

The Prairie Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.

October 2003

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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

SEPTEMBER PROGRAM

October program: To be announced

CLUB EVENTS

Club Star Party

Friday, October 24, 2003

PAC Meeting 7:30pm

Tuesday, October 28, 2003

Hyde Observatory open to the public

Saturday, November 08, 2003

Club Star Party

Friday, November 21, 2003

PAC Meeting 7:30pm

Tuesday, November 25, 2003

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.

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

Prairie Astronomy Club Minutes for the Meeting of September 30, 2003

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

At the last PAC star party Sept. 27, we had good skies, but poor attendance. According to the report by John Lammers, we had a group of UNL students out with a 10-inch dob who had a wonderful time. The next PAC star Party will be on Friday Oct. 24, 2003 at Olive Creek, for directions, check the newsletter or the members section of the PAC website. Also, if you wish to make a trip out there on short notice, put a note on the pac-list and you may get some company.

We're still trying to get some people together for shallow-sky star parties closer to home, at Vice-president, Dave Brokofsky's residence for planets and double star observing. If you have any interest, again put a note on the pac-list or contact Dave B.

At the last meeting on August 26, 2003 there was a BIG turnout for the Mars closest approach. Estimates are that there were 1100+ people for the event with at least half a dozen telescopes on the Hyde lawn and the new Mars program running in Hyde's lecture room non-stop. For more on the event, see Hyde's website. The following Saturday was cloudy but still saw 200 guests coming out to Hyde anyway, with 50-600 the following week.

The annual PAC-OAS banquet will be held Friday, Oct. 10 at the Helene Sapp Riverview Lodge in Mahoney State Park. Among the door prizes, another Mars globe and a beginner's observing kit.

On Saturday November 8, Hyde will open at 5:30 PM for the second lunar eclipse of 2003. Hyde volunteer coordinator Dave Churilla again is asking for club help with telescopes out on the lawn. If you can make it, let Dave C. know and show up by 5:15 to set up.

Hyde Board chair Erik Hubl read a Thank-You letter from the Washiska Audubon Society for the Sept. 6 Twilight on the Tall Grass, including an invitation to attend next year's event on Sept. 11 and a request for advice on how to make the event more accommodating to our needs for presentation. PAC had 5 or 6 telescopes there with Jeff Campbell, Dell Motycka and others.

As always, the Astronomical League has programs and awards for observing various objects such as the popular Messier club and Herschel club. If you'd like to start one of their programs, contact club observing chair, Jeff King.

The last Mahoney star party of this year was well attended with 15 telescopes and plenty of public interest in Mars.

For anyone interested in becoming a volunteer at Hyde Observatory, contact volunteer coordinator, Dave Churilla.

One note for volunteers and club members helping at Hyde, Hyde equipment is the property of the City of Lincoln and must remain in the building AT ALL TIMES and may not be removed without the express consent of Hyde's board of supervisors.

Club newsletter editor, Mark Dahmke is working on a re-vamp of the club website, including a new public area. As always, if you'd like to receive the club newsletter electronically, contact Mark or Liz to stop receiving the mailed version. The current newsletter is available in the member's area for download as a .pdf file. Also, there is currently an article on Hyde's Photovoltaic system being in operation for 6-months, with a 30-day peak output graph updated once per day.

The next PAC meeting will be Tuesday Oct. 28, 2003 at Hyde observatory. On the agenda for that meeting is the annual election of club officers. Nominations are open for the positions of President, Vice-President, Secretary, Treasurer and 2nd Vice-President/Program Chair. The current nominees are:

President: Dave Knisely Vice President: Dave Brokofsky Secretary: Lee Taylor Treasurer: Liz Bergstrom 2nd VP/PC:

Note that current program chair Brian Sivill has declined to serve another term and nominations for all offices remains open until the next meeting.

Dave Hamilton proposed initiating a \$5.00 membership fee for the first year of a new member with the stipulation that the new member would not be able to check out the club telescopes. The motion was seconded and approved by a majority of the members present. The new \$5.00 first year membership fee will be effective Oct. 1, 2003

Motion to adjourn, seconded, adjourn to Cece Hendrick's program on her summer on Kitt Peak working with data on variable stars for the Ogle project.

Respectfully submitted by:

Lee Taylor

Hyde Observatory Volunteer Schedule

Date	Team Leader	Operators		Supervisor	Events
October					
10/25/03	Dan Delzell	Jared Delzell	Lynda Beck	Rick Johson	
November					
11/1/03	Jeff King	Erin Miles	Jeff Campbell	Brian Sivill	
11/8/03	Scopes on Lawn	Joey Churilla			Total Lunar Eclipse
11/8/03	Bob Leavitt	Steve Lloyd	AJ Benker	Dave Churilla	Total Lunar Eclipse
11/15/03	Bill Wells	TBA	Karla Bachman	Dave Hamilton	
11/22/03	Dan Delzell	Jared Delzell	Erica Block	Rick Johnson	
11/29/03	Brian Sivill	Jeff Campbell	Josh Machacek	Jack Dunn	
December					
12/6/03	Bill Wells	Jeff Cmpbell	Erica Block	Brian Sivill	
12/13/03	Jeff King	Erin Miles	Joey Churilla	Dave Churilla	
12/20/03	Bob Leavitt	Karla Bachman	AJ Benker	Dave Hamilton	
12/27/03	Dan Delzell	Jared Delzell	Josh Machecek	Rick Johnson	
Summer Hours: April through September (Sundown to 11:00 PM)					
Winter Hours: October through March (7:00 PM to 10:00 PM)					

Sixty-four PAC and OAS club members came to the PAC-OAS Banquet on October 10th. Martin Gaskell was the guest speaker and his topic was "Observing Mars."



New Website Featuring Carroll Moore Memorial Sundial – Erik Hubl

I had the very good fortune of hooking up with Walter Sanford from Alexandria VA. He is the Director of the Fairfax Public Schools planetarium and is a sundial enthusiast.

He heard about Carroll's sundial, contacted NWU who contacted June and she forwarded him to me. That was last July



10th. Now 3 months later I would like you to see what a wonderful tribute he has created for Carroll. Walter took a number of my images and organized them in such a way that it tells the story very well. He did all the html work and re-sizing of the original tiffs and combined all the images and text into this educational montage. If you feel so inclined, drop him an email on what you think. I am thrilled and so is June.

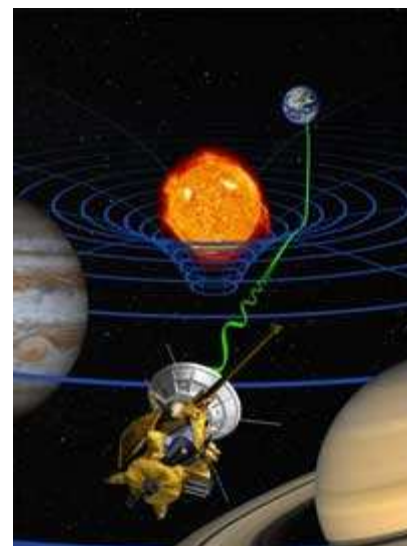
<http://www.wsanford.com/~wsanford/exo/sundials/ne/lincoln/>

Saturn-Bound Spacecraft Tests Einstein's Theory

An experiment by Italian scientists using data from NASA's Cassini spacecraft, currently en route to Saturn, confirms Einstein's theory of general relativity with a precision that is 50 times greater than previous measurements.

The findings appear in the Sept. 25 issue of the journal Nature. They are part of a scientific collaboration between NASA and the Italian Space Agency. The experiment took place in the summer of 2002, when the spacecraft and Earth were on opposite sides of the Sun separated by a distance of more than 1 billion kilometers (approximately 621 million miles).

Researchers observed the frequency shift of radio waves to and from the spacecraft as the waves passed near the Sun. They precisely measured the change in the round-trip light time of the radio signal as it traveled close to the Sun. The round-trip light time is the time it takes the signal transmitted from the Deep Space Network station in Goldstone Calif., to the spacecraft on the other side of the Sun and back traveling at the speed of light.



"The scientific significance of these results is the important confirmation of the theory of general relativity and the agreement with Einstein's formulations to an unprecedented experimental accuracy," said Sami Asmar, manager of the Radio Science Group, which acquired the data for this experiment at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "The technological significance of the experiment is the ability to overcome the harsh solar environment on radio links."

The researchers measured how much the Sun's gravity bent an electromagnetic beam, in this case the radio signal transmitted by the spacecraft and received by the ground stations.

According to the theory of general relativity, a massive object like the Sun causes space-time to curve, and a beam of radio waves (or light) that passes by the Sun has to travel further because of the curvature. The extra distance that the radio waves travel from Cassini past the Sun to the Earth delays their arrival; the amount of the delay provides a sensitive test of the predictions of Einstein's theory. Although deviations from general relativity are expected in some cosmological models, none were found in this experiment.

Tests of general relativity have important cosmological implications. The question is not whether general relativity is true or false, but at which level of accuracy it ceases to describe gravity in a realistic way.

Past tests of general relativity confirmed Einstein's prediction to an accuracy of one part per thousand. This accuracy was achieved back in 1979 using the Viking landers on Mars. The Cassini experiment confirmed it to an accuracy of 20 parts per million. The key to this improvement has been the adoption of novel technologies in space telecommunications.

The experiment could not have been conducted to this level of accuracy in the past because of noise on the radio link introduced by the solar corona. With the Cassini experiment, this hindrance was overcome by fitting the spacecraft communication system with multiple links at different frequencies. This new capability on the Cassini spacecraft and on the 34-meter (112 foot) diameter antenna at Goldstone, allowed scientists to remove the effects of the interplanetary and solar plasma from the radio data. In addition, the noise from Earth's atmosphere was strongly reduced by special equipment installed at the Goldstone complex. These technological breakthroughs developed for the Cassini mission have led to unprecedented accuracies in the velocity measurements with benefits for future scientific experiments as well as deep space navigation.

The experiments are part of a series of radio science experiments planned for the cruise phase of the mission, including the search for low frequency gravitational waves.

Cassini will begin orbiting Saturn on July 1, 2004, and release its piggybacked Huygens probe about six months later for descent through the thick atmosphere of the moon Titan.

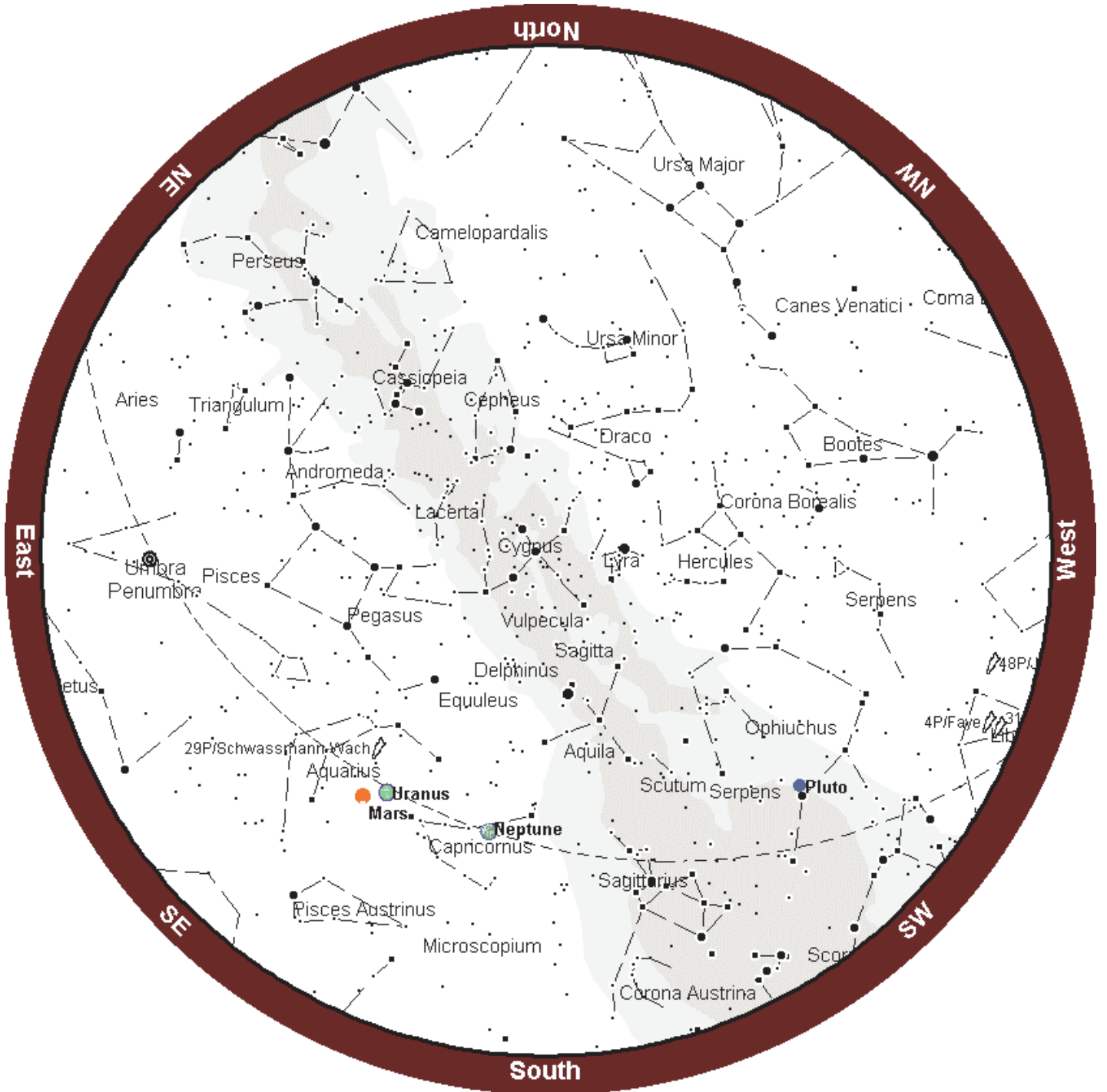
Cassini-Huygens is a cooperative mission of NASA, the European Space Agency and the Italian Space Agency. JPL, a division of Caltech, manages the mission for NASA's Office of Space Science, Washington, D.C. Authors of the Nature paper, "A New Test of General Relativity With the Cassini Space Mission," are Dr. Bruno Bertotti of the University of Pavia, Italy; Dr Luciano Iess of the University of Rome "La Sapienza", Italy; and Dr. Paolo Tortora of the University of Bologna, Italy.

For more information on Cassini visit <http://saturn.jpl.nasa.gov>.

For Sale

SBIG ST-7 CCD camera. This is not the ST7-E version but can be upgraded. Comes with all original accessories (power supply, parallel cable, autoguider cable wired for LX200, case, manual) **PLUS my copy of CCDSoft V4.0 for Windows (a \$200 value).** This camera is in pristine condition, originally purchased from Astronomics at \$2600 in 1997 and has not been used very often. 768x510 pixels, 9 micron pixel size. Reason for sale: I don't have time to use it, and I'm planning to buy a Nikon D100. **Price: \$1,200.** Contact Mark Dahmke at 475-3150 or mdahmke@4w.com.

October Star Chart



Events Calendar

November 2003						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1  Sun: 06:56 - 17:23 Hyde Observatory open to the public
2  Sun: 06:57 - 17:21	3  Sun: 06:59 - 17:20	4  Sun: 07:00 - 17:19	5  Sun: 07:01 - 17:18	6  Sun: 07:02 - 17:17	7  Sun: 07:03 - 17:16	8  Sun: 07:04 - 17:15 Hyde Observatory open to the public
9  Sun: 07:06 - 17:14	10  Sun: 07:07 - 17:13	11  Sun: 07:08 - 17:12	12  Sun: 07:09 - 17:11	13  Sun: 07:10 - 17:10	14  Sun: 07:12 - 17:09	15  Sun: 07:13 - 17:08 Hyde Observatory open to the public
16  Sun: 07:14 - 17:07	17  Sun: 07:15 - 17:07	18  Sun: 07:16 - 17:06	19  Sun: 07:17 - 17:05	20  Sun: 07:19 - 17:04	21  Sun: 07:20 - 17:04 Club Star Party	22  Sun: 07:21 - 17:03 Hyde Observatory open to the public
23  Sun: 07:22 - 17:03	24  Sun: 07:23 - 17:02	25  Sun: 07:24 - 17:01 PAC Meeting 7:30pm	26  Sun: 07:25 - 17:01	27  Sun: 07:26 - 17:01	28  Sun: 07:27 - 17:00	29  Sun: 07:29 - 17:00 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
OF THE PRAIRIE ASTRONOMY CLUB**

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

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

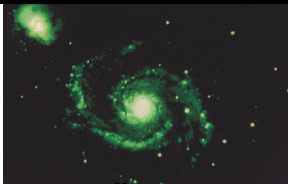
**2nd VICE PRESIDENT
(PROGRAM CHAIR):** Brian Sivill
(402) 420-1227
nanoamps@aol.com

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
October 28, 2003
7:30 PM
Hyde Observatory**