



The Prairie Astronomer

The Official Newsletter Of The Prairie Astronomy Club, Inc.

MAY 2000

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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, MAY 30, 2000, 7:30 PM
at Hyde Memorial Observatory

CLUB STAR PARTY
FRIDAY, JUNE 2, 2000
Wagon Train Lake
(see map on back page)

NSP 7 PLANNING MEETING
THURSDAY, JUNE 8, 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, JUNE 9, 2000, BEGINNING AT SUNSET
Mahoney State Park

PAC YOUTH GROUP/HYDE VOLUNTEER MEETING
SUNDAY, JUNE 11, 2000, BEGINNING @ 7:00 P.M.
At Hyde Memorial Observatory

PAC MEETING
TUESDAY, JUNE 27, 2000, 7:30 PM
at Hyde Memorial Observatory

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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: Jeff King, 4018 South 83rd Street, Lincoln, NE 68506-5973 or jeffrey892@aol.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

By: Willa Penney

Prairie Astronomy Club
April 25, 2000

President Dave Knisely called the meeting to order. We had one guest. Dave reported that there have been a lot of sun spots lately; however, the expected auroras have not materialized.

The next Nebraska Star Party planning meeting is scheduled for Thursday, May 11, at the Mahoney State Park Lodge. Brochures for NSP are posted on the PAC website.

The next club star parties are scheduled for April 28 and May 5 at Wagon Train, near the dam. Dave suggested that, anytime you are planning to go out to observe, you e-mail the PAC list so that others may join you.

The next Hyde volunteer meeting will be Sunday, May 14.

The Mid-States Region Astronomical League Convention will be held at Avila College in Kansas City, Kansas, June 9-11. Dave is planning to attend.

Please send any newsletter articles to Jeff King.

Mark Dahmke reported that he is putting NSP information on the website. There will be an article in the June issue of Nebraskaland magazine about the Star Party, and also an article planned in AAA Home and Away magazine. Mark also reported that the website had about double the normal hits after the Astronomy magazine article.

Dave announced two requests for help with youth activities: The first is June 5-6 at Camp Calvin Crest near Fremont. Also, August 18-20, there will be a Scout campout here at Holmes Park; Hyde will not be open to the public that Saturday night. Club members are encouraged to bring their scopes out that night for the scouts to see. Please contact Dave if you would be interested in volunteering with either event.

Lee Taylor passed around a sign-up sheet for Astronomy Day; he needs scopes, pictures and other astronomical items for display as well as people to help that day. Please label your equipment (i.e., where you got it, price paid...)

Jack Dunn reported on all the activities planned for May 12-13. Activities will be at the SAC Museum as well as at Morrill Hall on the UNL campus. Jack plans to show films both days, as well as exhibits. Martin Gaskell will demonstrate telescope-making. Martin also said that the UNL observatory will be open on Friday evening after the speakers. Invitations to the private reception on Friday evening have gone out to all PAC members. Complete information is posted on the Planetarium website.

Larry Hancock passed around a sign-up sheet for t-shirts, polo shirts and caps. He will be taking orders for the next couple of months.

Dave invited everyone to Village Inn at 66th & "O" after the meeting. Meeting was adjourned to our program.

Observing at Wagon Train Lake

You can't beat it for accessibility. Only 10 minutes from S. Lincoln. All paved roads until you turn into the park. A perfect dark site it isn't, but if you ignore the one or two mercury yard lights in the distance and the glow from Lincoln and Omaha, you'll be fine. The view of the milky way immediately takes your mind off the pollution to the north.

Bill Wells and myself have been using Wagon Train Lake for the last year or so as our primary viewing area. Along with other frequent viewers Dave and Joey Churilla, Lee Taylor, _____, and infrequent viewers Liz Bergstrom and Don Gasparetti, the lake offers a quick drive and minimal intrusions from other lake goers as there is no overnight camping allowed in area 6. But beware of the occasional nocturnal animal that roam through the brush. Bill can tell you some good stories regarding strange noises coming from the wildlife.

Dim fuzzies are the usual target for the evening. Out come the Skymap charts showing the objects to look for with telrad circles and eyepiece guides printed on the map to direct us. Most of the time we find what we're looking for, sometimes we don't. When we're stuck, we usually take a hop over to something familiar, like M51, M3, M13, etc., then head back to the area in question for some more eye straining tries at the illusive object. If we didn't find it this time, it'll be on the list for the next time out. But it's still fun and the company is great.

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.

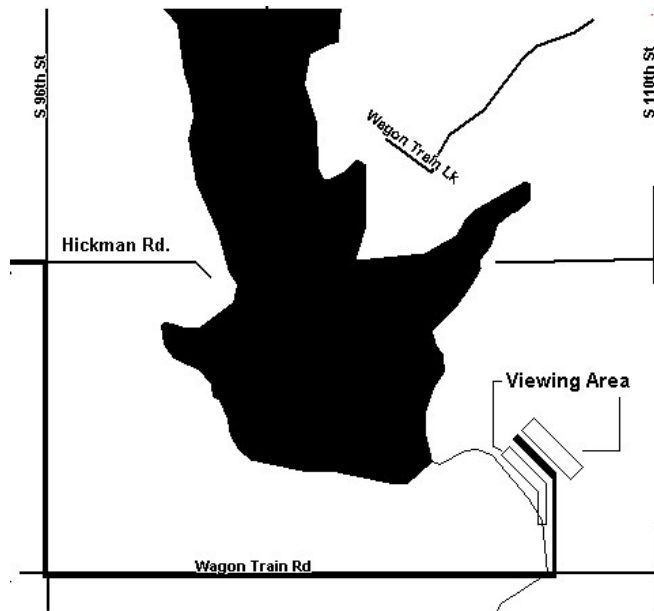
Although the technique can't detect Earth-mass planets, Marcy says his team could soon find planets with masses as low as Uranus and Neptune (which are only about 5 percent as massive as Jupiter).

THE PRAIRIE ASTRONOMY CLUB CALENDAR
For June 2000

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
				1	2 Club Star Party NEW MOON 	3 Hyde Observatory open to the public Sunset-11 PM
4	5	6	7 1 ST QUARTER 	8	9 Mahoney Star Party Aerospace Day	10 Astronomy Day Hyde Observatory open to the public Sunset-11 PM
11 Volunteer Practice Night; 7 p.m. to 10 p.m. @ Hyde <i>PAC Youth Group</i> 7-8:30 p.m. @ Hyde	12	13	14	15	16 FULL MOON 	17 Hyde Observatory open to the public Sunset-11 PM
18	19	20	21	22	23 3 RD QUARTER 	24 Hyde Observatory open to the public Sunset-11 PM
25	26	27 PAC Meeting 7:30 PM Hyde Observatory	28	29	30	

**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
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First Class Mail

Next PAC Meeting
May 30, 2000
7:30 PM
Hyde Observatory