

THE PRAIRIE ASTRONOMER

The Official Newsletter Of The Prairie Astronomy Club, Inc.

September 2006

Volume 47 Issue #9

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 NEB-STAR www.neb-star.org

Club Events

Club Star Party

Friday, September 22, 2006

PAC Club Meeting

Tuesday, September 26, 2006 7:30pm

PAC/OAS Banquet

Sunday, October 15, 2006 7pm

SAC Museum

Club Star Party

Friday, October 20, 2006

PAC Club Meeting

Tuesday, October 31, 2006 7:30pm

Club Star Party

Friday, November 17, 2006

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.

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 – nominations for club officers will be taken at the September and October meetings, and elections will be held at the October meeting.

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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 \$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

Bob Leavitt called the meeting to order. There were 3 visitors. Bob discussed current and upcoming club events:

- The next Mahoney Star Party will be September 15, the last one scheduled for the year. Telescopes are set up near the golf driving range at Mahoney State Park.
- The next club star party will be held Friday, September 22 at the farm.
- The next club meeting will be Tuesday, September 26.
- Nominations for club officers will be taken at the September and October meetings, and elections will be held at the October meeting. We're still looking for volunteers for the nominating committee.
- 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. Invitations will be mailed out in September.

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

CD-1 \$16,400.58

CD-2 \$3,628.13

CD-3 \$5000.00

Hyde Observatory Checking \$0.00

Hyde Observatory Savings \$0.00

PAC Checking \$1,528.04

PAC Savings \$8,890.59

Total \$35,447.34

A cleanup session, organized by Lee Thomas, was held at Hyde Observatory on August 19. A great deal of old papers and other junk was removed. Lee Thomas, Bob Leavitt, Jack Dunn, and Ron Veys participated in the event. Hyde Observatory is open Saturdays from sundown to 11:00 pm (summer hours).

DVDs of last month's program are available. The program was recorded by Mark Dahmke. David Pares presented "Portable Astronomical Equipment for the Classroom Environment". Contact Mark Dahmke or Bob Leavitt if you would like a copy.

Two outreach events are coming up. If you would like to participate contact the individuals listed below:

- Twilight on the Prairie Festival, Saturday Sept. 16 (contact Erik Hubl)
- Morley Elementary School Family Fun Night, Friday Sept. 29 (contact Bob Leavitt)

Dave Knisely also mentioned that Homestead National Monument will have their annual event on October 28. Volunteers are needed. Contact Dave for more information.

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

Bob reviewed upcoming observing highlights for the month of September.

The meeting was adjourned to the program. Jack Dunn presented "Astronomy Down Under".

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
September					
9/23/2006	Bill Wells	Bob Leavitt	David Brokofsky	Dan Delzell	
9/30/2006	Dave Churilla	Joey Churilla	Dan Delzell	David Brokofsky	
October					
10/7/2006	Dave Hamilton	Mitch Paine	Bob Kacvinsky		
10/14/2006	Jeff King	Josh Machacek	Jim Kvasnicka		
10/21/2006	Bill Wells	Steve Lloyd	Dan Delzell		
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		
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 to be Held on Sunday, October 15th

The PAC/OAS Annual Banquet is scheduled for Sunday, October 15 at the SAC Museum. The cost is \$11.00 per person, which includes free admission to the museum. By special arrangement, we'll be dining in the atrium, under the SR-71! This is one event you won't want to miss. If you haven't been to the museum before, this is a great opportunity to take a look.

The program will be: "Building and Using an Armchair Astronomer's Observatory" –Rick Johnson will talk about his awesome Minnesota observatory Both clubs will be giving out some special awards, and there will also be some door prizes.

Catering will be provided by Uncle Earnie's Catering. The menu will include: smoked pork, smoked beef, beans, pasta salad, lettuce salad and rolls, and a dessert. The Strategic Air and Space Museum is near Mahoney State Park, on I-80 at exit 426.

A Night from the Driveway – Dave Knisely

DATE: August 24th, 2006, 0420 to 0700 hrs UTC.

LOCATION: Beatrice, Nebraska (40.283N, 96.735W, 1325 ft (404m) elev.)

INSTRUMENTS: NexStar 9.25 inch (235mm) f/10 SCT: 59x, 98x, 169x, 223x, 297x, 480x, 744x

CONDITIONS: Mostly clear (high variable haze) Temp. 70F (26C), Wind calm.

UNAIDED-EYE ZENITH LIMITING MAGNITUDE: 5.4

SEEING (above 45 deg. altitude): 0.6" to 1" arc (Antoniadi II).

OBJECTS OBSERVED: Struve 3053, Iota Cassiopeiae, NGC 6229, NGC 6886, NGC 6905, NGC 6879, IC 4997, Minkowski 1-74, Heinze 2-441, PK 86-8.1

With somewhat hazy skies, I decide to work on double stars and small planetary nebulae from my driveway. One of my targets was Struve 3053 in Cassiopeia. It is a sort of fainter version of Albireo with a yellowish magnitude 5.9 star with a 7.3 magnitude bluish companion about 15 arc seconds away. It is located in a fairly rich star field, so it is a fairly pretty sight. I also looked at Iota Cassiopeia, a very nice tight triple star with a little color contrast as well. The primary is mag. 4.6 and basically a white color, with a very close (2.8" arc) 7th magnitude faintly yellowish companion and a third member (mag. 8.6) a bit farther away (7.4" arc) which seemed almost golden or faintly orangeish. Next, I started just looking for things on my laptop which might have been more interesting. I noted NGC 6229, a small 9th magnitude globular cluster in northern Hercules, so I slewed the NexStar over to it. It was fairly easy to see as a small fuzzy ball with a notable central condensation. However, even at 480x, there was no sign of any of its stars, although it did look a bit irregular around the edges.

NGC 6886 was my next target in Sagitta (I spent a lot of time there). It is a rather tiny planetary nebula only around 8 or 9 arc seconds across, but it is bright enough (around 11th magnitude) to be fairly easy in my NexStar. It "blinked" rather strongly with my OIII filter, so that nailed the object at low power without having to do a rather detailed star field comparison. The object remained star-like even at 169x, although at 297x and 480x, I could see a tiny disk when the seeing settled down. The central core was fairly bright and the disk's outer edge seemed somewhat diffuse.

NGC 6905, another planetary nebula not far to the east in Deneb next got my notice. This object is sometimes referred to as the "Blue Flash Nebula", although it never seemed to be that bright to me (11th magnitude). It was visible at 59x as a small disk even without a filter, and surprisingly, it was helped by the use of the Lumicon Deep-Sky filter. The UHC filter was the one which helped the most in boosting the contrast, but it was not needed at really high power. The disk seemed annular at low to moderate magnifications, but high power changed this view. The nebula is clearly somewhat irregular with sections of two roughly circular arcs making up opposite sides of the object. One arc along the eastern side was brighter and seemed a bit longer than the arc-like patch on the west side, with the eastern arc having a radial extension running to near the center of the object. In fact, at times, the object looked a bit like the spiral structure of a galaxy! There was no sign of any central star although the center of the nebula did look brighter at times.

NGC 6879, another one of the Sagitta planetaries, was next. It appeared as a 12th magnitude star-like dot in a field of similar stars. It began to show a hint of a tiny disk at 298x, but with a size of only about 4 or 5 arc seconds, it took 480x to show it well. The edges tended to look a bit on the diffuse side and there was no sign of any central star.

IC 4997 was another small planetary nebula which was basically stellar at about every power I used. At magnitude 10.8, it isn't all that faint, but it was helpful to use the OIII to "blink" it to pick it out from all the field stars.

I had looked around with the laptop for other interesting targets, but I finally ran into one that I just couldn't verify. Kohoutek 3-51 was supposed to be 15 arc seconds in size, but no matter what power or filter I used, it was not seen. A faint star shows on the Digitized Sky Survey image which I may have seen, but no object 15" in size

around the star. I suppose that this one is just probably going to have to wait for a better night and a larger scope. Thus, my first 'foray' away from the NGC/IC catalogs for planetaries this night was not a success.

However, my next diversion *was* successful (and yes, Virginia, there is a Minkowsky catalog!). I picked up Minkowski 1-74 (PK52-4.1) in Aquila, and again, it was small and faint (12th magnitude) but not quite stellar. It was helped most by the UHC and OIII filters and was difficult to pick out of the star field without them. At 480x, it started to show a hint of a disk but it was very small. Heinze 2-441 (PK52-2.2) was another little 12th magnitude guy in the area. It was nearly stellar, but was visible without a filter with no problem. It responded to all my filters except for the H-Beta which almost killed it. At 480x it was showing a definite disk (8" arc) which may have been annular. I could also see a brighter central core which may have been the central star, as seeing was getting a little worse.

However, I ran into another "red herring", in the form of Sh2-80 in Sagitta. I easily located the field and matched the stars to what appeared on the screen of my laptop, but all I could see was the 11th magnitude central star of the planetary. Even with filters, I couldn't really confirm any glow around the star. One night later, I tried again from my dark sky site and again failed to see anything except the central star, so this one goes on my "no see-um" list. When I got home, I checked the Digitized Sky Survey image, and while it showed a hint of some kind of bipolar glow, the central star was all that was really very prominent.

PK 86-8.1 in Cygnus (12th magnitude) put me back in the "success" column. Visible without a filter, the object was nearly stellar below 100x, but showed a bit of a disk at higher magnifications. Filters did help, but mainly the UHC and OIII, with the Deep-Sky filter also of benefit. 480x and 744x both showed a very slightly oval disk which was diffuse at the edges and brighter at the very core, but no central star was seen. I did a little final "sight seeing", visiting the Double Cluster and a few other favorites, but I finally packed it in for the night. Still, despite observing from my driveway, this had been a rather good night for "going deep".

NASA Rover Nears Martian Bowl Goal

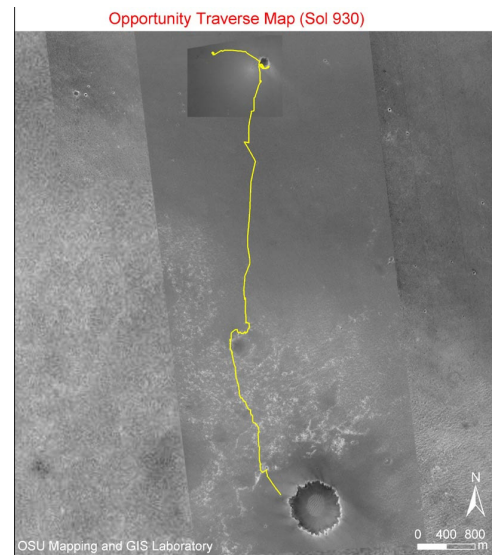
NASA's Mars rover Opportunity is closing in on what may be the grandest overlook and richest science trove of its long mission.

During the next two weeks, the robotic geologist is likely to reach the rim of a hole in the Martian surface wider and deeper than any it has visited. The crater, known as "Victoria," is approximately 750 meters (half a mile) wide and 70 meters (230 feet) deep.

Images from NASA's Mars Global Surveyor orbiter show the crater walls expose a stack of rock layers approximately 30 to 40 meters (100 to 130 feet) thick. Opportunity will send back its initial view into the crater as soon as it gets to the rim. Scientists and engineers will use Opportunity's observations from points around the rim to plot the best route for entering the crater.

"Victoria has been our destination for more than half the mission," said Ray Arvidson of Washington University, St. Louis. Arvidson is deputy principal investigator for Opportunity and its twin rover, Spirit.

"Examination of the rocks exposed in the walls of the crater will greatly increase our understanding of past conditions on Mars and the role of water. In particular, we are very interested in whether the rocks continue to show evidence for having been formed in shallow lakes."



The NASA rovers have been exploring landscapes on opposite sides of Mars since January 2004. Their prime

missions lasted three months. Both rovers are still investigating Mars' rocks, soils and atmosphere after more than 30 months. Opportunity works in a region where rock layers hundreds of meters or yards in thickness cover older, heavily cratered terrain.

"We have a fully functional vehicle with all the instruments working. We're ready to hit Victoria with everything we've got," said Byron Jones, a rover mission manager at NASA's Jet Propulsion Laboratory, Pasadena, Calif.

Though it's still winter in Mars' southern hemisphere, days have begun getting longer again, and Opportunity's power supply from its solar panels is increasing daily.

During its first two months on Mars, Opportunity examined a 30-centimeter (one-foot) stack of rock layers at its landing site inside "Eagle Crater" and found geological evidence that water had flowed across the surface long ago. The rover spent the next nine months driving to and exploring a larger crater, "Endurance." There it examined a stack of exposed layers 7 meters (23 feet) thick. Over the drive from Endurance to Victoria, the rocks tell a history of shallow lakes, drier periods of shifting dunes and groundwater levels that rose and fell. Minerals indicate the ancient water was very acidic.

The much thicker stack of revealed rock layers at Victoria beckons. Arvidson said, "We want to examine the thick section of rocks exposed on the walls in Victoria crater to understand whether the environment that produced these materials was similar to the environment recorded in the rocks that we have seen so far. Is there a record of a different type of deposition? Was there a wet environment that was less acidic, perhaps even more habitable? Where do the layers from Endurance fit in this thicker sequence?"

NASA's Mars Reconnaissance Orbiter reached Mars in March 2006. It will begin its primary science phase in November, offering higher resolution images and mineral mapping than have been possible with previous orbiters. Victoria will be one target for the orbiter. "By combining the data from Opportunity and Mars Reconnaissance Orbiter, we'll be able to do some fantastic coordinated analysis," Arvidson said. Such analysis will enhance the science return of both missions and aid in interpreting orbiter data taken of potential landing sites for future missions elsewhere on Mars.

"It's an amazing accomplishment that Spirit and Opportunity have completed the equivalent of 10 prime missions," said John Callas, rover project manager at JPL. "Each of them shows some signs of aging, though. We can't say how long the rovers will last, but we will push to get the best possible science out of these national treasures as long as they keep operating. Victoria could very well be the most productive and exciting science of the entire mission."

Events Calendar

October 2006						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1  Sun: 07:23 - 19:10	2  Sun: 07:24 - 19:08	3  Sun: 07:25 - 19:06	4  Sun: 07:26 - 19:05	5  Sun: 07:27 - 19:03	6  Sun: 07:28 - 19:02	7  Sun: 07:29 - 19:00 Hyde Observatory Open to the Public
8  Sun: 07:30 - 18:57 Draconids	9  Sun: 07:31 - 18:55	10  Sun: 07:32 - 18:54	11  Sun: 07:33 - 18:52	12  Sun: 07:34 - 18:50	13  Sun: 07:35 - 18:49	14  Sun: 07:36 - 18:47 Hyde Observatory Open to the Public
15  Sun: 07:37 - 18:46 PAC/OAS Banquet	16  Sun: 07:38 - 18:44	17  Sun: 07:39 - 18:43	18  Sun: 07:41 - 18:41	19  Sun: 07:42 - 18:40 Venus close to Spica	20  Sun: 07:43 - 18:38 Club Star Party	21  Sun: 07:44 - 18:37 Hyde Observatory Open to the Public
22  Sun: 07:45 - 18:35	23  Sun: 07:46 - 18:34	24  Sun: 07:47 - 18:33 Venus conj. Mars	25  Sun: 07:48 - 18:31 Mercury close to Jupiter	26  Sun: 07:50 - 18:30	27  Sun: 07:51 - 18:29	28  Sun: 07:52 - 18:27 Hyde Observatory Open to the Public
29  Sun: 06:53 - 17:26	30  Sun: 06:54 - 17:25	31  Sun: 06:55 - 17:23 PAC Club Meeting				

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**

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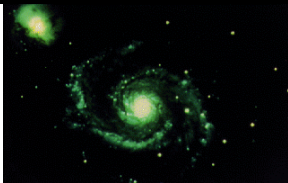
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First Class Mail

**Next PAC Meeting
Sept. 26, 2006
7:30 PM
Hyde Observatory**

TERRY GENRICH
LINCOLN PARKS & REC DEPT
2740 A ST

LINCOLN, NE 68502-