

# The Prairie Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.

July 2003

Volume 44 Issue #7

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## JULY PROGRAM

**July program:** (tentative) Liz Klimek on "quasar variability."

## CLUB EVENTS

**PAC Meeting 7:30pm**  
Tuesday, July 22, 2003

**Club Star Party**  
Friday, July 25, 2003

**Mahoney Star Party**  
Friday, August 22, 2003

**Club Star Party**  
Friday, August 29, 2003

**Mahoney Star Party dates for 2003:**  
July 18, August 22, September 19.

**Nebraska Star Party:**  
July 27 to August 1, Merritt Reservoir, Valentine, Nebraska.

**PAC-LIST:** If you have an e-mail address and are not on the PAC List, you may subscribe by submitting an e-mail to [list@4w.com](mailto:list@4w.com). Write "Subscribe PAC-List" in the body of the e-mail.

## 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](mailto: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 — Lee Taylor

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Minutes for the meeting of June 24, 2003

President Dave Knisely called the meeting to order, no new guests.

The last club star party started out decently, but was soon clouded over.

Mars is a great sight after midnight. The S. polar cap has split and bears watching throughout this apparition.

We are discussing the idea of 'shallow' sky star parties in a more easily accessible location, such as a member's residence.

On Tuesday, June 17 Dave Knisely, Karla Bachman and Jeff Campbell held a telescope workshop at Pyrtle Elementary for LPS teachers who may be using telescopes in their classes.

The Astronomical League's Mid-states regional convention was held from June 20-22 in Tulsa, OK.

The next club star party will be held on Friday June 27.

On July 18th, the Lincoln Children's museum has asked for help in a presentation of the night sky to be held at either Wagon Train or Oliver Creek. Jeff Campbell will be helping show the night sky at Camp Kindle in Hordville on July 20. For more information on either of these events, or if you'd be interested in helping out, contact Jeff.

There's been a nice supernova in M74. Try to find them (both the galaxy and supernova) in the early morning sky.

The next NSP planning meeting will be Thursday July, 10 at Mahoney, and of course, NSP 10 at Merritt Reservoir from July 26 - Aug. 1.

Because of the coincidence of NSP 10 with the last Tuesday of July, the July Meeting of the Prairie Astronomy Club will be held on TUESDAY JULY 22! Be sure not to miss one because of the other.

The next UNL student observatory public night will be on Friday July 11.

Hyde Memorial Observatory will be open on Tuesday and Wednesday Aug 26 and 27 for Mars viewing as well as the August PAC meeting.

If you plan to begin any of the Astronomical League's observing programs, contact club observing chair, Jeff King.

PAC program chair Brian Sivill, is always looking for new programs. If you've worked on something you like to share with the club, contact Brian.

Hyde observatory has two new volunteers.

Erik Hubl says the Air conditioning will be working (and swamping the solar arrays;) by the next meeting.

Elections were held for two positions for the Astronomical League The Astronomical League is also starting some new observing groups, including a comet club, globular cluster club and galaxy cluster club.

Treasurer's report: We're supporting ourselves well, saving plenty of money on newsletter online ( a BIG thank-you to everyone who has signed up for the online version)

A current membership list will be published by early next year.

Liz is now taking orders for club apparel. They will be the usual navy with the club logo and PRAIRIE ASTRONOMY CLUB printed on them. Also available will be a white scheme with blue logo and printing for an extra \$2.50.

Here is a price list for the items:

Polo shirt: \$8.00

Cap: 16.00

T-shirt 6.00

Sweatshirt: 16.00

Jacket: 22.00

All items must be PRE-PAID and orders must be in to Liz by Sept. 15!

Dr. Martin Gaskell has suggested that one of our difficulties in attracting new and younger members has been the high cost of club dues for college and/or high school students. A new membership class has been suggested with lower dues.

The club officers will be discussing this and drafting a proposal for it soon.

Dave Churilla moved to adjourn, second adjourn to programs on Hyde's new solar arrays and some good Mars video from PAC and Hyde's solar system ambassador, Dave Hamilton.

Respectfully submitted by,

Lee Taylor

## Hyde Observatory Volunteer Schedule

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Date	Team Leader	Operators		Supervisor	Events
<b>July</b>					
7/26/03	Bill Wells	Karla Bachman	Lynda Beck	Dave Churilla	
<b>August</b>					
8/2/03	Jeff King	Josh Machecek	Joey Churilla	Dave Churilla	
8/9/03	Jeff King	Dan Delzell	Jared Delzell	Martin Gaskell	
8/16/03	Dave Hamilton	Jeff Campbell	Karla Bachman	Martin Gaskell	
8/23/03	Bill Wells	Bob Leavitt	Steve Lloyd	Dave Hamilton	
8/27/03	TBA	TBA	TBA	Dave Churilla	Mars Closest Opposition
8/30/03	Dave Churilla	Joey Churilla	Erica Black	Brian Sivill	
<b>September</b>					
9/6/03	Dan Delzell	Jared Delzell	Joey Churilla	Dave Churilla	
9/13/03	Bill Wells	Amina Cassini	Jeff Campbell	Brian Sivill	
9/20/03	Bob Leavitt	Josh Machacek	Erica Block	Dave Hamilton	
9/27/03	Jeff King	AJ Benker	Lynda Beck	TBA	
<b>Summer Hours: April through September (Sundown to 11:00 PM)</b>					
<b>Winter Hours: October through March (7:00 PM to 10:00 PM)</b>					

## A Mars Report – Martin Gaskell

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At least one PAC member has asked me what has happened to my Mars reports, so here is my first report on the run-up to the closest opposition in 50,000 years or so.

I first made an observation of Mars before dawn December 27, 2002 when Mars was 4.5" across. This made an interesting comparison with my post-dawn Friday observation (June 27) because the longitude on Mars was almost identical, except that in (our) December the Martian date was mid-July, and now that it is almost (our) July, the Martian

date is late October. When I looked just after Christmas, Mars had its summer-sized N. polar cap towards us (tilt = +15 deg.); now the southern hemisphere is tipped towards us (tilt = -21 deg.), the N polar cap is shrouded in its winter haze and the other cap (the S. polar cap) is in all its early spring glory.

The disk is now just over 16 arcseconds across, much bigger than it ever reached at opposition in the early to mid-1990s. There's a lot I could say about what I saw last week, and everything is much sharper than it was during the global dust storm of the last (2001) opposition, but a list of classical names of features might not mean much to most club members. I'll therefore concentrate on just the most interesting feature. This is the S. polar ice cap. It is very obviously non-uniform now. It is breaking up irregularly. In the S. hemisphere of Mars it is the equivalent of April in Nebraska. The cap is asymmetric about the rotation axis. The region above Margaritifer Sinus is a pure white; the region above Syrtis Major (very well placed before dawn right now) is a mottled off-white and I could see a division or rift between the two regions.

So, get out with your telescopes before dawn and carefully draw what you see in the S. polar cap. You'll see some interesting changes over the next few months.

Mars is low this year and I haven't seen it in good seeing yet, but the few moments of good seeing last week showed a huge amount of detail.

## Dave Knisely's Mars Report

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There are certain events in Astronomical life that stand out in memory for the rest of your life where things all come together to perfection. Early this morning (July 1st), I had such an event. I get off work at 11:00 p.m. and usually don't go to bed until between 3 and 4 a.m., so this gives me access to a nice "window" of viewing some of the rest of you may not have. After eating my last meal of the day and watching the end of a dumb movie, I looked at the clock and it showed it was after 3. I debated what to do ("Do I \*really\* want to drag the ten inch out to look at Mars?"), but I decided to take a look outside. The sky was clear and the stars overhead weren't twinkling very much, so I started to pull my ten inch f/5.6 Newtonian out of the van where it had sat since the "cloud-out" of Friday's club star party. A quick check of collimation showed the ten inch was dead-on aligned. Once set up, I pulled the 5-8mm Speers-Waler "Canadian Cannon" eyepiece out and put it in the ten inch. What I saw was not the tiny pinkish disk with a few smudges on it I was used to seeing. What I saw was...

>>>\*\*\*MARS!\*\*<<<

This was a \*world\* revealed (16.7" arc disk diameter). Seeing was as sharp as it has \*ever\* been this season, and Mars was, well, just plain drop-dead GORGEOUS!! I had started with the slide of the Speers-Waler in to give me 178x and almost immediately pulled it out to yield 288x, but it was pretty plain that even this wasn't going to be enough power. In went the 2.5x Powermate and my red filter. 445x didn't seem high enough either! I kept increasing the power and Mars just kept taking it. The gibbous phase was still fairly obvious and detail on the disk was not all that high in contrast, but it was far different that I may have ever seen. It wasn't the usual diffuse fuzzy band or patches at the limits of vision: it was \*SHARP\*! Fine small-scale details had actual \*shape\* to them, as if they were made of interwoven short strands of light greyish material. There were spots and wisps like I had never seen before. There was actual detail visible \*in\* the polar cap!! The south polar cap was huge and had a large long tan gash across the top of the pole, making the cap look a bit more like a ring centered on the south pole. It wasn't just a white band, as there were concentrations and irregularities along the northern edge. One particular bright spot (longitude maybe 240 degrees) was just east the Martian meridian, and the area just north of the cap's edge was a maze of small-scale dark detail (Mare Chromium?). Syrtis Major (probably the most prominent marking on the entire planet) was over on the following half (west) of the planet and was not its usual big diamond shaped fuzzy patch, but was made of some discreet detail. It also had some wisps and spots attached to its northern end (probably Antigones Fons). Its southern side was also a mass of light spots and wisps as Syrtis Major flowed into the main band of Mare Tyrrhenum. Eastward, the light "slot" of Hesperia was nearly as light as the areas well to the north, and was crossed by one or two narrow bands of wispy detail. The impact basin of Hellas was south of Syrtis Major and for the first time in my memory actually showed some detail \*inside it\*, as if a faint narrow band with a spot in the middle (Zea Lacus?) was crossing it from west to east. I kept watching and playing with the power, finally topping out at an incredible 720x! I couldn't make a drawing because there was just too darn much detail visible. As I watched Mars rotate over the next hour or so, Sinus Sabaeus rotated into view, and showed its patchy nature. The two "hooks" of Mare Serpentis and Yaonis Regio were very obvious. Between them and Syrtis Major were several small spots. I just kept watching and saying over and over again, "It can't be this

good, it \*CAN'T\* be this good, IT CAN'T BE THIS GOOD!". About 4:40 a.m., I noticed the glow of morning twilight and the "dawn chorus" of the birds, so I finally packed it in after what was supposed to have been a few minutes at the scope had expanding into over an hour of the most wonderful observing I have had in years. I just hope we can get one of these quality nights on August 26th.

## **From the Belly of an Airplane: Galaxies**— Dr. Tony Phillips

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On April 28th a NASA spacecraft named GALEX left Earth. Its mission: to learn how galaxies are born, how they grow, and how they die.

"GALEX-short for Galaxy Evolution Explorer-is like a time machine," says Caltech astronomer Peter Friedman. It can see galaxies as far away as 10 billion light years, which is like looking 10 billion years into the past. The key to the mission is GALEX's ultraviolet (UV) telescope. UV rays are a telltale sign of hot young stars, newly formed, and also of galaxies crashing together. By studying the ultraviolet light emitted by galaxies, Friedman and colleagues hope to trace their evolution spanning billions of years.

This kind of work can't be done from the ground because Earth's atmosphere absorbs the most energetic UV rays. GALEX would have to go to space. To get it there, mission planners turned to Orbital Science Corporation's Pegasus rocket.

"Pegasus rockets are unusual because of the way they're launched-from the belly of an airplane," says GALEX Project Engineer Frank Surber of JPL.

It works like this: a modified L-1011 airliner nicknamed *Stargazer* carries the rocket to an altitude of 39,000 feet. The pilot pushes a button and the Pegasus drops free. For 5 seconds it plunges toward Earth, unpowered, which gives the *Stargazer* time to get away. Then the rocket ignites its engines and surges skyward. The travel time to space: only 11 minutes.

"The aircraft eliminates the need for a large first stage on the rocket," explains Surber. "Because *Stargazer* can be used for many missions, it becomes a re-useable first stage and makes the launch system cheaper in the long run." (To take advantage of this inexpensive launch system, GALEX designers had to make their spacecraft weigh less than 1000 lbs-the most a Pegasus can carry.)

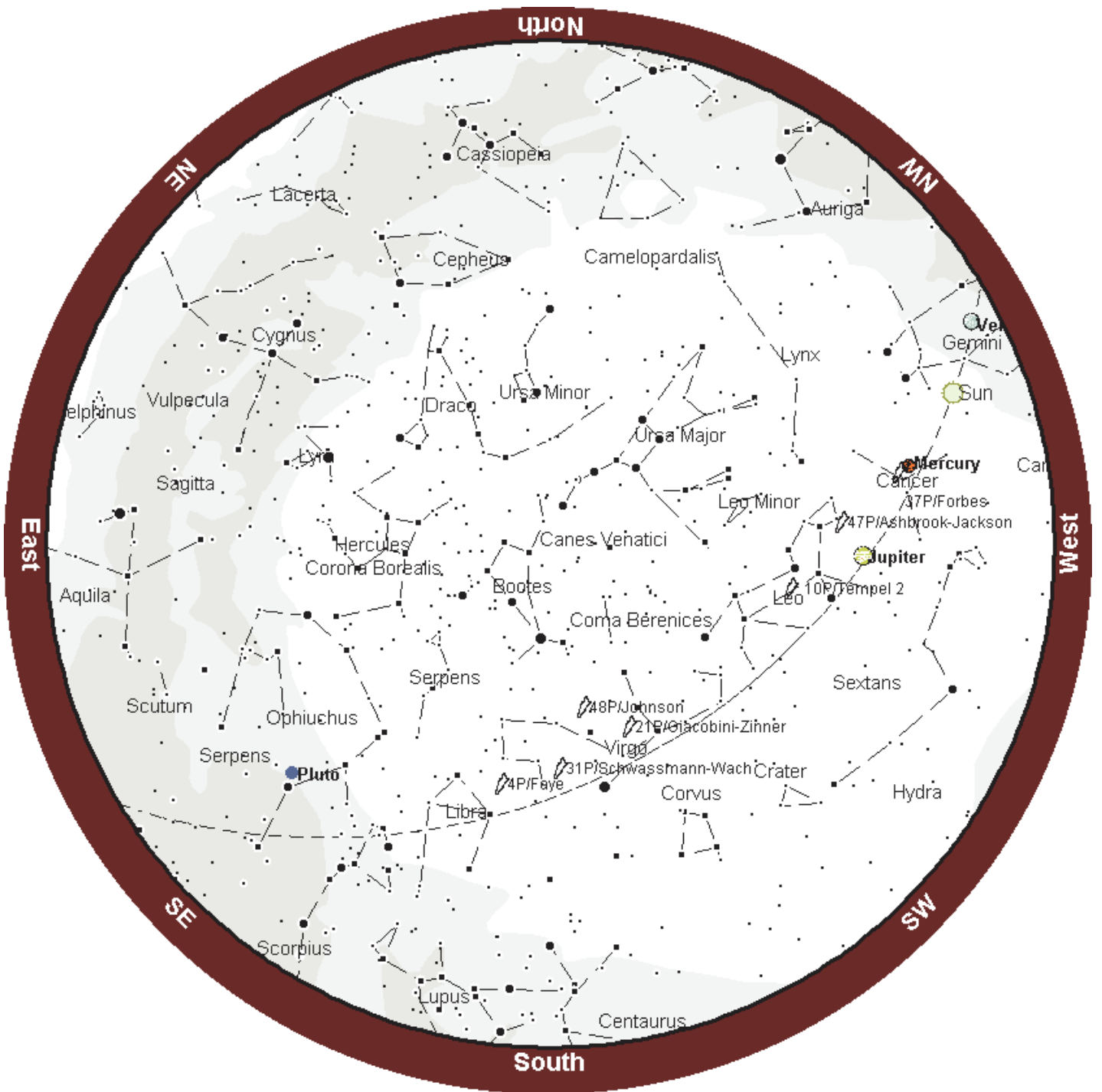
A Pegasus has three stages--not counting the aircraft. "Its three solid rocket engines are similar to the black powder rockets used by amateurs. The main difference is that the fuel is cast into a solid chunk called a 'grain'-about the consistency of tire rubber. Like black powder rockets, once the grain is lit it burns to completion. There's no turning back."

In this case, turning back was not required. The rocket carried GALEX to Earth orbit and deployed the spacecraft flawlessly. On May 22nd, the UV telescope opened its cover and began observing galaxies-"first light" for GALEX and another success story for Pegasus.

For adults, find out more about the GALEX mission at <http://www.galex.caltech.edu/> . Kids can read and see a video about Pegasus at <http://spaceplace.nasa.gov/galex/pegasus.html>.

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

# July Star Chart



# Events Calendar

August 2003						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1  Sun: 18:23 - 08:42 Nebraska Star Party	2  Sun: 18:24 - 08:41 Hyde Observatory open to the public
3  Sun: 18:25 - 08:40	4  Sun: 18:26 - 08:39	5  Sun: 18:27 - 08:38	6  Sun: 18:28 - 08:37	7  Sun: 18:29 - 08:36	8  Sun: 18:30 - 08:34	9  Sun: 18:30 - 08:33 Hyde Observatory open to the public
10  Sun: 18:31 - 08:32	11  Sun: 18:32 - 08:31	12  Sun: 18:33 - 08:29	13  Sun: 18:34 - 08:28	14  Sun: 18:35 - 08:27	15  Sun: 18:36 - 08:25	16  Sun: 18:37 - 08:24 Hyde Observatory open to the public
17  Sun: 18:38 - 08:22	18  Sun: 18:39 - 08:21	19  Sun: 18:40 - 08:20	20  Sun: 18:41 - 08:18	21  Sun: 18:42 - 08:17	22  Sun: 18:43 - 08:15 Mahoney Star Party	23  Sun: 18:44 - 08:14 Hyde Observatory open to the public
24  Sun: 18:45 - 08:12	25  Sun: 18:46 - 08:11	26  Sun: 18:47 - 08:09	27  Sun: 18:48 - 08:08 Hyde Observatory open to the public	28  Sun: 18:49 - 08:06 Mars at opposition	29  Sun: 18:50 - 08:04 Club Star Party	30  Sun: 18:51 - 08:03 Hyde Observatory open to the public

**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  
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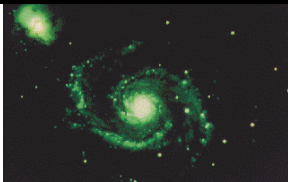
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First Class Mail

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**Next PAC Meeting  
July 22, 2003  
7:30 PM  
Hyde Observatory**