a lot of time cruising through the Scutum star cloud manually before settling on a spectacular view of M11. I slewed over to M4 to show a fellow from the little town of Benkleman, Nebraska the cluster's band of stars which sometimes make this globular look a bit like a barred spiral galaxy at low power. I worked all the "usual suspects", spending a lot of time on M8 and M20. M20 in particular showed an incredible amount of faint outer nebulosity which can be tough to see back home. The three dark lanes were quite obvious even to the few "first timers" who had showed up to take a peek. I showed a couple of people the dark nebulae Barnard 86 (the "ink spot") next to the open cluster NGC 6520, and then slewed manually into the light and dark lane sections of the large Sagittarius star cloud. M24 also showed its rich form in spectacular fashion, with the large dark nebulae Barnard 92 and 93 being quite obvious even at 78x. I went to the two strings of stars near its center that I like to call "the Christmas Tree", as they do resemble the outline of one. I punched in M22 and left some people gasping at the view of this wonderful globular. Even good old M23 was a real crowd pleaser. Barnard's Galaxy NGC 6822 was visible with more contrast than I am used to seeing in the 9.25" SCT, as was the nearby planetary nebula NGC 6818, "the Little Gem". I took a look at the fine tilted spiral NGC 7331 and I couldn't believe how brilliant the core of the object looked. I could just begin to note the dark lane and patchy ends of this galaxy, so the NexStar was definitely working well.

After a few more "sight-seeing" slews, I decided that it was time to "get down to business" and look at a few things which I needed the darkest sky possible to view. One was the planetary nebula Sh2-71 in Aquila that I had glimpsed a few weeks earlier from my home. For once, the NexStar's database wasn't able to satisfy me, so I dragged out the laptop and hooked it up to the telescope to give it control of the instrument. A mouse click later put me dead-on the target. This is a rather large faint planetary (mag. 12) that is of a very low surface brightness and of an unusual shape. Megastar plotted it as elongated east-to-west, but I noted it more elongated north-south, and Megastar's thumbnail agreed with this. It is a bit over 2' arc by 1' arc in size and has what looks like either a faint central star or one superimposed on the slightly darker area near the middle of the object. In fact, the darker region looks almost like a linear inclusion from the south, although this detail was quite marginal in my SCT. After a few more slews to interesting subjects, I decided to call it a night, as I still had a bit of an upper-respiratory infection that later spawned a rather bad case of Laryngitis which lasted the entire week. I also had to be ready for some star party "work" on Sunday.

Sunday morning dawned clear and bright, with temperatures rising into the 90's. A group of us got up and out to spend the next couple of hours pounding in metal mounting poles and setting up all the NSP signs around the lake and at the

resort to guide the attendees. After that, I spent a little time taking some pictures around the lake before heading to "Dillon's Lounge" in the lower level of the Water's Edge restaurant to help with the first day of NSP registration. After a fine serving of prime rib in the restaurant, it was back to the cabin to see if our other two cabin mates from Iowa had arrived. Sure enough, they had just pulled in and were unloading some of their stuff. It looked to be another clear night for observing, so after a brief nap, it was back out to the observing fields.

I decided to do some extended photography of the various observing setups on the fields and in the campground before sundown. I saw probably between 50 and 75 telescope setups before it got dark, but I only got images of a few of them, as I just ran into too many NSP attendees from previous years. I had finished a lot of my shooting, so I went back up the hill to the main observing fields. Needless to say, I got stuck around the 15 to 20 scopes set up on Dob row, and never did break out my own scope that night! I spent most of my time between NSP "founder" Tom Miller with his 20 inch Obsession + Binoviewer and NSP Beach Party Coordinator Jim Rippey and his 24 inch Obsession. As the sky got darker, it was clear that this night was going to be even better than the previous one. One glance towards the head of Draco confirmed that I was seeing past magnitude 7.5 with the unaided eye, and the Milky Way was simply stunning. Things like the Pipe nebula (and its extensions making up the "rearing horse") were easy targets for the unaided eye, and binoculars showed the star clouds and dark nebulosity in a way seldom seen elsewhere. Doug Bell's 5 inch Astrophysics APO refractor and the UHC filter provided a detailed view of the North American and Pelican Nebulae, as well as providing a great view of the entire Veil (both arcs and some of the stuff in between). Meanwhile, the big Dobs were scouring the region around M8 and M20. Tom Miller's binoviewer on his 20 inch was blowing people away left and right. We put it on M22 and saw COLOR IN THE STARS! The overall cluster looked a bit yellowish-orange, but at higher power, some of the brighter stars showed clear white, yellow and orange coloration. M20 looked very much like it was hanging in space with the binoviewer, and the view of M51 was simply to die for! I could see some of the small spur-like details arcing away from the spiral arms, and the arms themselves were incredibly easy to see. Jim Rippey's 24 inch showed the Cat's Eye (NGC 6543) as a brilliant lime-green oval with clear arc-like detail in its interior. My Laryngitis was getting rapidly worse as I "croaked" out at the spectacular views we were getting. Hour after hour we scanned the skies for new things to look at. I took the helm of the 20 inch to put it on "the Blue Snowball from Hell" (as Tom Miller calls NGC 7662), as Tom couldn't quite find it. It showed some fascinating structure in the binoviewer and was well worth the effort. Around 3:15 a.m., I was getting just a little tired, and with having to help present the Beginner's Field School the next day, I reluctantly called it a night.

Monday dawned partly cloudy and hot, and my voice was nearly gone, which was a bad thing considering I am the Beginners Field School Coordinator! Still, I managed to lug the box of 95 Field School Manuals from my cabin (as well as my big "portable library"), and got into the restaurant where we would be holding the first class at noon. Fortunately, my fellow Field School Instructor John Johnson, was able to bail me out by doing a lot of the talking as my voice died. Like last year, I was startled to see the number of people filing into the restaurant for the first session. I counted nearly 50 people and of those, a majority indicated that it was only their first or second star party. We covered things like star party etiquette, planispheres, star atlases, guide books, constellations, binoculars, and finding techniques. I particularly had fun following the NSP Field School "tradition", giving out the first of our door prizes to one rather stunned youngster from California who was lucky enough to ask one of the first questions! After I got done with the Field School, I went downstairs to Dillon's Lounge to get something to sooth my throat and to check on how registration was going. The vendors were selling their wares on the north side of the restaurant, and I snapped up one of the last Orion observing chairs they had. Late that afternoon, our roommates from Iowa fixed us hamburgers on the grille outside our cabin, along with delicious Iowa sweet corn. After this, we all headed back out to the Snake campground for the NSP Ice Cream Social, where free ice cream and pop was provided along with the first of many door prizes. I went to my usual "NSP mentor" location near the split in the road and did manage to help a small family with their new 4.5 inch Celestron Newtonian, getting it properly collimated and set up, but the clouds prevented much serious observing until well after midnight. Most of us just gathered in one of the large groups of attendees in lawn chairs on Dob row to talk and relax in the cooler night air.



Tuesday was again partly cloudy and hot, and from the looks of things, we would probably be getting severe weather later in the day. The second day of our Field School had around 70 people in attendance and went off quite well (other than my voice still being rather croaky). We covered telescopes and equipment, although like most times, we didn't have time to cover all that we had wanted to. Late in the afternoon, the restaurant opened for one of the NSP catered meals, a Hamburger/buffalo burger BBQ. Cumulus towers were building and large sections of sky were hazed over, so I had little doubt we would not be observing that night either. I went over to the observing fields to take some shots of the approaching thunderstorm, and most people had their scopes under wraps for the night. However, one of the things we emphasize about the weather conditions is that things can get *really* bad really fast, and this night proved that to be true. Wind speeds started to increase rapidly with lots of lightning, and most of us retreated to our vehicles just as the rain started and the wind really began to blow. The storm didn't last terribly long, but it did some damage, as the winds knocked a few scopes over and ripped a few tents out of the ground. One very nice lightweight wooden telescope tube (minus the optics) was inside a tent that came down, and it was blown down one of the dunes. Needless to say, it was badly damaged, although the rocker box was intact. During the storm, I chased a telescope cover that had blown off one of the big truss-tube Dobs and managed to retrieve it, but putting it back on in the rain and wind was an impossible task. With mostly cloudy skies and only a few "sucker holes" in the area, I headed back to Merritt Resort and met up with some friends in Dillon's Lounge where we talked until nearly midnight.

Wednesday looked a little better, although the threat of thunderstorms remained in the forecast. We filled the restaurant for day-3 of the Field School, with Jim Hopkins of Chicago presenting the section on observing deep-sky objects. After this, the NSP swap meet began in the restaurant, with the place filled to overflowing with telescopes, equipment, and books for sale or trade. The vendors were again selling their wares, while many people got looks at the sun through several telescopes including Dobson solar scope and a Tele Vue 76 with a Coronado H-alpha filter. The NSP Beach Party was in full swing along the shores of the lake, with swimming, sand volleyball, races, and other activities. I managed to participate in the sand-wedge pitching contest, but my best shot went *way* over the hole. I took a dip in the lake with a few friends and their kids as the monster canoe brought by Brewer's Canoes and Tubes arrived. This canoe is so big that it could hold perhaps 15 people at a time, although with that many people on-board, it was a bit difficult to maneuver. The end of the Beach Party was marked by the hotdog/Brats BBQ and the awarding of the door prizes including six and eight inch Hardin Dobsonian Telescopes. A line of thunderstorms was developing south of the lake, but it began moving out to clear off much of our sky at sunset. Again, I spent most of my time with other people rather than setting up myself, as I wanted to call it a night early due to the river trip in the morning. I noted one gentleman from Kansas with a gigantic 12.5 inch f/10 Newtonian on a German equatorial mount. This thing did indeed look like the proverbial "sky cannon", but provided good views of the crescent moon low in the west. In the middle of the observing fields is one rather steep-sided dune which provides an excellent view of the surrounding countryside, but which can be difficult to get equipment up on its top. This time, however, Jim Hopkins had his 14 inch LX-200 and a friend's 12 inch LX-200 both set up on this point. We looked at a few objects before I went back down towards my "mentor" location near the split in the road. I observed with fellow Prairie Astronomy Club member Bob Leavitt with his 8 inch Meade SCT as he tried to get a few galaxies in the west for his Messier award after moonset. Pete Smitka of MAG-1 instruments had arrived with a set of 4 inch binoculars, so we spent the next few hours going up and down the Milky Way with them. Dave Hamilton of Lincoln, Nebraska had his 12.5 inch Portaball set up next to me, so we had some fun looking at the comets C/2001 Q4 (NEAT) and C/2003 K4 (LINEAR). Both were fairly easy in the 4 inch binoculars as well as in the Portaball. I used the binos mostly to survey the dark nebulae in and around the large Sagittarius star cloud, as well as to see little Barnard's Galaxy. Dob row was busy once again with the big scopes working the heavens, but it wasn't exclusively the realm of the large Dobsonians, as a number of large SCTs and a few refractors were also set up there. I called it a night after 2:30 a.m., as we had the river trip the following day.

I awoke Thursday morning to a loud "BOOM", as a lightning bolt hit south of the resort. Sure enough, just before dawn, the sky had clouded up and rain was falling. Still, we decided to attempt the canoe/tubing trip down the Niobrara River, and had a lot of fun despite a little cool rain and some clouds. At around 5:30 p.m., the catered steak dinner was served at the Water's Edge restaurant, and once again, the sky started to clear. By sunset, we had a partly cloudy sky and began working the deep-sky once again. This time, I did set up my NexStar to demonstrate its abilities to a friend who was asking about it. Seeing was pretty good, with lots of detail visible on the fat crescent moon. I observed a number of open and globular clusters while waiting for moonset. Once the moon went down, I started going deeper, but a narrow band of clouds covered much of the southern sky for a while. I was about to tear down when up from the northern horizon came the rays of an Aurora, so we watched that for about an hour or so before heading back to the resort for the night.


Friday was the day of the formal presentations at the Valentine High School. The only "work" I had to do that day was helping judge the Astrophotography contest, so I had a chance to buy a few things from the vendors in the lobby, including a "Star Party SURVIVOR" hat and a sweatshirt. The swap meet also started up once again, while the formal presentations began in the luxurious auditorium. Adam Machajewski presented a talk on "A Solar Observing Project", which was then followed by lunch in the lobby, provided at a low cost by Pizza Hut and served by students from the

Valentine High School. This was followed by Jim Hopkins presentation on Comets, Harlan Seyfer's talk on "A History of Double Star Observing", and the final presentation, "Geologic Lunar Mapping for Apollo", by John Artherton. The NSP observing awards and contest winners were announced, and the last door prizes were given out before the formal star party activities ended around 4 p.m. I had dinner at "The Pepper Mill" restaurant in Valentine with a few other NSP friends before heading back out to the lake for the "after the party" picnic for the NSP staff behind the cabins of the resort. The sky remained mostly cloudy, so the public star party scheduled for that night at the resort had to be canceled for this year. All in all, the 11th annual Nebraska Star Party was a success, and I look forward to attending next year's event. The 12th Annual NEBRASKA STAR PARTY will be held Sunday, July 31st through Friday, August 5th, 2005 at Merritt Reservoir southwest of Valentine, Nebraska. For more information, check out our web site at: <http://www.nebraskastarparty.org>

August Star Chart



Events Calendar

September 2004						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 	2 	3 	4 
			Sun: 18:54 - 07:58	Sun: 18:55 - 07:57	Sun: 18:56 - 07:55	Sun: 18:57 - 07:53
						Hyde Observatory open to the public
5 	6 	7 	8 	9 	10 	11 
Sun: 18:58 - 07:52	Sun: 18:59 - 07:50	Sun: 18:59 - 07:49	Sun: 19:00 - 07:47	Sun: 19:01 - 07:45	Sun: 19:02 - 07:44	Sun: 19:03 - 07:42
				Mercury greatest elongation	Regulus 1/4 deg from Mercury; Club Star Party	Hyde Observatory open to the public
12 	13 	14 	15 	16 	17 	18 
Sun: 19:04 - 07:40	Sun: 19:05 - 07:38	Sun: 19:06 - 07:37	Sun: 19:07 - 07:35	Sun: 19:08 - 07:33	Sun: 19:09 - 07:32	Sun: 19:10 - 07:30
					Mahoney Star Party	Hyde Observatory open to the public
19 	20 	21 	22 	23 	24 	25 
Sun: 19:11 - 07:28	Sun: 19:12 - 07:27	Sun: 19:13 - 07:25	Sun: 19:13 - 07:23	Sun: 19:14 - 07:22	Sun: 19:15 - 07:20	Sun: 19:16 - 07:18
			Fall begins			Hyde Observatory open to the public
26 	27 	28 	29 	30 		
Sun: 07:18 - 19:17	Sun: 07:19 - 19:16	Sun: 07:20 - 19:14	Sun: 07:21 - 19:12	Sun: 07:22 - 19:11		
		PAC Meeting 7:30pm				

Moon phase images by: Antônio Cidadão

For Sale

Orion Apex 102 mm Maksutov-Cassegrain for Sale: The scope is virtually brand new, although I purchased it last Feb 2003. I was planning on using it in conjunction with our H-Alpha T-Scanner that we still don't have. But Joey and I have decided to go with the Coronado PST H-Alpha set up, so we really don't need this scope. I've only used it about a half dozen times. The only "wear" you'll see on it is where I had to move the Rigel base (took up the 2-sided tape). I'm adding the EQ1 plus drive motor to it, plus I'm including the Rigel finder. The picture does not show the 45 degree diagonal or the eyepiece, which are standard. Following are the specs for it and equipment included:

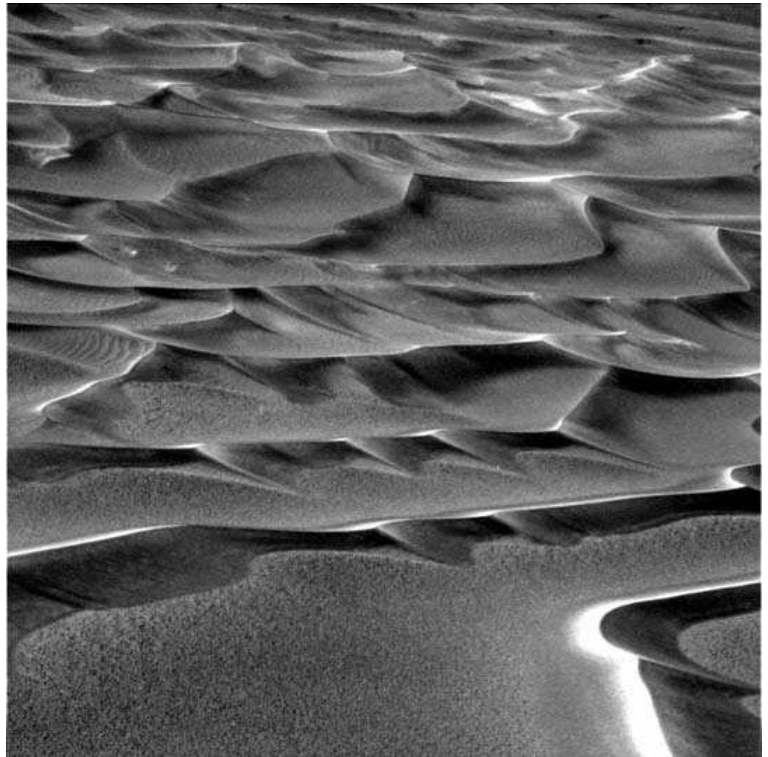
Apex 102 mm (4") Aperture Maksutov-Cassegrain, 1300 mm focal length, f 12.7, 45 degree mirror star diagonal, 6 x 26 finder scope, 25 mm Plossl eyepiece (approx 50x), EQ-1 Tripod with single axis drive, Mounting Rings, Rigel Finder, Total Value New (without S/H): \$488. Asking Price: \$400 (OBO) Dave Churilla, 467-1514

For Sale: 8 inch Dyna-Scope reflector with large setting circles and motor drive. \$100 cash. Call Harlan Franey 489-5234 or hfraney@aol.com. Because of failing health can no longer use my Meade DS-90 Refractor. Includes Autostar 497 (14000 objects), finder, 9,25, 40mm eyepieces and Quickfinder. Over \$600 invested. \$300 O.B.O. Harlan Franey, 5523 S 73, 489-5234

Ripples in the Ripple

This image taken by the Mars Exploration Rover Opportunity shows the dunes that line the floor of "Endurance Crater." Small-scale ripples on top of the larger dune waves suggest that these dunes may have been active in geologically recent times. The image was taken by the rover's panoramic camera on sol 198 (August 14, 2004).

Image Credit: NASA/JPL/Cornell



**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).

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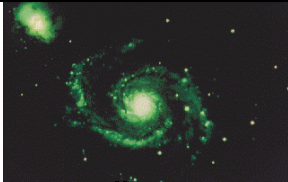
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First Class Mail

**Next PAC Meeting
August 31, 2004
7:30 PM
Hyde Observatory**