

# THE PRAIRIE ASTRONOMER

The Official Newsletter Of The Prairie Astronomy Club, Inc.

October 2004

Volume 45 Issue #10

## Internet Addresses

PAC Web Page: [www.prairieastronomyclub.org](http://www.prairieastronomyclub.org)  
PAC E-Mail: [info@prairieastronomyclub.org](mailto:info@prairieastronomyclub.org)  
NSP Web Page: [www.nebraskastarparty.org](http://www.nebraskastarparty.org)  
NSP E-Mail: [nsp@4w.com](mailto:nsp@4w.com)  
OAS Web Page: [www.OmahaAstro.com](http://www.OmahaAstro.com)  
Hyde Observatory [www.hydeobservatory.info](http://www.hydeobservatory.info)  
NEB-STAR [www.neb-star.org](http://www.neb-star.org)

## PROGRAM

### October program: Cece Hedrick "Symbiotic Binary Stars"

Election of officers will also take place at this month's meeting. Please try to be there, to help determine the future direction of your club!

**PAC-LIST:** You may subscribe to the PAC listserv by sending an e-mail message to: [imailsrv@prairieastronomyclub.org](mailto: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](mailto:pac-list@prairieastronomyclub.org)

### 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.

## CLUB EVENTS

### PAC Meeting 7:30pm

Tuesday, October 26, 2004

### Lunar eclipse

Hyde Observatory open to the public  
Wednesday, October 27, 2004

### Club Star Party

Friday, November 12, 2004

### PAC Meeting 7:30pm

Tuesday, November 30, 2004

### Club Star Party

Friday, December 10, 2004

## CONTENTS:

Secretary's Report 2  
Hyde Observatory Volunteer Schedule 3  
Election 2004: Your Opportunity to Shape the Future of the Club 3  
Our Goals for the Club –Mark Dahmke and Ron Veys 3  
October 27 Lunar Eclipse 4  
The History of Johannes Kepler 4  
NASA Approves Mission to Seek Nearest Stars, Brightest Galaxies 5  
November Star Chart 6  
Events Calendar 7

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](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

---

Minutes for the Meeting of September 28, 2004

President Dave Knisely called the meeting to order. Welcome returning member, David Robb. Welcome back Dave! Clouds interrupted the last PAC star party. We received a nice thank you from the Washiska Audubon Society, for helping them with their event last month. The last Mahoney Star Party had plenty of public, clouds, too. The next PAC star party will be October 15, 2004 at Olive Creek. The next PAC meeting will be Tuesday, October 26, when elections will be held. The annual PAC/OAS banquet will be Oct 8 at the Sapp Riverview Lodge at 7:30 PM. Next year's Mahoney Star Party dates are: May 15, June 10, July 15, August 12, and September 9.

Homestead National Monument has requested someone to show the public the constellations from the pioneers' perspective on October 30, 2004. John Lammers, Liz Bergstrom and Lee Taylor have volunteered to help with this event.

The Astronomical League provides awards for observing accomplishments. Club observing chair, Jeff King has more information. If you have completed any of these, let Jeff see them and he'll make sure you receive proper recognition.

Club program chair, Jack Dunn is always looking for ideas on new programs for PAC meetings, if you have any ideas, he'll be happy to hear them. The UNL Student Observatory will be open to the public for the total lunar eclipse on October 27. Hyde news: Hyde will be open to the public on Oct. 27 for the total lunar eclipse. Hyde Volunteer coordinator, Dave Churilla has requested PAC members bring their telescopes out to help with the anticipated crowd. Hyde's new NextStar 11-inch telescope will be up and running for this event. Winter hours start at Hyde this month; Saturday hours are 7-10PM.

PAC website administrator, Mark Dahmke is working on a redesign of the PAC website.

Treasurer's report: Effective immediately, PAC's new dues structure is as follows: Individual Membership: \$30/year Family Membership: \$35/year. The Royal Astronomical Society of Canada (RASC) annuals and Ottwell Calendars will be available soon, with prices to be determined.

Nominations were opened for next year's officers. The current nominees are:

President: David Knisely\*, and Ron Veys

Vice President: Brian Sivill, Mark Dahmke and David Brokofsky\*

Secretary: Erica Block and Bob Leavitt

Treasurer: Liz Bergstrom\* and Lee Thomas

2nd VP (program chair): Lee Taylor

\* = Incumbent

Nominations will remain open until the October meeting, when elections will be held.

Motion to adjourn, seconded. Adjourn to Neale Monk's program on Earth's mass extinctions entitled: "Life on Earth and How to Kill it".

Respectfully submitted by,

Lee Taylor

## Hyde Observatory Volunteer Schedule

| Date   | Team Leader    | Operators             |                | Supervisor       | Events                     |
|--|----------------|-----------------------|----------------|------------------|----------------------------|
| <b>October</b>   |                |                       |                |                  |                            |
| 10/27/04   | Scopes On Lawn | Joey C / Bob K/Dave K | Jim K / Dan D  | Dave C - Outside | Lunar Eclipse              |
| 10/27/04   | Dave Hamilton  | Josh Machacek         | Erica Block    | Erik Hubl        | Lunar Eclipse 7 - midnight |
| 10/30/04   | Dan Delzell    | Jared Delzell         | Dave Brokofsky |                  |                            |
| <b>November</b>  |                |                       |                |                  |                            |
| 11/6/04  | Bill Wells     | Joey Churilla         | Steve Lloyd    | Dave Churilla    |                            |
| 11/13/04   | Jeff King      | Josh Machacek         | Erica Block    |                  |                            |
| 11/20/04   | Bob Leavitt    | Bob Kacvinsky         | AJ Benker      | Dave Hamiton     |                            |
| 11/27/04   | Jeff King      | Dave Brokofsky        | Cece Hedrick   |                  |                            |
| <b>December</b>  |                |                       |                |                  |                            |
| 12/4/04  | Dan Delzell    | Jared Delzell         | Steve Lloyd    |                  |                            |
| 12/11/04   | Bob Leavitt    | Joey Churilla         | Erica Block    | Dave Churilla    |                            |
| 12/18/04   | Bill Wells     | Dave Brokofsky        | AJ Benker      |                  |                            |
| 12/25/04   | CLOSED         | CLOSED                | CLOSED         | CLOSED           | CLOSED                     |
| <b>January (Tentative)</b>   |                |                       |                |                  |                            |
| 1/1/05   | CLOSED         | CLOSED                | CLOSED         | CLOSED           | CLOSED                     |
| <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>   |                |                       |                |                  |                            |

## Election 2004: Your Opportunity to Shape the Future of the Club

I'd like to encourage all club members to attend the October meeting, to vote on the future leadership of your club. This year we have an unprecedented (in recent years) number of nominees for office.

The current nominees are:

President: David Knisely\*, and Ron Veys  
 Vice President: Brian Sivill, Mark Dahmke and David Brokofsky\*  
 Secretary: Erica Block and Bob Leavitt  
 Treasurer: Liz Bergstrom\* and Lee Thomas  
 2nd VP (program chair): Lee Taylor

\* = Incumbent

## Our Goals for the Club –Mark Dahmke and Ron Veys

Ron and I have been talking about our goals for PAC. The club has limited resources and not enough volunteers, so we need to keep the list of goals short and not try to take on too many projects. But we feel that there is room for improvement, and if elected, will try to work in that direction. We look forward to working with all club members to determine the direction of *your club*.

- 1) Improve marketing of the club, to counter declining membership. Find new ways to encourage more young people and families to join.
- 2) Review the budget, determine what's important to the membership, and adjust dues accordingly.
- 3) Take a fresh look at public outreach and education. Determine what our needs really are, and how best to accomplish them.
- 4) Talk to former club members, stressing that this will be a "new and improved PAC" and encourage them to consider joining again.

## October 27 Lunar Eclipse

---

On October 27, 2004, the full Moon will undergo a deep total eclipse lasting for 1 hour 22 minutes, when it will be high in the eastern sky after dark. Hyde will be open to the public for this event. PAC members are encouraged to attend with their telescopes to share the event with the public. The penumbral phase begins at about 7:06pm CT, but the shadow will start to be visible around 7:45pm. Totality begins around 9:23pm and lasts until about 10:44pm. The eclipse will end at about 12:30am.

## The History of Johannes Kepler

---

Four centuries ago, an evening's entertainment was as simple as stepping out to gaze at the night sky. But among the world's many star watchers, one man stood apart. Johannes Kepler (1571-1630) was a mathematician and physicist who not only observed, but also sought to explain the celestial dance above.

As a rather frail young man, the exceptionally talented Kepler turned to mathematics and the study of the heavens early on. When he was six, his mother pointed out a comet visible in the night sky. When Kepler was nine, his father took him out one night under the stars to observe a lunar eclipse. These events both made a vivid impression on Kepler's youthful mind and turned him toward a life oriented to the study of astronomy.

Kepler used simple mathematics to formulate three laws of planetary motion. Kepler's First Law stated that planets move in elliptical paths around the Sun. He also discovered that planets move proportionally faster in their orbits when they are closer to the Sun; this became Kepler's Second Law. Finally, Kepler's Third Law explained the relationship between the distance of a planet from the Sun and the amount of time it took to orbit the Sun. Together these laws of celestial mechanics revolutionized astronomy.

"The era in which Kepler lived was one of tremendous upheaval and change," said Dr. Dan Lewis, curator of the history of science and technology at the Huntington Library in San Marino, Calif. "Religious leaders were reluctant to relinquish their ideas about the heavens. Talk by astronomers of a sky filled with objects moving in non-circular orbits and other phenomena that went against an Earth-centric model threatened their beliefs. As a result, Kepler and his first wife, Barbara, created a code with which to write letters to each other so that their correspondence would not put them at risk of persecution."



Near the end of the sixteenth century, Kepler apprenticed himself to the astronomical observer Tycho Brahe, who had an observatory on the island of Hven in Denmark. The somewhat eccentric Tycho, who had lost a portion of his nose in a duel and replaced the tip of it with a contraption made of gold and silver, was nevertheless a brilliant astronomer. Kepler absorbed a great deal of information from his time working for Brahe, and based much of his later calculations on Tycho's observations. In 1604, Kepler saw the last supernova observed in our Milky Way galaxy, which he documented two years later in his book *De Stella Nova*, published in Prague in 1606. The explosion of the dying star was initially as bright as Mars and could be seen with the naked eye. This was indeed good fortune, for the telescope would not be invented for another five years.

Several observers spotted the supernova on Oct. 9, 1604. Kepler didn't see it until Oct. 17, due to cloudy skies in his part of the world. But he studied the event so extensively that it was named after him. The Kepler supernova is now a remnant. But it is still studied by astronomers, including those of NASA's three Great Observatories: the Spitzer Space Telescope, Hubble Space Telescope and Chandra X-ray Observatory. The three observatories use infrared light, visible light, and X-rays, respectively.

Kepler was deeply driven by a desire to understand the analytical "why" of astronomy, well beyond the descriptive "what" of his predecessors Ptolemy and Tycho. He was also guided by a notion of beauty in the structure of the universe. In his words, "Happy is the man who devotes himself to the study of the heavens; their study will furnish him with the pursuit of enjoyments."

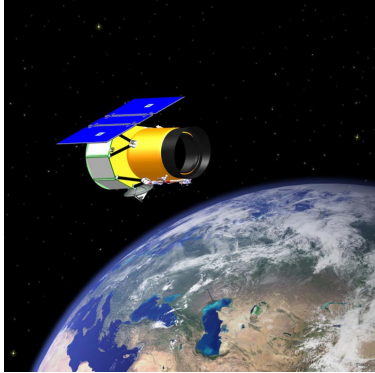
Source of article: JPL Website

## NASA Approves Mission to Seek Nearest Stars, Brightest Galaxies

---

A new NASA mission will scan the entire sky in infrared light in search of nearby cool stars, planetary construction zones and the brightest galaxies in the universe.

Called the Wide-field Infrared Survey Explorer, the mission has been approved to proceed into the preliminary design phase as the next in NASA's Medium-class Explorer program of lower cost, highly focused, rapid-development scientific spacecraft. It is scheduled to launch in 2008.



Like a powerful set of night vision goggles, the new space-based telescope will survey the cosmos with infrared detectors up to 500,000 times more sensitive than previous survey missions. It will reveal hundreds of cool, or failed, stars, called brown dwarfs, some of which may lie closer to us than any known stars.

"Approximately two-thirds of nearby stars are too cool to be detected with visible light," said Principal Investigator Dr. Edward Wright of the University of California, Los Angeles, who proposed the new mission to NASA. "The Wide-field Infrared Survey Explorer will see most of them."

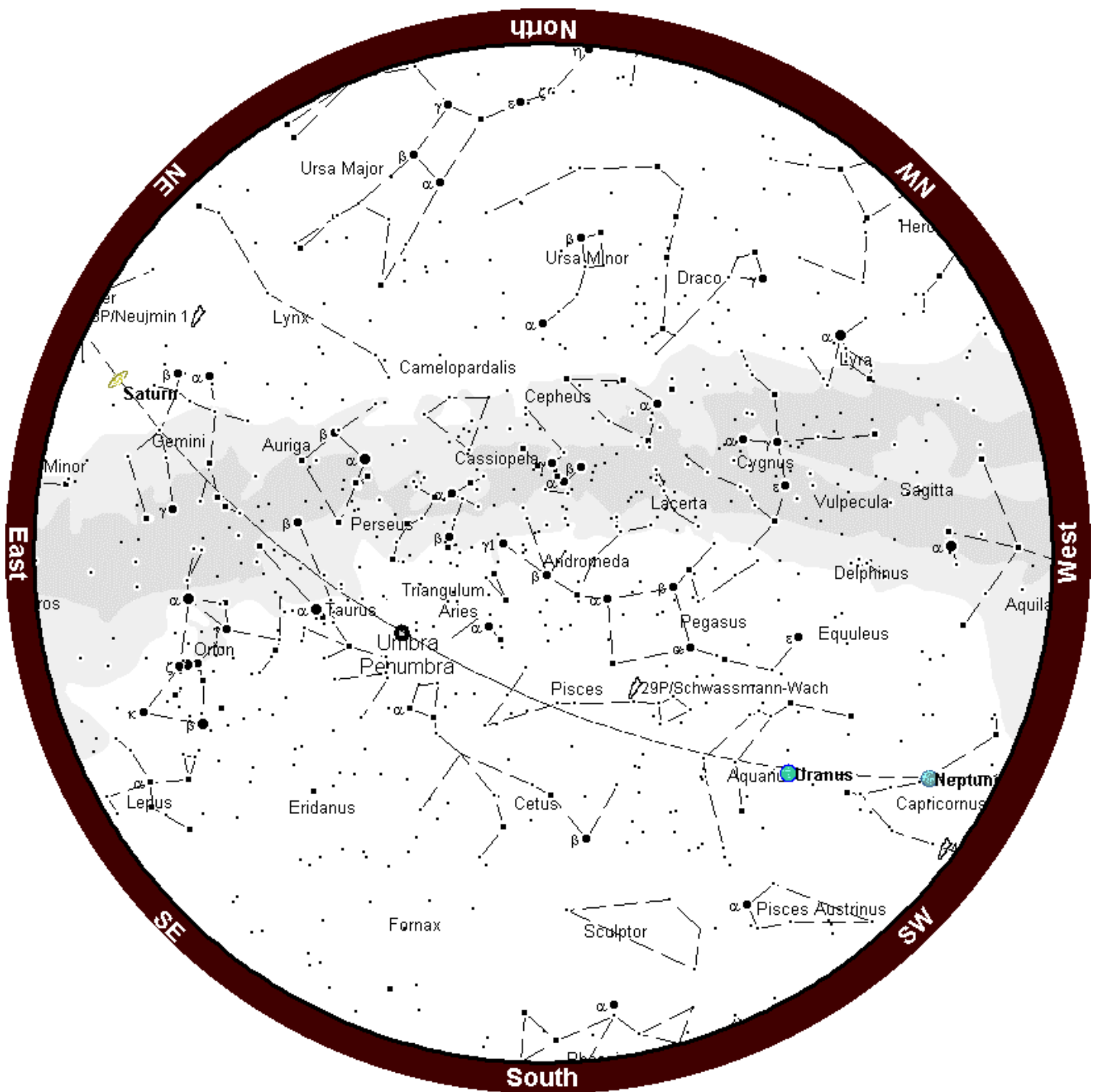
The telescope will also provide a complete inventory of dusty planet-forming discs around nearby stars, and find colliding galaxies that emit more light - specifically infrared light - than any other galaxies in the universe. In the end, the survey will consist of more than one million images, from which hundreds of millions of space objects will be catalogued.

"The mission will complete the basic reconnaissance of the universe in mid-infrared wavelengths, providing a vast storehouse of knowledge that will endure for decades," said Dr. Peter Eisenhardt, project scientist for the mission at NASA's Jet Propulsion Laboratory, Pasadena, Calif. "This catalogue of data will also provide NASA's future James Webb Space Telescope with a comprehensive list of targets."

JPL will manage the Wide-field Infrared Survey Explorer at a total cost to NASA of approximately \$208 million. William Irace of JPL is the project manager. The cryogenic instrument will be built by the Space Dynamics Laboratory, Logan, Utah, and the spacecraft will be built by Ball Aerospace and Technologies Corporation, Boulder, Colorado. Science operations and data processing will take place at the JPL/Caltech Infrared Processing and Analysis Center, Pasadena, Calif. JPL is a division of Caltech.

More than 70 U.S. and cooperative international scientific space missions have been part of NASA's Explorer program. The missions are characterized by relatively moderate cost, and by small- to medium-sized missions that are capable of being built, tested and launched in a short time interval compared to the large observatories. NASA Goddard Space Flight Center, Greenbelt, Md., manages the Explorer program for the Science Mission Directorate, NASA Headquarters, Washington.

# November Star Chart



# Events Calendar

| November 2004  |  |   |  |  |   |   |
|--|--|---|--|--|---|---|
| Sun  | Mon  | Tue   | Wed  | Thu  | Fri   | Sat   |
|  | 1 <br>Sun: 06:57 - 17:22    | 2 <br>Sun: 06:58 - 17:20                             | 3 <br>Sun: 06:59 - 17:19    | 4 <br>Sun: 07:01 - 17:18<br>Jupiter 1/4 deg<br>from Venus | 5 <br>Sun: 07:02 - 17:17                     | 6 <br>Sun: 07:03 - 17:16<br>Hyde<br>Observatory<br>open to the<br>public                                     |
| 7 <br>Sun: 07:04 - 17:15    | 8 <br>Sun: 07:05 - 17:14    | 9 <br>Sun: 07:06 - 17:13<br>Moon occults<br>Jupiter  | 10 <br>Sun: 07:08 - 17:12   | 11 <br>Sun: 07:09 - 17:11                                 | 12 <br>Sun: 07:10 - 17:10<br>Club Star Party | 13 <br>Sun: 07:11 - 17:09<br>Hyde<br>Observatory<br>open to the<br>public                                    |
| 14 <br>Sun: 07:12 - 17:08   | 15 <br>Sun: 07:14 - 17:08   | 16 <br>Sun: 07:15 - 17:07                            | 17 <br>Sun: 07:16 - 17:06   | 18 <br>Sun: 07:17 - 17:05                                 | 19 <br>Sun: 07:18 - 17:05                    | 20 <br>Sun: 07:19 - 17:04<br>Mercury greatest<br>elongation;<br>Hyde<br>Observatory<br>open to the<br>public |
| 21 <br>Sun: 07:21 - 17:03 | 22 <br>Sun: 07:22 - 17:03 | 23 <br>Sun: 07:23 - 17:02                          | 24 <br>Sun: 07:24 - 17:02 | 25 <br>Sun: 07:25 - 17:01                               | 26 <br>Sun: 07:26 - 17:01                  | 27 <br>Sun: 07:27 - 17:00<br>Hyde<br>Observatory<br>open to the<br>public                                  |
| 28 <br>Sun: 07:28 - 17:00 | 29 <br>Sun: 07:29 - 17:00 | 30 <br>Sun: 07:30 - 16:59<br>PAC Meeting<br>7:30pm |  |  |   |   |

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**

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

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

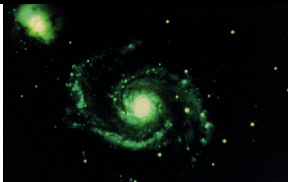
**2nd VICE PRESIDENT** Jack Dunn  
**(PROGRAM CHAIR):** (402) 475-3013  
jdunn@spacelaser.com

**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**  
**October 26, 2004**  
**7:30 PM**  
**Hyde Observatory**