

The Prairie Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.

April 2000

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Internet Addresses:

PAC Web Page: www.4w.com/pac/
 PAC E-Mail: pac@4w.com
 NSP Web Page: www.4w.com/nsp/
 NSP E-Mail: nsp@4w.com
 OAS Web Page: www.OmahaAstro.com
 Astronomy in NE: www.blackstarpress.com/arin/
 Hyde Observatory: www.blackstarpress.com/arin/hyde/

MAY'S PROGRAM:

Kent Reinhard

Kent Reinhard (Physics, Astronomy & Chemistry instructor at Northeast High School) will give a talk about the imaging of Beta Pictoris and the outcome.

PAC-LIST: Mark Dahmke maintains an e-mail list server for PAC. 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.

GETTING TO KNOW OUR CLUB OFFICERS: The last is a series of articles about our club officers, this issue includes an article on our club Treasurer Liz Bergstrom.

MAHONEY STAR PARTY: The first Mahoney Star Party of the season starts on May 12. Be sure to set aside this date on your calendar so you can attend. (This date does conflict with Aerospace Day.) The rest of the dates are as follows:

- June 9
 - July 7
 - August- No MSP due to NSP7
 - September 8
 - October 6
- A current state park permit is required and can be purchased upon entering the park.

CLUB STAR PARTY CHANGES: The monthly club star party location has been changed to Wagon Train Lake until further notice. A map and driving instructions are on the back page. A state park permit is required to enter the lake area.

SPACE DAY/ASTRONOMY DAY: Jack Dunn has provided a schedule, subject to change, on the upcoming Space Day/Astronomy Day schedule. See page 3 for details or visit the Mueller Planetarium webpage at www.spacelaser.com.

CLUB EVENTS



PAC MEETING
TUESDAY, APRIL 25, 2000, 7:30 PM
at Hyde Memorial Observatory

CLUB STAR PARTY
FRIDAY, MAY 5, 2000
Wagon Train Lake
(see map on back page)

NSP 7 PLANNING MEETING
THURSDAY, MAY 11, 2000
Mahoney State Park

UNL STUDENT OBSERVATORY OPEN HOUSE
FRIDAY, MAY 12, 2000, 9:15-11:00 P.M.
UNL Student Observatory

MAHONEY STAR PARTY
FRIDAY, MAY 12, 2000, BEGINNING AT SUNSET
Mahoney State Park

ASTRONOMY DAY
SATURDAY, MAY 13, 2000, 10AM-4PM
At Morrill Hall on the UNL Campus

PAC YOUTH GROUP/HYDE VOLUNTEER MEETING
SUNDAY, MAY 14, 2000, BEGINNING @ 7:00 P.M.
At Hyde Memorial Observatory

PAC MEETING
TUESDAY, MAY 30, 2000, 7:30 PM
at Hyde Memorial Observatory

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Secretary's Report

By: Willa Penney

Prairie Astronomy Club
March 28, 2000

President Dave Knisely called the meeting to order. There were no guests.

Hyde Volunteer Appreciation night was held recently with pizza for all volunteers. If you are interested in volunteering at Hyde, please contact Mark Fairchild, Hyde Volunteer Coordinator. The next meeting will be Sunday, April 9. The Hyde Youth Group will also meet that night. Dave said that more volunteers are always needed.

The next Nebraska Star Party planning meeting will be at Mahoney State Park Lodge on Thursday, April 13. Dave Hamilton said that the speakers have all been lined up; a list is available on the PAC web site. Our own Dave Knisley will be one of the speakers. Doug Bell has NSP flyers; T-shirts will be available and new design ideas should be sent to Doug.

Doug announced the upcoming dates for the Mahoney Star Parties (which are public star parties that PAC holds in conjunction with OAS). The dates are: May 12, June 9, July 7, September 8 and October 6. There will not be a date in August due to NSP. Scopes are set up on the driving range at Mahoney.

The Behlen observatory will be open to the public on March 31. The UNL observatory at the parking garage will be open on Friday, April 7.

Dave reminded everyone to PLEASE complete the survey that has been in past issues of our newsletter. It is needed to help determine the direction of the club and future programs.

Liz Bergstrom, Treasurer, said that the Mid-State Regions Astronomical League Convention will be coming up soon. It will be June 9-11 in Kansas City. Dave Knisely said that he was planning to attend.

Larry Hancock will start taking orders next month for club hats, polo shirts and T-shirts.

Jack Dunn reported on Astronomy Day, May 13. Clayton Anderson, the first astronaut from Nebraska, will be the featured speaker. There will be a 6:00 p.m. reception at Morrill Hall on Friday, May 12, which will not be open to the public; PAC members will be invited. Mr. Anderson will speak later that evening at the Nebraska Union. There will be other activities on Friday at the SAC Museum. You may check out upcoming events at the Planetarium web site, www.spacelaser.com. Lee Taylor, Astronomy Day chairman, passed around a sign-up sheet for help on that Saturday. He would like members to bring their scopes for display and to help from 8:00 a.m. to 4:00.

Bill Wells, club observing chairman, reported that the next club star party is scheduled for April 7. He recommended that we observe at Wagon Train rather than at the OAS site near Weeping Water. It is much closer for most Lincoln members; it is easier to find, there is a paved road and the skies are darker.

Dave Knisely invited everyone to meet after the program at the Village Inn at 66th and "O". Meeting was adjourned to our program; Jack Dunn showed a video of the recovery of the Liberty Bell space capsule.

AIR AND SPACE DAYS 2000

(Thanks to Jack Dunn for providing this information via his website)

May 12th & 13th, 2000

Organizations at UNL will be flying high and reaching for the stars in the second annual observance of Aerospace Days, May 12th and 13th, 2000. Activities will be held in the lobby of Mueller Planetarium, as well as in the University of Nebraska State Museum (Morrill Hall) auditorium, Hyde Observatory and the UNL Physics and Astronomy Department's Student Observatory. Presentations Friday and Saturday by speakers will take place in the Morrill Hall Auditorium. Mueller Planetarium will be featuring special shows and films. Presenters from UNL Physics and Astronomy Department will be doing demonstrations of physics principles in the hallways leading to the planetarium. On Saturday (Astronomy Day), there will be a display of telescopes and computer astronomy in the lobby of Mueller Planetarium.



Clayton Anderson

Astronaut Clayton Anderson, Lockheed Martin engineer Kent Burns, NASA educator Pam Christol, Johnson Space Center Flight Controller and Engineer Rob Landis, students from the UNL Physics Department and members of the Prairie Astronomy Club will be making presentations throughout these two days celebrating flying, space exploration and the study of the stars. Astronaut Anderson is the first Nebraskan ever graduated into the corps of US Astronauts. His hometown is Ashland, NE.

AEROSPACE DAY PRELIMINARY SCHEDULE

(subject to change)

Friday May 12, 2000

- | | |
|-----------------------|--|
| 10 a.m. - Noon | UNL Morrill Hall: Mueller Planetarium
NASA Resource Center and Prairie Astronomy Club programs |
| 1p.m. - 4 p.m. | UNL Morrill Hall: Astronaut Clayton Anderson, Kent Burns, Rob Landis |
| 7 - 8:30 p.m. | UNL Student Union: Program by Clayton Anderson and Kent Burns |
| 9 - 11 p.m. | UNL Student Observatory open to public |

Saturday May 13, 2000

- | | |
|--------------------------|--|
| 10 a.m. - 4 p.m. | UNL Morrill Hall: Pam Christol, Kent Burns,
Rob Landis, Prairie Astronomy Club, UNL Physics and
Mueller Planetarium programs throughout the day |
| Sundown - 11 p.m. | Hyde Observatory open to public |

Presentations Friday and Saturday by speakers will take place in the Morrill Hall Auditorium. Mueller Planetarium will be featuring special shows and films TBA. Presenters from UNL Physics and Astronomy Department will be doing demonstrations of physics principles in the hallways leading to the planetarium. On Saturday (Astronomy Day), there will be a display of telescopes and computer astronomy in the lobby of Mueller Planetarium.

Getting to Know Your PAC Officers: Liz Bergstrom, Our Club Treasurer

You would say that I have always enjoyed looking up at the heavens whether it be day or night. My dad encourage my brother & I to discover things in the night sky which we could look at and marvel on the consistency of their being there to see however, in a slightly and subtly different place when we next looked up. To this day I still enjoy looking up, even in the day when there are exciting things like Great Big Blue days with lots of sunshine or days which develop huge towering anvil head thunderstorm clouds which will eventually drench the land with rain.



On one of my numerous trips to Montana (land of incredibly black velvet skies) I was coming back from Glacier National Park to Yellowstone. I was traveling down the

Madison Valley after sunset and twilight had just descended when to the west rising over the benches of the valley I spotted a faint sliver of a new moon and as it became a bit darker I then saw several very bright stars in a line below the moon stretching to the horizon. I stopped by the side of the road, whipped out my old 70x50 cheapie binoculars to marvel at the sight of the three bright stars lined up with the very brightest one near the horizon the next brightest higher in the sky and the third brightest even higher in the sky almost touching the moon sliver. Right then and there I determined to find out more about the phenomenon and to study to become more familiar and comfortable with the night sky. Shortly thereafter I joined the club, bought my first pair of 10x50 Nikon binoculars, books, books and more books on astronomy and also, bought both the Astronomy and Sky & Tel magazines.

Since that initial time I have viewed in the spring of 1996 my first real comet, Hyakutake (I call it the turquoise comet due to its color) then I saw the first week in October 1996 in the dawn sky comet Tabur Q1 and in the spring of 1997 the grand finale of comets the very famous comet Hale-Bopp. What an exciting time to really have discovered the art of astronomy. By the time Hale-Bopp rolled around I had updated my binocular inventory to include a really nice pair of 20x80 center focus binoculars which I had received as a Christmas present. What a great time to be looking up and involved in astronomy. A short time later I invested in an original model of the Meade ETX Small 90mm telescope with some accessories. (Still need to master this telescope).

Other things I do:

Go to Merritt Reservoir for a short time each summer to enjoy the Nebraska Star parties and the impossibly incredible black skies

Spending time at the Northeast Y keeping fit So that I can enjoy looking up.

Mowing my lawn, gardening, working and planning the annual vacation.

I really enjoy my honorary position as the treasurer of our club and I want to thank everyone for coming to the monthly meetings, paying their membership dues. Volunteering at Hyde Observatory and spreading the word that astronomy is fun and exciting as well as being educational.

Cassini Survives the Asteroid Belt

NASA's Cassini spacecraft has successfully made it through the asteroid belt on its way to a rendezvous with Saturn in 2004.

April 17, 2000 -- NASA's Cassini spacecraft, currently en route to Saturn, has successfully completed its passage through our solar system's asteroid belt between Mars and Jupiter.

This makes Cassini the seventh spacecraft ever to fly through the asteroid belt. Before NASA's Pioneer 10 spacecraft successfully passed through the region in 1972, it was not known whether a spacecraft could survive the trip.

The belt contains a significant concentration of asteroids. Nonetheless, the area is not considered a hazard to spacecraft. Engineers did not make any adjustments to Cassini as it passed through the region, except the spacecraft's cosmic dust analyzer was reoriented whenever possible to better study the environment. A cover over Cassini's main engines has been in place at all times since launch except when main engine firings were performed. The cover protects the engines from any possible impacts.

"I'm glad we've passed through it, but it's pretty routine. There's a lot of material in the belt, but there's also an awful lot of space out there," said Cassini Project Manager Bob Mitchell at NASA's Jet Propulsion Laboratory, Pasadena, Calif.

The spacecraft entered the belt in mid-December and while it was in the area, Cassini's camera imaged the asteroid 2685 Masursky. Data gathered provided scientists with the first size estimates on the asteroid and preliminary evidence that it may have different

material properties than previously believed.

Cassini remains in excellent health as it continues its seven-year-long journey to Saturn. Launched October 15, 1997, Cassini has already flown by Venus and Earth before heading toward a flyby of Jupiter on December 30, 2000. The giant planet's gravity will bend Cassini's flight path to put it on course for arrival into orbit around Saturn on July 1, 2004.

Cassini's mission is to study Saturn, its moons, its rings, and its magnetic and radiation environment for four years. Cassini will also deliver the European Space Agency's Huygens probe to parachute to the surface of Saturn's moon Titan on November 30, 2004. Titan is of special interest partly because of its many Earth-like characteristics, including a mostly nitrogen atmosphere and the presence of organic molecules in the atmosphere and on its surface. Lakes or seas of ethane and methane may exist on its surface.

The mission is a joint endeavor of NASA, the European Space Agency and the Italian Space Agency. The Cassini orbiter, built by NASA, and the Huygens probe, provided by the European Space Agency (ESA), were mated together and launched as a single package from Cape Canaveral, Fla. Cassini's dish-shaped high-gain antenna was provided for the mission by the Italian Space Agency.

The mission is managed by JPL, a division of the California Institute of Technology. More information about the Cassini mission is available at <http://www.jpl.nasa.gov/cassini>.

EXTRASOLAR PLANETS

Planet Hunters Discover Worlds with the Mass of Saturn

Astronomers searching for planets outside the solar system have just crossed a critical threshold. They have found the first planets around sunlike stars that could be less massive than Saturn.

The planet-hunting team led by Geoff Marcy of the University of California at Berkeley and Paul Butler of the Carnegie Institution of Washington discovered both planets with the 10-meter Keck I Telescope in Hawaii. The planets orbit the solar-type stars 79 Ceti (also known as HD 16141) and HD 46375. Each star lies approximately 110 light-years from Earth.

The 79 Ceti planet has a minimum mass 72 percent the mass of Saturn (Saturn, in turn, is 30 percent as massive as Jupiter). The planet orbits the star every 75 days in a highly elliptical orbit at an average distance of 0.35 astronomical unit (AU) -- about the same distance that Mercury orbits the sun.

The planet orbiting HD 46375 could be termed a "hot Saturn." It tips the scales with a minimum mass 83 percent that of Saturn. Like seven other planets found to date, it orbits extremely close to its host star, at a distance of 0.04 AU. It races around the star in a circular orbit every 3.02 days.

"It's very exciting to cross the Saturn threshold for the first time," says Marcy, whose team has discovered or co-discovered 25 extrasolar planets. "These discoveries continue the trend of increasing numbers of planets having smaller and

smaller masses. This points in the direction of Earth-size planets."

Besides these two sub-Saturn-mass planets, astronomers have recently announced five new extrasolar planets, raising the tally to 40. Marcy and Butler's team found three of the new planets. The others were discovered by teams led by Michel Mayor of the Geneva Observatory and Tim Brown of the National Center for Atmospheric Research. The five planets have minimum masses ranging between 1.1 and 7.4 Jupiters.

Marcy admits that the excitement. "It's a new planet has been found orbiting the sunlike star 79 Ceti, one of two recently discovered planets with masses that could be less than Saturn's. Marcy and Butler discovered the planet with Greg Bacon (STScI) and NASA.

second massive planet known to have a Jupiter-mass planet orbiting at 0.12 AU. "I'd bet my house on it," states Marcy, who says his team is waiting for the planet to complete its full 12- to 15-year orbit before officially announcing its existence.

Astronomers don't know exactly how massive these planets are because the technique they use to discover extrasolar planets is indirect and only enables a measurement of a planet's minimum mass. But it's unlikely the 79 Ceti or HD 46375 planet has significantly more mass than Saturn. Although the technique can't detect Earth-mass planets, Marcy says his team could soon find planets with masses as low as Uranus and Neptune (which are only about 5 percent as massive as Jupiter).





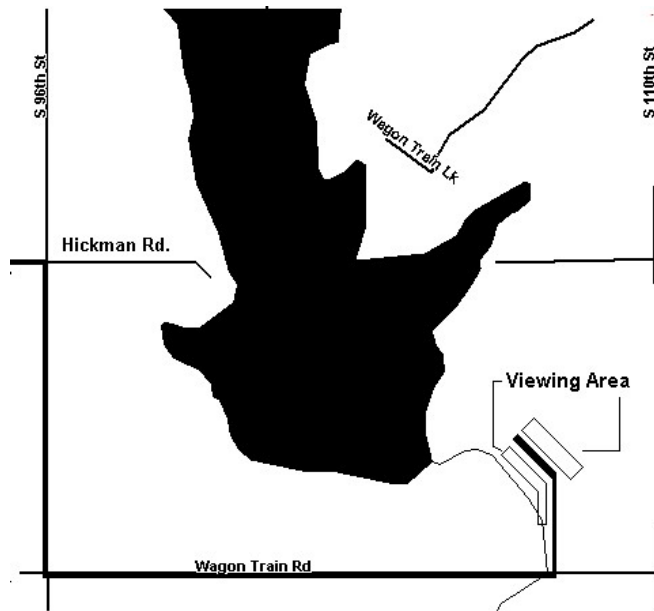
THE PRAIRIE ASTRONOMY CLUB CALENDAR

For May 2000

	<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
	1		2	3	4 NEW MOON 	5 Club Star Party	6 Hyde Observatory open to the public Sunset-11 PM
7	8	9	10 1 ST QUARTER 	11	12 Mahoney Star Party Aerospace Day	13 Astronomy Day Hyde Observatory open to the public Sunset-11 PM	
14 Volunteer Practice Night; 7 p.m. to 10 p.m. @ Hyde <i>PAC Youth Group</i> 7-8:30 p.m. @ Hyde	15	16	17	18 FULL MOON 	19	20 Hyde Observatory open to the public Sunset-11 PM	
21	22	23	24	25	26 3 RD QUARTER 	27 Hyde Observatory open to the public Sunset-11 PM	
28	29	30 PAC Meeting 7:30 PM Hyde Observatory	31	Hyde Volunteer Schedule: 05/06/2000 01 <u>Dave Churilla</u> , Joey Churilla, <u>Travis Miller</u> , Mel Thorton, Rosemary Thorton 05/13/2000 02 Harve Deogun, <u>Mark Fairchild</u> , Michael Fairchild, <u>Don Gasparetti</u> , Ben Rush 05/20/2000 03 Elaine Klaege, <u>Lee Taylor</u> , Jim Woodson, Laura Woodson 05/27/2000 04 <u>Dave Churilla</u> , <u>Don Gasparetti</u> , <u>Travis Miller</u> , <u>Lee Taylor</u>			

**Directions to Wagon Train Lake
Observing Site**

From Hickman, NE, turn East on Hickman Road. Go until you reach 96th Street, then turn RIGHT. Drive until you reach Wagon Train Road, then turn LEFT. Area 6 is about 3/4 of a mile East. Turn LEFT into Area 6.



**OFFICERS
OF THE PRAIRIE ASTRONOMY CLUB**

- PRESIDENT:** Dave Knisely
(402) 223-3968
KA0CZC@navix.net
- VICE PRESIDENT:** Larry Hancock
(402) 421-2827
hancock@unlnotes.unl.edu
- 2nd VICE PRESIDENT
(PROGRAM CHAIR):** Mark Fairchild
(402) 488-8681
mark@blackstarpress.com
- SECRETARY:** Willa Penney
(402) 476-3962
- TREASURER:** Liz Bergstrom
(402) 464-2038
- Club Observing Chair:* Bill Wells
topher@inetnebr.com
- Astronomy Day Chair:* Lee Taylor
Ottaylor88@hotmail.com

Please send all submissions for The Prairie Astronomer to:
Jeff King
4018 S. 83rd Street, Lincoln, NE 68506-5973
(402) 483-0599
jeffrey892@aol.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
April 25, 2000
7:30 PM
Hyde Observatory