

The Prairie Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.
February 1998

Volume 39 Issue #2

Internet Addresses:

PAC Web Page: <http://www.4w.com/pac/>
PAC E-Mail: pac@infoanalytic.com
NSP Web Page: <http://www.4w.com/nsp/>
NSP E-Mail: nsp@4w.com
OAS Web Page: <http://www.top.net/cdcheney>

February's Program:

Following the February PAC business meeting, **Dr. Don Taylor** from UNL will speak on the 30th anniversary of the discovery of the crab pulsar. 30 years ago Feb 27th was the 'radio discovery'...a short while later his team made the first 'optical discovery' of it. See Page 4 for more details.

In March: Joe Babcock will speak on Binary Stars through history
In April : Dr. Peter Morin will speak on the art of creating Sundials.

If you would like to present a program at the monthly Prairie Astronomy Club Meeting, call Erik Hubl at 488-1698 or email at ehubl@ci.lincoln.ne.us



MEETINGS & EVENTS

PAC MEETING

TUESDAY FEBRUARY 24, 1998, 7:30 PM
at Hyde Memorial Observatory

NSP-5 PLANNING MEETING

THURSDAY MARCH 12, 7:30 PM
at Mahoney State Park Lodge

PAC STAR PARTY

FRIDAY MARCH 20
at Wagon Train Lake
Rain Date: March 27th

PAC MEETING

TUESDAY MARCH 31, 1998, 7:30 PM
at Hyde Memorial

Only 5 months until NSP!!!

You won't want to miss the 5th Annual Nebraska Star Party at Merritt Reservoir, July 18-25, 1998.

For more information, or to register, call the

NSP Hotline: (402) 466-4170

To help out, contact Dave Hamilton at 434-2900 and/or come to the March 12th planning meeting (see above).



Friday March 20th At Wagon Train Lake

Directions: From Hickman, NE, head east on Hickman Rd (flashing light) for 3 miles. Turn south on 96th St and go 1/2 mile to Wagon Train Rd. Turn left (east) and go 1/2 mile (if you get to 110th St, you went too far). We will be set up in the parking lot near the dam, just north of Wagon Train Rd and west of 110th St.

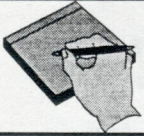
CONTENTS:

No... AstroMan has not passed on to cartoon Heaven! He's just on vacation due to limited space in the newsletter. Look for the next AstroMan in the March 1998 Prairie Astronomer.

SECRETARY'S REPORT
PRESIDENT'S REPORT
OBSERVERS' REPORT
PULSAR DISCOVERER TO SPEAK AT PAC
THE MESSIER MARATHON
PROGRESS REPORT ON UNL OBSERVATORY
OBSERVING TIPS
THE PAC ASTRONOMY CLASS - VARIABLE STARS
PAC CALENDAR
POTENTIAL OCCULTATIONS FOR NE

Page 2
Page 3
Page 3
Page 4
Page 4
Page 5
Page 4
Page 5
Page 7
Page 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 \$20/yr, Family \$22/yr. Address all new memberships, renewals, or questions to: The Prairie Astronomy Club, Inc., PO Box 80553, Lincoln, NE 68501. For other club information, contact one of the following: Dave Knisely - President (402) 223-3968, Doug Bell - V.P. (402) 489-8197, Liz Bergstrom - Treasurer (402) 464-2038. All newsletter comments and articles should be sent to: Dave Scherping, 640 S. 30th St., Lincoln, NE 68510 (402) 477-2596 or e-mail dscherp1@aol.com ten days prior to the club meeting. Club meetings are held the last Tuesday of each month at Hyde Memorial Observatory in Lincoln, NE.



SECRETARY'S REPORT

Minutes of the January 27, 1998 PAC Meeting

By Dave Scherping

Dave Knisely, President and Commander In Chief of PAC, opened the meeting at 7:30 PM. It was a packed house at Hyde Observatory as the president gave his State Of The Club address. Although the president tried to focus on current club issues, the members wanted to know the truth about his alleged affair with one of Hyde's telescopes. They were especially concerned with the allegations that he told the telescope to lie about being equatorially mounted in the Oval Observatory. Nobody asked whether he used an O-III filter. The President stated in no uncertain terms, that he has never used the scope for either proper or improper viewing of galaxies, nebulae or planets. He said he just wanted to put this all behind him and get back to the serious observing which he was elected to do. Meanwhile, his trusty Newtonian is sticking by his side, claiming it is a right ascension conspiracy and blaming it all on a Starr. Incidentally, a rigged poll taken after the meeting showed his acceptance rating to be well over 100%.

Now in all seriousness.... The first topic of discussion was the search for a new observing site. Liz Bergstrom gave a brief review of the recent meeting by the site committee. The committee needs feedback from the members as to how far they would travel, which direction, size of the site, and whether we should lease or purchase the site. Lee Thomas suggested we do what was done last time, which was make up a questionnaire for the members to fill out. This could be included in the newsletter. Liz mentioned that the committee would also like to make up a handbill to post in several of the surrounding towns, stating that we are searching for a site. Earl Moser mentioned that his nephew has some land we could lease near Hallam, NE. Dave Knisely asked if anyone wants to help in locating a site, and stated that if so, they should contact Liz Bergstrom.

Next on Dave's agenda was the newsletter. He thanked Dave Scherping, John Bruce and Liz Bergstrom for their efforts and urged members to write up articles for the newsletter. He also asked if there was a need for additional help and Dave Scherping mentioned that if someone wanted to help with the folding, stapling and mailing, it would be greatly appreciated. If interested, contact Dave Scherping.

There was a brief discussion about the occultation of SAO 99095 by asteroid 192 Nausikaa on Monday January 26th. Martin Gaskell and Erik Hubl both observed this event. There will be another occultation on February 12th, with Lincoln in the center of the path. Martin suggested that we try to organize a group to be spread out at several locations across the path. He will use the PAC e-mail list to try to organize this. For those not on the list, you may subscribe by submitting an e-mail to list@4w.com. Write "Subscribe PAC-List in the body of the e-mail.

It was agreed to have a PAC star party on Friday March 20th at Wagon Train Lake. The alternate date is March 27th. We will set up in the parking lot on the south side of the lake near the dam. See directions on page 1 of this newsletter.

March 27th is also a public night at the new UNL observatory on top of the parking garage near the stadium. These will be held the last Friday of each month and will be open for the same hours that Hyde uses, which is 7:00-10:00 PM in the winter and sunset-11:00 PM in the summer.

Astronomy Day was set for Saturday May 2nd at Mueller Planetarium. We need a Chair-Person for this event. If interested, contact Dave Knisely or Jack Dunn.

The date for the trip to the Cosmosphere has not been determined. We need feedback from OAS as to the best date. It will probably be in the fall.

Dave Knisely mentioned that the telescopes at Hyde Observatory will be available for PAC members following the monthly PAC meetings. Also after the meetings, several people enjoy visiting at the Village Inn at O Street and 66th St. Everyone is invited.

Dave Scherping and Dave Hamilton gave an update on NSP. Dave Scherping brought the new information packets for anyone interested. It was also mentioned that this year we will be able to close the road to the Snake Campground and the observing site after dark, and reserve this area for NSP attendees only.

Liz Bergstrom gave the Treasurer's Report. The main topic was the annual audit, which will be conducted by Rick Johnson, Liz Bergstrom, and John Reinert. Also, Liz mentioned for anyone who is not getting their S&T or Astronomy subscription, to let her know.

Erik Hubl brought the last remaining copies of the RASC Handbooks and Ottwell Calendar. A motion was made by Martin Gaskell to donate one of each to Hyde. The motion was seconded and the vote was unanimously in favor of the donation.

There were no additional topics of discussion, so Del Motycka made the motion that the meeting be adjourned. The motioned was seconded and moved.

Following the PAC business meeting, Harlan Franey gave a very informative presentation on celestial navigation. He discussed the history of the methods, equipment, and problems of celestial navigation. He also demonstrated how to use a quadrant, cross-staff, astrolabe, and sextant. Incidentally, at least 40 people opted to stick around and listen to Harlan as opposed to President Clinton's State Of The Union address, which occurred simultaneously. Thanks Harlan.

Mathematical Proof Of The Month

Theorem : All numbers are equal to zero.

Proof: Suppose that $a=b$. Then

$$\begin{aligned} a &= b \\ a^2 &= ab \\ a^2 - b^2 &= ab - b^2 \\ (a + b)(a - b) &= b(a - b) \\ a + b &= b \\ a &= 0 \end{aligned}$$

Taken from:

http://www.xs4all.nl/~jcdverha/scijokes/1_1.html
Benjamin.J.Tilly@dartmouth.edu (Benjamin J. Tilly)



PRESIDENT'S REPORT

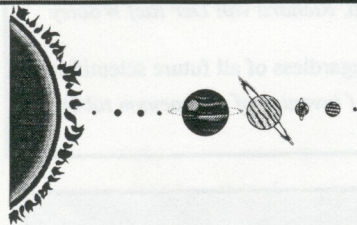
By: *Dave Knisely*

Things are starting to move on the observing site front. The observing site committee has met, and are looking at options. If you are interested in helping with finding a place for our club's star parties, contact committee chair Liz Bergstrom (also club treasurer). By the February club meeting, we should have some additional information. In case you missed it, the club star parties are now being held at Wagon Train Lake, just south of the dam (you will need a State Parks permit). Hopefully, we will have some reports on how good this temporary site is.

In other news, we still need someone to help with organizing this year's Astronomy Day display (to be held Saturday, May 2nd at Mueller Planetarium). If you are interested, contact me, and I will appoint you (its that simple). We are still discussing a trip to the Kansas Cosmosphere and Space Center some time this year, but the date is still not firm yet. I received an e-mail invitation from the Vice President of the Kansas Astronomical Observers (Wichita, Ks.), to do some sort of joint get-together at the Lake Afton Observatory when we do go down there. This is a fine facility, well worth the side trip, so we will probably go there as well. SEE YOU AT THE MEETING!

OBSERVERS' REPORT

By: *Dave Scherping*



The Planets in March

- Mercury:** Visible in west after sunset.
Best evening apparition of 1998.
Visible from March 20th through 29th.
Greatest elongation (19°) on March 20th.
- Venus:** Visible in the morning low in the east.
Greatest elongation on the 27th.
- Earth:** Visible all month.
- Mars:** Not visible in March.
- Jupiter:** Not visible in March.
- Saturn:** Visible low in the west in the early evening in early March.
Will disappear by late march.
- Uranus:** Not visible in March.
- Neptune:** Not visible in March.
- Pluto:** Not visible in March.

Deep Sky

March is the month for Messiers. The new moon nearest the Vernal Equinox is the only time to observe all 110 Messier objects in one night. If you feel up to the challenge, give it a shot. More details are given on page 4. Even if you don't try to see them all, it a great time of the year to just get out and do some observing, since the temperatures are usually reasonable and the mosquitoes are absent.

Comets

This is your last chance to catch Comet 55P / Tempel-Tuttle, the parent comet of the Leonid meteor shower. In late February and early March, it will be heading south through Pisces, just north of Saturn, and will fade rapidly. Here's the coordinates & estimated magnitude:

2/26/98	1h13m66s	+10°8.2'	10.5
3/03/98	1h13m13s	+08°26.8'	10.7
3/08/98	1h12m65s	+07°0.9'	11.0 *

While you're there, hop over to Comet 103P/ Hartley 2. It's heading northeast along the Taurus-Eridanus border, and into Orion. Here are its coordinates & estimated magnitude:

2/26/98	4h01m00s	+4°30.2'	11.4
3/03/98	4h20m47s	+5°23.7'	11.8
3/08/98	4h39m00s	+6°11.7'	12.2 *

* In early March, the 1st quarter moon will severely interfere with observing these comets.

Asteroids

On March 19th at 1:09am CST, 275 Sapiientia, magnitude 13.9, will occult the 9.4 magnitude star PPM94539. This may be visible from Nebraska. If interested, contact Dave Scherping a few days beforehand.

Meteors

No prominent meteor showers occur in March, however you can expect to see upwards of 10 sporadic meteors per hour. The next prominent meteor shower will be the Lyrids, which will peak on April 22nd with a ZHR of 15 per hour.

"I think there's a world market for about five computers."

Thomas Watson (Founder of IBM)

"This isn't right. This isn't even wrong."

- Wolfgang Pauli (on a paper submitted by a physicist colleague)

Pulsar Discoverer To Give Program At February PAC Meeting!

Tuesday February 24th is not only the next PAC meeting, it's also the 30th anniversary of the discovery of the first pulsar. Pulsars were first discovered by their radio emission, but a couple have been detected optically. The first to be detected pulsing optically was the pulsar in the Crab Nebula. That first detection would not have been possible without the efforts of UNL astronomy professor **Don Taylor** (who was then a professor at the University of Arizona). Don and his team were featured prominently in the BBC feature "The Crab Nebula" made a few years later. This is one of the greatest astronomy documentaries of the time. Don is going to tell the story of this famous discovery at the meeting.

As well as being a professional astronomer and astronomical instrument designer, Don Taylor is a keen amateur astronomer and amateur telescope maker. He is planning to retire from UNL soon and head to the Southwest for clearer, darker skies and warmer weather (possibly as soon as this summer). He is going to be sorely missed in Lincoln. He's a superb teacher and speaker. Be sure not to miss this talk!

"If They Only Knew!"

Quotes relating to technology, flight & space travel

"Inventions have long since reached their limit, and I see no hope for further development". - *Julius Sextus Frontinus*
(Highly regarded engineer in Rome, 1st century A.D)

"The most important fundamental laws and facts of physical science have all been discovered, and these are now so firmly established that the possibility of their ever being supplemented in consequence of new discoveries is exceedingly remote."

- 1903, *Abraham Albert Michelson*

"Heavier-than-air flying machines are impossible." - *Lord Kelvin*

"Professor Goddard does not know the relation between action and reaction and the need to have something better than a vacuum against which to react. He seems to lack the basic knowledge ladled out daily in high schools." - 1921 *New York Times*
editorial about *Robert Goddard's revolutionary rocket work*

"Space travel is utter bilge." - 1956, *Richard van Der Rief Wooley*

"Man will never reach the moon regardless of all future scientific advances" - *Dr. Lee De Forest* (inventor of the vacuum tube).

The Messier Marathon

By Dave Scherping



General Information

At only one time during the year, near the Vernal Equinox, can an observer see all 110 Messier Objects in one night. Successfully observing all 110 objects in one night pushes the skills of even the most advanced observer to the limit. In actuality, there are only 109 Messier objects, because it is believed Charles Messier cataloged the same object as M101 and M102. NGC5866 is typically substituted for M102, but observing it is not a requirement for completing the marathon.

Preparation

The key to successfully completing the Messier Marathon is thorough planning and preparation. There are several objects that must be viewed early in the evening and some that can be seen only a short time before dawn. The objects in between leave a little room for flexibility in the observer's schedule. Participants should gain as much knowledge as possible before the night of the marathon. This knowledge should include locations and visual descriptions of the Messier objects. Develop a schedule for observing the more difficult objects, and be familiar with their locations in the sky.

Observers should bring all pertinent information, including detailed sky charts, coordinates, descriptions, and photographs of the Messier objects. The "Messier Card", available from Sky Publishing is very useful. Similar useful charts can be produced with various astronomy software programs.

In addition to a telescope, a pair of binoculars will also be very handy.

Participants should arrive as early as possible and set up, if possible, in a location from which all of the objects can be viewed. Allow sufficient time to set up equipment, align optics and finders, and organize charts and other equipment.

Remember to dress warmly and bring plenty of hot drink and snacks.

Observing

The objects that must be viewed early in the evening are: M31, M32, M33, M74, M77, M79, & M110.

The objects that will not be visible until just before dawn are: M2, M15, M55, M72, M73, & M75.

The remaining objects may be viewed in a relatively leisurely progression as they cross the sky.

One additional comment...

Those wishing to use these observations for obtaining the Messier certificate from the Astronomical League, must record aperture, magnification, sky conditions, time, date, location, and a written description or drawing. These items can be easily recorded with a pocket tape recorder and transferred to a log form at a more convenient time. Also, the Messier certificate requires that objects be located by the observer independently.

The New UNL Student Observatory -- A Progress Report

By Martin Gaskell

The new UNL Student Observatory continues to attract public attention. It has been featured on channel 7, and on the front pages of the "Journal Star", "The Scarlet" and the "Daily Nebraskan" (twice). The formal dedication took place on Tuesday January 13th. There was a good crowd of about 70 people. As well as members of the including members of the UNL department of Physics and Astronomy, senior UNL administrators, and local media representatives, there were representatives from Doane College, Nebraska Wesleyan, Southeast High and Northeast High. Hyde Observatory and the Prairie Astronomy Club were well represented too.

The ceremony was MC'd by Dr. Roger Kirby, chairman of the department of Physics and Astronomy. In his introductory remarks Dr. Kirby recognized the presence of members of the Prairie Astronomy Club at the dedication and he told the audience that there are many hundreds of thousands of amateur astronomers in the US. He said he hoped that many of the 1,500 or so students who take introductory astronomy at UNL would continue an interest in amateur astronomy.

Dr. Gene Rudd, professor emeritus in the Physics and Astronomy Department and president of the international Antique Telescope Society, gave an illustrated history of the long efforts to get an on-campus observatory at UNL.

Martin Gaskell gave a simple explanation of what the new Meade 16-inch could do and what the department would be attempting to do with it. He said that now is the golden age of astronomy and cited a number of examples of the great public interest in astronomy. Martin said that introductory college astronomy in the main way college-educated non-scientists in the US are learning about science. He said that, although the new telescope has slightly more light gathering power than the 14-inch Celestron at Hyde, Hyde has the advantage of a darker sky. Although there would be regular public viewings the Student Observatory would not be as well equipped as Hyde for public outreach. Martin showed the "first light" picture taken with the 16-inch. It was a color picture of the Orion Nebula. Martin explained that the main problem he and Don Taylor were still working on with the telescope was a vibration problem. The vibrations were about 50 times worse than desired. The effects of the vibrations could be clearly seen in the Orion Nebula photograph.

Doug Bell, in his capacity as chairman of the Hyde Observatory Supervisors made a short speech conveying the best wishes from Hyde Observatory to the new sister observatory in Lincoln. Doug presented a plaque from the Hyde supervisors and, to give the new observatory something more useful, copies of Uranometria 2000.0 and its Deep Sky Field Guide.

Dr. Brian Foster, the dean of the college of Arts and Sciences at UNL agreed with what had been said by the earlier speakers about the importance of astronomy in the education of UNL undergraduates. He said that the college was pleased to have been

part of the effort to build the observatory, but said that the most important thing in bringing the project to fruition had been teamwork by many people.

The final speaker was Chancellor James Moeser. He said that he had been looking forward to the opening of the new observatory with interest and had in fact been so keen to look through the telescope that he had gone straight to the observatory instead of coming to Brace Lab for the ceremony! In brief remarks he agreed with what had been said and affirmed the importance of undergraduate education at UNL.

Everyone then headed out to the new observatory for the official ribbon cutting. It was a beautifully clear, but crisp day. The Chancellor posed in front of the red ribbon for the photographers and then cut it. He was clearly quite experienced at cutting red ribbons! He then went into the dome and opened the dome. Everyone got to see Jupiter in broad daylight through the new telescope.

The department of Physics and Astronomy has a page on the new telescope on its web page. Mark Fairchild has a lot of digital photos he took of the ceremony.

The University is having a regular last Friday of the month public viewing with the new observatory. The hours of opening have intentionally been chosen to be the same as the Hyde Observatory hours to minimize public confusion (7 PM to 10 PM in winter; sundown to 11 PM in summer). Thanks to good publicity in the local press, clear skies, and unseasonably warm temperatures, about 200 people, including many Prairie Astronomy Club members came to the first public night at the end of January (at 7 o'clock the line went almost the full width of the roof of the garage). The next public night will be 7:00 PM Friday February 27th (if it's clear). There is plenty of room on the garage roof for club members to set up their own telescopes. (These UNL public nights could be another good place to recruit new PAC members)

Viewing at the first public night was confined to low power because of the vibration, but there is now good news from Don Taylor and Martin Gaskell: their very first attempt to reduce the vibration has reduced it to almost zero! They identified most of the problem as being due to poor design by Meade of the bottom of the metal column in the pier. They rectified this by putting in a wooden A-frame to brace the top of the metal column to the concrete base of the pier. Now, most of the time, the image motion is down to the level of the image motion due to seeing. Don and Martin will be seeing how much better they can do by tinkering with the present bracing and then deciding whether a more drastic modification, such as making the fork into an English yoke mounting, is still necessary.

The Pentium computer and cables are now installed. It will soon be possible to do CCD imaging from the heated control room.

"Never express yourself more clearly than you think."

Niels Bohr

"Gravitation can not be held responsible for people falling in love"

- Albert Einstein



Observing Tips

- Got a Telrad & no finder scope? Use your binoculars behind the Telrad for magnification. At first, it's a little tricky lining up the binoculars with the Telrad, but with practice, it's not too difficult & will allow you to position the telrad on fainter objects – Dave Scherping (original idea from Steve Bornemeier)
- At the start of an observing session, look at a star or planet with the eyepiece outside the normal focal position. You can see the turbulence crossing the image. If it is doing anything other than going straight across you know you have a local seeing problem that you need to take care of. – Martin Gaskell
- The eye is more sensitive to very dim, large, objects when they are moving. Thus, the Horsehead is far easier to see if you gently move the scope back and forth a few minutes of arc once every two seconds or so. Let the image move, don't try to follow it with your eye. The brain seems to define faint edges best if they are moving across the retina, constantly hitting new areas. - Rick Johnson
- Hold binoculars on the fat end for a more stable view. – Doug Bell
Set your scope outside early so it can cool off.
Put a black sheet over your head while observing.
Make a list of targets you want to observe.
Have someplace for the kids to go.

- To submit your observing tips to *The Prairie Astronomer*, see page 8

The PAC ASTRONOMY CLASS

Variable Stars How many kinds are there? By Dave Scherping







Variable stars fall into one of 4 general categories, with subgroups as shown below:

- | <u>Pulsating Variables</u> | <u>Characteristics</u> |
|------------------------------|---|
| • Cepheids | - 2 types: Population I and II. Typical period is 1 to 50 days; high luminosity; Spectral class F6-K2 (pop I), F2-G6 (pop II); Obey the well known period-luminosity relationship which can be used to determine distances to some of the closer galaxies; <i>ie. population I: δ Cephei, population II: W Virginis</i> |
| • RR Lyrae type | - Giants with periods up to 2 days & variation up to 1 magnitude; typically spectral class A. |
| • RV Taurii type | - Supergiants with periods of 30-150 days & variations up to 3 magnitudes; typically spectral class G- K. |
| • Long Period (Mira type) | - Giants with periods of 80 to 1200 days & variations of 2.5 to 5 magnitudes; typical spectral class M |
| • Semi-regular | - Giants or supergiants; periods of 30-1000 days, variation up to 3 mag; <i>ie. R Ursae Minoris, α Herculis</i> |
| • Irregular | - Show only a trace of periodicity or none at all; <i>ie. RX Leporis</i> |
| • Dwarf Cepheids | - Brightness variation of 2-4 magnitudes; period of 1-3 hours, spectral class A to F; <i>ie. δ Scuti</i> |
|
 | |
| ➤ <u>Eruptive Variables</u> | |
| • Novae | - Close binary system of a normal star & a white dwarf. Increases 7 to 16 magnitudes in 1 to 100's of days, then fades back to original magnitude over several years. Spectral class A to F at maximum. |
| • Supernovae (Types I & II) | - Increase in brightness up to 20 magnitudes due to stellar explosion. |
| • R Coronae Borealis type | - High luminosity; exhibit non-periodic drops in brightness from 1 to 9 magnitudes due to carbon in the star's atmosphere; Minimum lasts months to years. Spectral class F to K and R. |
| • Dwarf Novae (U Gem type) | - Sharp outbursts of 2-6 magnitudes, occurring 10's to 1000's of days apart. Most are spectroscopic binaries with periods of a few hours; <i>ie. SS Cygni, U Geminorum</i> |
| • Z Camelopardalis type | - Similar to U Geminorum type, but with intervals of constant brightness; <i>ie. Z Camelopardalis</i> |
| ➤ <u>Eclipsing Variables</u> | - Binary stars with orbital plane crossing near the line of sight. The components periodically eclipse one another, causing a decrease in brightness; <i>ie. β Persei (Algol)</i> |
| ➤ <u>Rotating Variables</u> | - Rapidly rotating stars which undergo small amplitude changes due to bright or dark spots on the surface. Usually binaries, and eclipses may also be present.; <i>ie. RS Canum Venaticorum</i> |

References: 1) 1998 RASC Handbook – Pages 217-218, 2) *Astronomy & Astrophysics*, By Zulkick, Gregory, & Smith, Saunders Publishing

Each month, I will be covering a different topic. If you have a topic you'd like included, let me know – Dave S.

The PRAIRIE ASTRONOMY CLUB CALENDAR for MARCH 1998

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 Saturn 1° North of Moon	2 Comet Kowal 2 At Perihelion (1.397 AU) Moon occults Vesta	3 <i>"The speed of time is one second per second."</i>	4 Mercury Occults SAO146752 (6.5 mag star)	5 1 ST QUARTER  Moon occults Aldebaran	6 Asteroid 115 Thyra at opposition (mag 11.0)	7 Venus 3.8° From Neptune
8 Mercury's best evening apparition in 1998 from Mar 8 – Mar 29. Greatest elong On March 20 th	9 Mercury at ascending node	10 Mercury 1.0° from Mars	11 Asteroid 7822 (1991 CS) Closest approach to Earth (0.901 AU)	12 NSP-5 Planning Mtg. 7:30 PM at Mahoney State Park Lodge	13 FULL MOON  Preumbral Lunar Eclipse	14 Mercury At Perihelion
15 Algol in eclipse (late evening)	16 Asteroid 511 Davida at opposition (mag 10.7)	17 40 th anniversary of Vanguard I launch (2 nd successful US launch)	18 Algol in eclipse (after sunset)	19 Mercury – greatest Elongation *** Asteroid 275 Sapientia occults PPM94539	20 VERNAL EQUINOX *** PAC STAR PARTY	21 3 RD QUARTER 
22 <i>Seen on the door to a lab:</i> <i>"Do not look into laser with remaining good eye."</i>	23 Asteroid 1995 BL2 Closest approach to Earth (0.496 AU)	24 Moon Occults Venus *** 5 th anniversary, discovery of Shoemaker-Levy9	25 Asteroid 1995 OO Closest to Earth (0.517 AU)	26 Moon Occults Jupiter *** Asteroid 1996 EN Closest approach to Earth (.490 AU)	27 Venus Greatest W. Elongation PAC STAR PARTY RAIN DATE	28 NEW MOON  <i>Messier Marathon Weekend</i>
29 Moon Occults Saturn	30 Asteroid 1997 WT22 Near Earth Flyby (0.277 AU)	31 PAC MEETING 7:30 PM Hyde Obs. *** Mercury 3.8° From Mars	MAHONEY STAR PARTY DATES Friday May 22 nd Friday June 26 th Friday August 21 st Friday September 25 th Friday October 23 rd			

POTENTIAL OCCULTATIONS FOR NEBRASKA IN 1998

Compiled By Dave Scherping

LUNAR GRAZING OCCULTATIONS

Date	UT	USNO	Mag	% Sunlit
MARCH 22	11:34 (5:34 am CST)	2791v	5.3	38
APRIL 7	2:24 (9:23 pm CDT 4/6)	1439	5.9	80
JUNE 1	3:56 (10:56 pm CDT 5/31)	1486a	4.6	41
SEPT 9	4:55 (11:55 pm CDT 9/8)	249	4.7	89
NOV 13	10:38 (4:38am CST)	1644	4.1	27
DEC 12	12:41 (6:41 am CST)	1825	6.1	33

OCCULTATIONS BY SOLAR SYSTEM OBJECTS

Date	UT	Occulting Body	Mag	Star	Mag	ΔMag	RA	Dec
FEB 22	5:01 (11:00pm CST 2/21)	153 Hilda	13.5	PPM717088	9.8	3.7	12h43m51s	-12°6'22"
MAR 19	6:09 (12:09am CST)	275 Sapientia	13.9	PPM94539	9.4	4.5	5h35m54s	+21°2'58"
JUN15	4:48 (11:48pm CDT 6/14)	211 Isolda	13.7	PPM195267	9.5	4.3	12h12m55s	-5°32'53"
SEP 5	7:15 (2:15am CDT)	Jupiter	-2.9	PPM207856	9.3	0.0	23h42m13s	-3°36'14"
NOV 1	2:47 (8:47pm CST 11/1)	576 Emanuela	13.5	TAC+09°06711	10.4	3.2	23h04m57s	+9°05'29"

Reference: RASC 1998 Observer's Handbook, pp 177-178 and IOTA. Look for detailed information closer to the date of each event.

Misc.

PAC-LIST

For the past couple of years, Mark Dahmke has maintained an e-mail list for PAC. Those on the list may send an e-mail to pac-list and it will go out to all the members on the list. It's a great way to stay informed on astronomical events and club happenings. 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.

Students for the Exploration & Development of Space

We hear that UNL undergraduate Tom Bills is starting an official UNL chapter of "Students for the Exploration and Development of Space" (SEDS). You're most likely to have run into this organization on the web. If you're unfamiliar with them check out <http://seds.lpl.arizona.edu/> Tom already has a link to the Prairie Astronomy Club home page on his web page, so he's off to a good start!

"The most incomprehensible thing about the universe is that it is comprehensible." - *Albert Einstein*

OFFICERS

OF THE PRAIRIE ASTRONOMY CLUB

PRESIDENT: Dave Knisely
223-3968
dk84538@ltec.net

VICE PRESIDENT: Doug Bell
(402)489-8197
db16696@ltec.net

**2nd VICE PRESIDENT
(PROGRAM CHAIR):** Erik Hubl
(402) 488-1698
ehubl@netinfo.ci.lincoln.ne.us

SECRETARY: Dave Scherping
(402) 477-2596
dscherp1@aol.com

TREASURER: Liz Bergstrom
(402) 464-2038

Please send all submissions for The Prairie Astronomer to:

Dave Scherping
640 S. 30th St., Lincoln, NE 68510
(402) 477-2596

scherpid@squared.com or dscherp1@aol.com



The Prairie Astronomer
c/o The Prairie Astronomy Club, Inc.
P.O. Box 80553
Lincoln, NE 68501



First Class Mail

Next PAC Meeting
February 24, 1997
7:30 PM
Hyde Observatory

EARL MOSER 9/98
P O BOX 162
HICKMAN NE 68372-0162