



The Prairie Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.

February 2003

Volume 44 Issue #2

Internet Addresses

PAC Web Page: www.prairieastronomyclub.org
 PAC E-Mail: pac@4w.com
 NSP Web Page: www.nebraskastarparty.org
 NSP E-Mail: nsp@4w.com
 OAS Web Page: www.OmahaAstro.com
 Hyde Observatory www.hydeobservatory.info
 NEB-STAR www.neb-star.org

FEBRUARY PROGRAM

February program: To be announced

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. Write "Subscribe PAC-List" in the body of the e-mail.

CLUB EVENTS

PAC Meeting 7:30pm
Tuesday, February 25, 2003

Club Star Party
Friday, February 28, 2003

UNL Student Observatory Public Night
Friday, February 28, 2003 7 to 10pm

NSP Planning Meeting 7:30
Thursday, March 13, 2003 Mahoney Lodge

PAC Meeting 7:30pm
Tuesday, March 25, 2003

Club Star Party
Friday, March 28, 2003

UNL Student Observatory Public Night
Sunday, April 06, 2003 8:45 to 11pm

Mahoney Star Party dates for 2003:
May 9, June 20, July 18, August 22, September 19.

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

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 — Lee Taylor

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

The last star party clouded over about half way through, but was good until then. The next PAC star party will be Friday Jan 31, 2003 at Olive Creek.

We still have an active sun, but activity is decreasing, as we get ever farther from solar maximum.

Comet Kudo-Fujikawa is visible in the northwest about 1 1/2 hours after sunset, roughly magnitude 4, but best in binoculars.

The next NSP planning meeting has yet to be finalized, current consensus is that they will meet every other month.

The next PAC meeting will be Tuesday Feb. 25, 2003. The UNL Student Observatory will be open Friday February 28, 2003, 7:00 p.m. to 10:00 p.m.

Club observing chair, Jeff King will be providing new challenges for us on star party nights in the next few months, we look forward to see what he can challenge us with. Also, if you've completed any of the Astronomical League's observing programs be sure to get them to Jeff for proper recognition. On the topic of observing programs, the Messier group Steve Lloyd and I are trying to put together will be trying to work on ours at the PAC star parties in the coming year. If you're interested in working on your Messier Certificate, come out and we'll work together. Now's a good time, March is the time of year for Messier marathons, when it's possible to observe most of them in a single evening, if you have the stamina.

Astronomy Day is scheduled for April 4 and 5. Starting with a public star party at Hyde on the evening of the 4th with our annual gathering at Mueller Planetarium with the club's members' scopes and equipment.

Club publicist Joe Vocht, has enquired about how to improve appeal and publicity for the club.

Beatrice Catholic Schools need scopes for the 29th of January at Hannibal Park in Beatrice.

In Hyde news, the installation of the new solar array is scheduled to begin any day now, followed by 1-2 months of engineering data with dedication set for March or April. Current estimates are for the array to provide up to 75% of Hyde's power consumption. If you're interested in volunteer at Hyde observatory, get in touch with Hyde's volunteer coordinator, Dave Churilla.

Newsletter editor, Mark Dahmke will be happy to take submissions for the newsletter, if you've got something interesting for it, get in touch with Mark. Also, the newsletter is available online, see Liz Bergstrom to sign up for the online version.

Treasurer's report: our accounts are in good shape, with one concern for later in the year. When our policy is up for renewal in September, we must decide on an option for a War and Terror clause, which would create a significant increase in our premium.

Liz, Jeff King, and Dave Brokofsky will be getting together soon for the annual audit of PAC's books.

Jack Dunn moved to close and Liz seconded. Adjourn to Brian's program for new telescope owners.

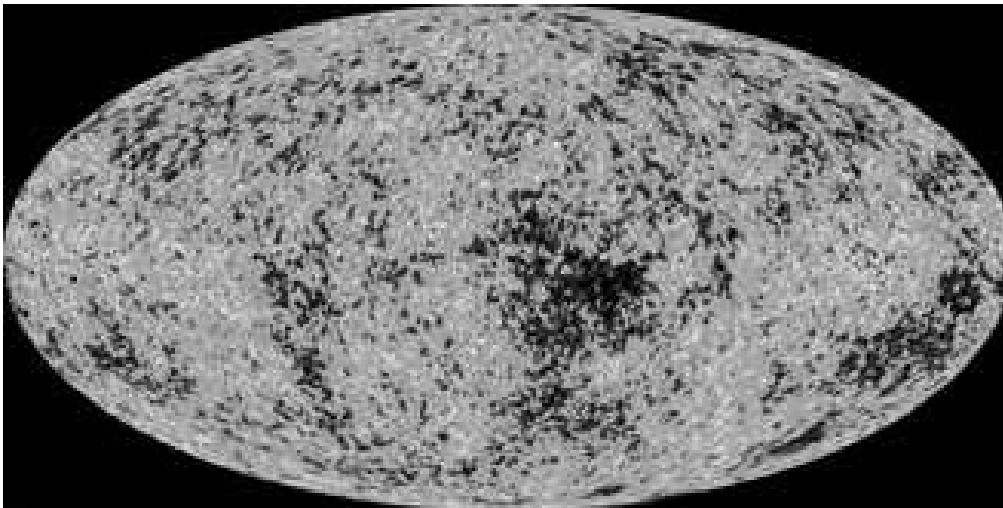
Respectfully submitted by,

Lee Taylor

Hyde Observatory Volunteer Schedule

Date	Team Leader	Operators		Supervisor	Events
February					
2/15/03	Brian Sivill	AJ Benker	Bob Leavitt	Dave H	
2/22/03	Bill Wells	Karla Bachman	Josh Machacek	Rick J	
March					
3/1/03	Jeff King	Justin DeVries	Karla Bachman	Brian S	
3/8/03	Dave Hamilton	Steve Lloyd	Lynda Beck	Dave C	
3/15/03	Dave Churilla	Joey Churilla	Bob Leavitt	Jack D	
3/22/03	Bill Wells	Lee Taylor	Josh Machacek	Rick J	
3/29/03	Brian Sivill	Dan Delzell	Jared Delzell	Dave H	
April					
4/5/03	Bill Wells	AJ Benker	Lynda Beck	Dave C	Star Party
4/12/03	Jeff King	Steve Lloyd	AJ Benker		
4/19/03	Dave Churilla	Joey Churilla	Karla Bachman	Brian S	
4/26/03	Dave Hamilton	Jeff Campbell	Justin DeVries	Rick J	
Summer Hours: April through September (Sundown to 11:00 PM)					
Winter Hours: October through March (7:00 PM to 10:00 PM)					

A Baby Picture of the Universe Tell its Age



Full-sky map of the oldest light in the universe: a "baby picture" of the universe. Colors indicate "warmer" (red) and "cooler" (blue) spots.

February 11, 2003

NASA today released the best "baby picture" of the Universe ever taken, containing such stunning detail that it may be one of the most important scientific results of recent years.

The new cosmic portrait -- capturing the afterglow of the Big Bang, called the cosmic microwave background -- was taken by scientists using NASA's Wilkinson Microwave Anisotropy Probe (WMAP) during a sweeping 12-month observation of the entire sky.

"We've captured the infant Universe in sharp focus, and from this portrait we can now describe the Universe with

unprecedented accuracy," said Dr. Charles L. Bennett of the Goddard Space Flight Center, Greenbelt Md., and the WMAP Principal Investigator. "The data are solid, a real gold mine."

One of the biggest surprises revealed in the data is that the first generation of stars to shine in the Universe ignited only 200 million years after the Big Bang, much earlier than many scientists had expected.

In addition, the new portrait precisely pegs the age of the Universe at 13.7 billion years old, with a remarkably small 1 percent margin of error.

The light we see today as the cosmic microwave background has traveled for more than 13 billion years to reach us. Within this light are infinitesimal patterns that mark the seeds of what later grew into clusters of galaxies and the vast structure we see all around us.

Patterns in the Big Bang afterglow were frozen in place only 380,000 years after the Big Bang, a number nailed down by this latest observation. These patterns are tiny temperature differences within this extraordinarily evenly dispersed microwave light bathing the Universe. WMAP resolves slight temperature fluctuations, which vary by only millionths of a degree.

Theories about the evolution of the Universe make specific predictions about these temperature patterns. Like detectives, the team compared the unique "fingerprint" of patterns imprinted on this ancient light with fingerprints predicted by various cosmic theories and found a match.

"This is a beginning of a new stage in our study of the early Universe," said WMAP team member Prof. David N. Spergel of Princeton University, N.J. "We can use this portrait not only to predict the properties of the nearby universe, but can also use it to understand the first moments of the Big Bang."

WMAP is named in honor of David Wilkinson of Princeton University, a world-renown cosmologist and WMAP team member who died in September 2002.

WMAP is the result of a partnership between the NASA Goddard Space Flight Center and Princeton University. Additional Science Team members are located at Brown University, Providence R.I., the University of British Columbia, Vancouver, BC, the University of Chicago, and the University of California, Los Angeles. WMAP is part of the Explorer program, managed by NASA Goddard.

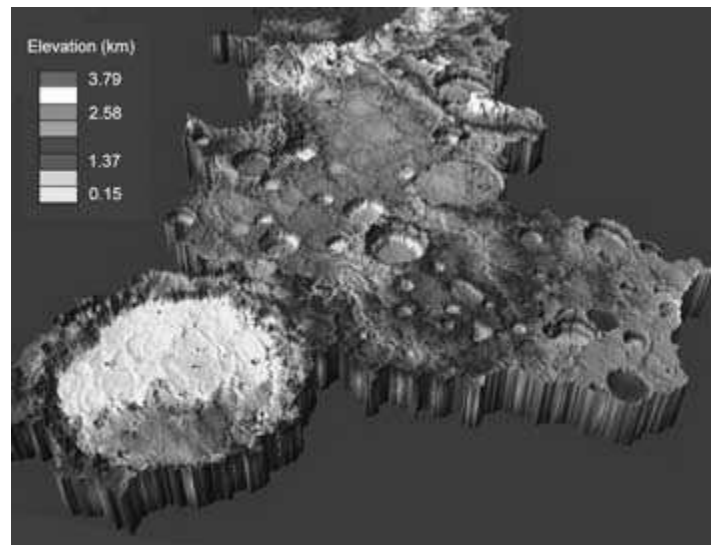
Source: Goddard Space Flight Center News.

NASA Study Shows How Water May Have Flowed on Ancient Mars

NASA scientists have discovered how an intricate martian network of streams, rivers and lakes may have carried water across Mars.

Using new three-dimensional data from the Mars Global Surveyor spacecraft and a powerful state-of-the-art computer code that 'models' overland water flow, scientists visualized the complex flow of martian water. These data, acquired by the laser altimeter on board the spacecraft, provided highly accurate, three-dimensional topographic views of Mars.

"We've known for some time that Mars contains lakebed and stream-like surface features, and that many of these stream features run into depressions, then end abruptly," said Marc G. Kramer, a visiting National Research Council scientist at NASA Ames Research Center in California's Silicon Valley. Kramer is principal author of a peer-reviewed news article about the study that recently appeared in EOS, a weekly American Geophysical Union publication. "A new aspect of this study shows how these two features link to one another as a single, integrated water network that may have existed on Mars at some time in the past," he said.



The study spans portions of the equatorial region on the martian highlands that extend from the northern mid latitudes to the southern mid latitudes. Kramer's co-authors are Christopher Potter, David Des Marais and David Peterson, all from NASA Ames.

Scientists have long been puzzled as to why some ancient river-like features on the red planet do not seem to connect to one another and often lack smaller stream features.

"If you look at a photograph of the surface of Mars, the river features begin and end abruptly, and often lack small-scale features," Kramer said. "Many scientists have argued that these features were formed from localized groundwater seeping to the surface. Others have argued that these features formed from precipitation during a time when Mars may have had a thicker atmosphere."

"What we found in this study, is that many of these apparently fragmented river features may have connected or flowed into depressions that resemble ancient lake beds," Kramer explained. "Some of the larger depressions are comparable in size to the Great Lakes in North America in terms of surface area."

In addition, some of the larger depressions of the main channel system are comparable in volume to Lake Erie, the smallest of the Great Lakes in North America, Kramer added.

Large lakes and rivers on Mars once may have formed water systems that included many streams and smaller lakes, according to the scientists. The study found that the areas near the Great Lakes on Earth bear a strong resemblance to features on Mars. Although the areas appear to be similar, they formed in different ways, according to Kramer.

The study of surface depressions in conjunction with river features, provides a more complete picture of a surface water network that may have existed on what must have been a warmer early Mars, according to Potter. The researchers excluded fresh impact crater areas during the analysis in order to study older drainage patterns.

"The larger shallow depressions in the main channel system often contain multiple, highly eroded craters and show evidence of stream features in the extensive upland regions draining into them," Kramer said. These depressions become increasingly shallow downstream, suggesting that increased sedimentation may have been deposited by water or ice that once may have flowed through them, according to the scientists.

"Still unclear is how long such a water system may have persisted, and under exactly what climate conditions," he said. "The answers to these questions may lie in further examination of the sediments that have accumulated across the depressions of the surface water network."

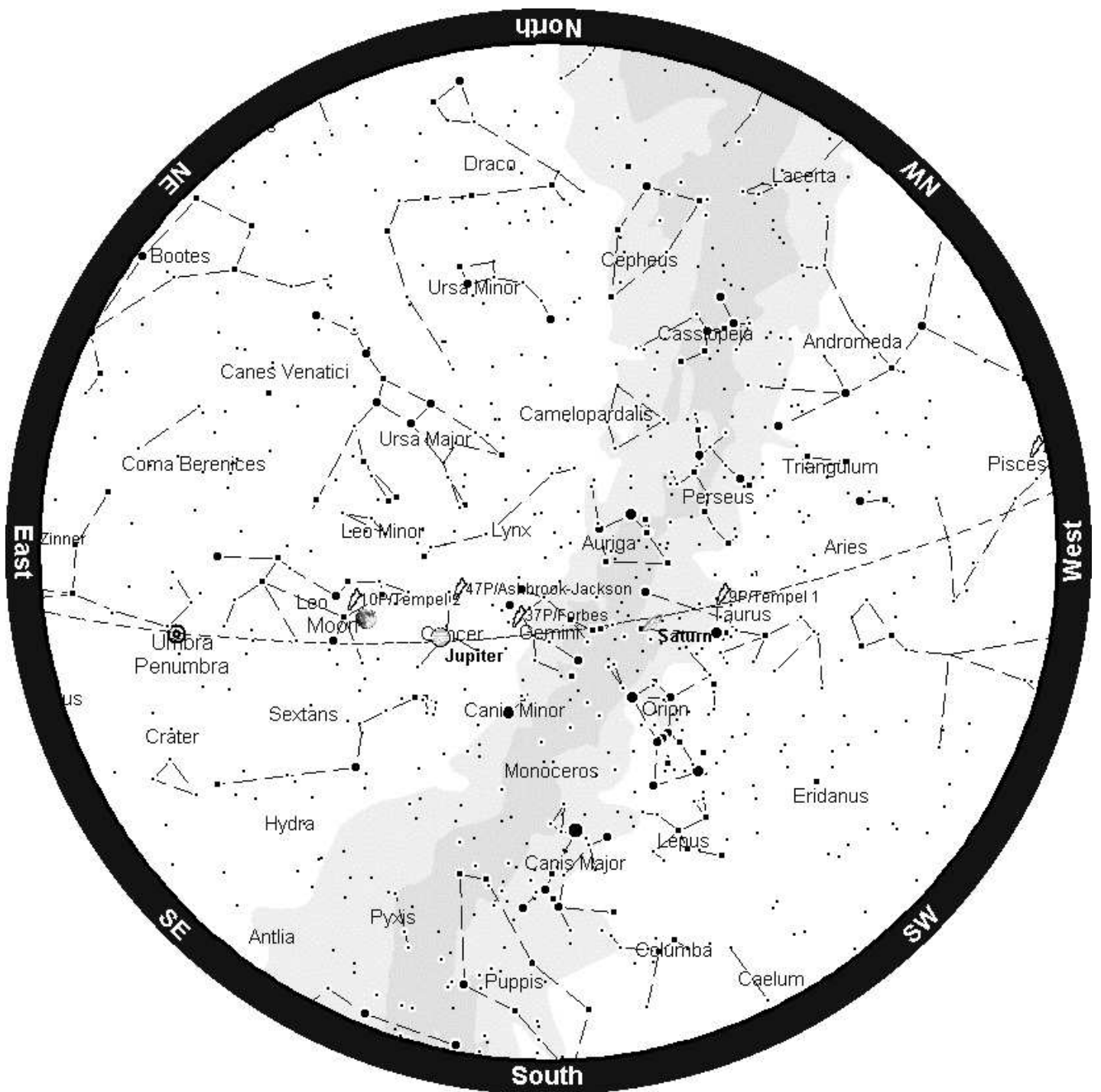
"New instruments on the Mars Odyssey spacecraft, including the Thermal Emission Imaging System (THEMIS) instrument, address these questions," Kramer said. THEMIS infrared and visible light images have revealed a diversity of surface types and features. Nighttime temperature images show complex patterns of rock layers, rocky debris, sand and dust produced by impact cratering, wind erosion, volcanism and deposition.

"The data coming out of the Mars Global Surveyor and Mars Odyssey Mission are quite revealing," Kramer said. "We were able to study the planet in ways that were previously not possible."

"With an abundance of ice recently detected just below the surface of Mars, the possibility that life has existed or still may exist may hinge on its past climate and the duration of surface water flows," Potter said. "Was Mars ever a warm and wet planet, or has it always been cold and dry?" he asked.

The Jet Propulsion Laboratory, Pasadena, Calif., manages the Mars Global Surveyor and Mars Odyssey missions. The NASA Astrobiology Institute, based at NASA Ames, funded the study that resulted in the peer-reviewed article.

March Star Chart



Events Calendar

March 2003						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1  Sun: 07:00 - 18:16 Hyde Observatory open to the public
2  Sun: 06:59 - 18:17	3  Sun: 06:57 - 18:18	4  Sun: 06:56 - 18:19	5  Sun: 06:54 - 18:20	6  Sun: 06:53 - 18:21	7  Sun: 06:51 - 18:23	8  Sun: 06:50 - 18:24 Hyde Observatory open to the public
9  Sun: 06:48 - 18:25	10  Sun: 06:46 - 18:26	11  Sun: 06:45 - 18:27	12  Sun: 06:43 - 18:28	13  Sun: 06:41 - 18:29 NSP Planning Meeting 7:30	14  Sun: 06:40 - 18:30	15  Sun: 06:38 - 18:31 Hyde Observatory open to the public
16  Sun: 06:37 - 18:33	17  Sun: 06:35 - 18:34	18  Sun: 18:34 - 06:35	19  Sun: 18:32 - 06:36	20  Sun: 18:31 - 06:37	21  Sun: 18:29 - 06:38	22  Sun: 18:27 - 06:39 Hyde Observatory open to the public
23  Sun: 18:26 - 06:41	24  Sun: 18:24 - 06:42	25  Sun: 18:22 - 06:43 PAC Meeting 7:30pm	26  Sun: 18:21 - 06:44	27  Sun: 18:19 - 06:45	28  Sun: 18:18 - 06:46 Club Star Party	29  Sun: 18:16 - 06:47 Hyde Observatory open to the public
30  Sun: 18:14 - 06:48	31  Sun: 18:13 - 06:49					

**Directions to Olive Creek
Observing Site**

Shorter:

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

More Black Top:

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

**OFFICERS
OF THE PRAIRIE ASTRONOMY CLUB**

PRESIDENT: Dave Knisely
(402) 223-3968
KA0CZC@navix.net

VICE PRESIDENT: Dave Brokofsky
(402) 486-3441
dbrokof@msn.com

**2nd VICE PRESIDENT
(PROGRAM CHAIR):** Brian Sivill
(402) 420-1227
nanoamps@aol.com

SECRETARY: Lee Taylor
(402) 327-0804
otaylor89@hotmail.com

TREASURER: Liz Bergstrom
(402) 464-2038

Club Observing Chair: Jeff King
483-0599

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



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

First Class Mail

**Next PAC Meeting
February 25, 2003
7:30 PM
Hyde Observatory**