



The Prairie Astronomer

December, 2010

Volume 51, Issue #12

The Official Newsletter of the Prairie Astronomy Club

December Program

PAC Holiday Family Get-Together

As we wind down yet another year and enjoy the Holiday season we'd like to invite Prairie Astronomy Club Members and their immediate families to join us for a special PAC Family Get-Together at Ralph Mueller Planetarium on the UNL Campus. Jack Dunn has invited us to join him the night of our usual PAC Meeting for an evening of snacks, social family interaction, and entertaining fulldome shows. See page 6 for more information.

In This Issue:

- Upcoming Events,
- What to View in January
- Program Chair Minute
- January Challenge Objects
- Voyager 1 exits the Solar System?
- Photos from the Nov. Meeting

From 220 miles above Earth, the Expedition 25 crew aboard the International Space Station shot this night time image of the northern Gulf coast. Mobile Bay and the city of Mobile, New Orleans and Houston are visible as the view moves southeastward. The Interstate Highway 20 cities of Jackson, Shreveport, Dallas and Fort Worth are also visible further inland. The view extends northward (left) to Little Rock and Oklahoma City.

Featured Photo



Photo credit: NASA

Club Business - - Brett Boller

November 28th, 2010 PAC Meeting

Announcements:

Dan Delzell called the meeting to order.
We had a very short meeting due to the popular “How To Buy A Telescope Presentation”

Previous Star Parties

Oct 29th- ?

Nov 5th-5people

Nov 12th – nobody due to snow

The next PAC star parties will be on Dec 3rd and Dec 10th.

The next PAC meeting will be Tuesday December 28th, 7:30 PM at Mueller Planetarium.

Programs we are working on for upcoming PAC meetings.

December meeting will be family night at the planetarium

January meeting will be how to use your telescope

Observing Chair Report

Club Observing Chair, Jim Kvasnicka provided a review of the planets that are viewable during December which are Mercury and Mars. Jupiter, Uranus, Neptune will be appearing at night. Venus and Saturn will be visible in the morning. Saturn’s rings will be at 10 degrees by the end of the month. Saturn will shine at -4.9 magnitude.

ECLIPSE ALERT

Monday night Dec 20-21 at 12:30 am

Geminids Meteor shower will be on Dec 14th

Observing Awards

Bob Kacvinsky was awarded his 5th observing award for completing his lunar club



M22

Photo Credit: Rick Johnson

Club Events

ON THE NET

Newsletter submission deadline, January 15, 2011

PAC Club Meeting

Tuesday, December 28, 2010 6:30pm @ Mueller Planetarium

Program: Family pot-luck and Planetarium show at Mueller Planetarium on the UNL campus

PAC Club Meeting:

Tuesday, January 25, 2011 7:30pm @ Hyde Obsv.

Program: How to use your telescope

PAC Club Meeting:

Tuesday, February 22, 2011 7:30pm @ Hyde Obsv.

Program: Speaker John Reinert, club member and engineer who was part of the Shuttle engine design team. PAC member John W. Reinert will provide an overview of his experiences working with Space Shuttle Main Engines in Southern California in the late 80's and early 90's.

PAC:

www.prairieastronomyclub.org

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NSP E-Mail:

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OAS

www.OmahaAstro.com

Hyde Observatory

www.hydeobservatory.info

Panhandle Astronomy Club

Panhandleastronomyclub.com

PAC-LIST: You may subscribe to the PAC listserv by sending an e-mail message to: mailsrv@prairieastronomyclub.org. In the body of the message, write "Subscribe PAC-List your-email-address@your-domain.com"

For example:

Subscribe pac-list me@myISP.com

To post messages to the list, send to the address

pac-list@prairieastronomyclub.org

PAC can also be found on Twitter and Facebook.

Buy club apparel through the club website. Shirts, hats, mugs, mouse pads and more.



2011 PAC Star Party Dates

January	Dec 31st	Jan 7th
January	Jan 28th	Feb 4th
February	Feb 25th	Mar 4th
March	Mar 25th	Apr 1st
April	Apr 22nd	Apr 29th May 6th
May	May 27th	Jun 3rd
June	Jun 24th	Jul 1st
July	Jul 22nd	Jul 29th
August	Aug 26th	Sep 2nd
September	Sep 23rd	Sep 30th
October	Oct 21st	Oct 28th
November	Nov 18th	Nov 25th
December	Dec 16th	Dec 23rd

Lunar Party Dates:

Mar 11th
Apr 8th
May 13th
Jun 10th
Jul 8th
Aug 5th
Oct 7th
Nov 4th

Dates in **BOLD** are closest to the New Moon. Lunar Party dates are possible dates and not official.

Volunteer Activities

Hyde Observatory on Saturday nights

PAC Beginners Field Class: To be determined – likely in the spring of 2011.

New Club Member's Instructional Class: To be determined.

Please see the Outreach Report for more information and as always additional volunteer events will occur when they are scheduled.

January Observing: What to View--Jim Kvasnicka

This is a partial list of objects visible for the upcoming month. M43, M45, M78, M79

Planets

Venus: Rises $3\frac{3}{4}$ hours before the Sun at a brilliant magnitude of -4.6.

Saturn: Rises around 12:30 am to start the month and by 10:30 pm at the end.

Mars: Sets too soon after the Sun to be seen.

Neptune: Visible at dusk to start the month, below the horizon the second half.

Jupiter: Magnitude -2.3, it will be setting by 9:30 pm at the end of the month.

Uranus: On January 2-5 look for Uranus just $\frac{1}{2}^\circ$ north of Jupiter.

Mercury: Look for it to the lower left of Venus at magnitude 0.

Meteor Showers

Quadrantids: Peaks at 7 pm on January 3rd. This is a brief shower that will last 2-4 hours. Expect 60-120 per hour during the peak. The moon in new and won't interfere.

January Messier List

M33: The Pinwheel Galaxy in Triangulum, low surface brightness.

M34: Open cluster in Perseus.

M52: Open cluster in Cassiopeia.

M74: Galaxy in Pisces.

M76: The Little Dumbbell, planetary nebula in Perseus.

M77: Galaxy in Cetus.

M103: Open cluster in Cassiopeia.

Last Month: M2, M15, M29, M31, M32, M39, M110

Next Month: M1, M35, M36, M37, M38, M42,

NGC and Other Deep Sky Objects

Cr 69: Open cluster in Orion.

NGC 1980: Emission nebula south of M42 in Orion.

NGC 2169: The 37 cluster in Orion.

NGC 1746: Open cluster in Taurus.

Double Star Club List

Beta Orionis: Rigel, bright white and dim blue stars.

Delta Orionis: Mintaka, white and pale blue stars.

Struve 747: Pair of white stars.

Lambda Orionis: Pair of white stars.

Theta 1 Orionis: The Trapezium in M42.

Iota Orionis: Bright white and blue pair.

Theta Orionis: Three white stars.

Sigma Orionis: White primary with three pale blue stars.

Zeta Orionis: Alnitak, bright white and dim white stars.

Focus On Constellations - Jim Kvasnicka

Taurus

Taurus the Bull covers 797 square degrees of the sky. The Bull's horns extend NE to the stars Beta and Zeta Tauri and its face is the "V" formed by the Hyades Star Cluster. The 1st magnitude star Aldebaran one of the Bull's eyes. The constellation is rich in open clusters and diffuse nebulae. It contains the two finest unaided-eye open clusters in the Hyades and Pleiades, M45. It also contains the supernova remnant M1, the famous Crab Nebula. Taurus is best seen in the month of January.

Mythology and History

In Greek mythology Taurus is associated with the Bull who abducted Europa, the beautiful daughter of Arenor, King of Sidon. Europa was attracted to a white bull in her father's herd. She adorned the bull with flowers and climbed on the gentle bull's back for a ride. However, the bull was actually Jupiter in disguise who had planned from the start to abduct her. The bull ran off with Europa on his back and went into the sea and swam all the way to Crete.

Objects Magnitude 12.0 and Brighter

Galaxies: NGC1589, NGC1550

Open Clusters: M45, NGC1746, NGC1647, NGC1807, NGC1817

Globular Clusters:

Planetary Nebulae: NGC1514

Bright Nebulae: vdB20, vdB23 (Both in the Pleiades)

SNREM: M1

Dark Nebulae: Be84, LDN1543, B7

Named Stars: Aldebaran (Alpha), Alnath (Beta), Hyadum 1 (Gamma), Hyadum 2 (Delta), Ain (Epsilon), Alcyone (Eta)

Stars in the Pleiades: Celaeno (16), Electra (17), Taygeta (19), Maia (20), Asterope (21), Sterope II (22), Merope (23), Atlas (27), Pleione (28)

Number of Objects in Various Observing Clubs

Messier Club: 2 objects

Double Star Club: 2 objects

Herschel 400 Club: 2 objects

Globular Cluster Club: 0 objects

Open Cluster Club: 4 objects

Planetary Nebula Club: 1 object

Urban Club: 5 objects

ANNUAL MEMBERSHIP

REGULAR MEMBER - \$30.00 per year. Includes club newsletter, and 1 vote at club meetings, plus all other standard club privileges.

FAMILY MEMBER - \$35.00 per year. Same as regular member except gets 2 votes at club meetings.

If you renew your membership prior to your annual renewal date, you will receive a 10% discount.

Club members are also eligible for special subscription discounts on Sky & Telescope Magazine.

Club Telescopes

To check out one of the club telescope contact **Jason Noelle**. If you keep a scope for more than a week, please check in with Jason once a week, to verify the location of the telescope and how long you plan to use it. The checkout time limit will be two weeks, but can be extended if no one else has requested use of a club scope.



Program Chair Minute - Dave Churilla

What: PAC Holiday Family Get-Together

For Who: PAC Members and their immediate families

When: December 28, 2010

Time: 6:30 – 7:30 PM Social Hour / Planetarium Shows 7:30 PM – 9 PM

Where: Ralph Mueller Planetarium in Morrill Hall, UNL Campus, 1 block south of 14th & Vine (the building with the big mammoth in front)

To Enter: Please come to the WEST DOOR of Morrill Hall and we'll let you in. The museum will be closed so you cannot come in the front door. Also we need to stay at the planetarium and should not roam the museum.

PLEASE NOTE THE CHANGE IN START TIME – 6:30 PM

The Program:

6:30 – 7:30 PM Social Hour:

We'll have tables and chairs set up and a few snacks and punch to drink.

7:30 – 9:00 PM Planetarium Programs:

Jack will present some entertaining clips culminating in the feature presentation “Attack of the Space Pirates” – the world's first action/adventure in fulldome.

This evening is intended for PAC Members only (not open to the public) and you are encouraged to bring your families with you. In fact we think it will be fun to enjoy meeting everyone and just getting a chance to talk and socialize prior to the shows. We'll provide some snacks (popcorn, cookies and few other goodies) and punch but you are certainly welcome to bring your favorite snack to share.

Around 7:30 PM Jack will begin the Planetarium shows and you can enjoy those or just sit and talk with each other. This is a very casual atmosphere (definitely a Jeans sort of night – besides my tux will be in the laundry) and we want everyone to enjoy themselves. There will be NO business meeting.

Jack will be showing a short production from the Astronomical Society of Kansas City showcasing what they are doing with current sky material in the Gottlieb Planetarium (he promises you'll be impressed), then some trailers and fun clips before the feature presentation – “Attack of the Space Pirates” – the world's first action/adventure in fulldome. See the trailer at <http://www.spacerlaser.com/spacepirates.html>

UNL will be closed for the holiday break so there shouldn't be any issues with parking – just don't park on the sidewalk as that's my spot!

If you have questions you can contact Dave Churilla (Program Chair) at weber2@inebraska.com or call 467-1514.

Cryptoquip

FGIMO Z MOWDZGI YVZWT CEZIOD FCGIF ZWNJIY,
MNJEY NIO WOTOW DN GD ZF DSO VSGWEOY
MOWOF?

Hint: N=O

Look for the answer in next months issue!

Challenge Observing Objects for January

Each month I will have two objects, one for the more seasoned observer and one for the beginning observer. Each object I hope will challenge you just a little bit. I will provide you with a little bit of information about the object. It is your job to find it and if you would write a little report or draw what you see. The first person to report back on each object will have their report published in the next issue of the newsletter. Happy Hunting!

Advanced Object

B33: The Horsehead Nebula

The nebula is located just to the south of the star Alnitak, which is furthest east on Orion's Belt, and is part of the much larger Orion Molecular Cloud Complex. The Horsehead Nebula is approximately 1500 light years from Earth. It is one of the most identifiable nebulae because of the shape of its swirling cloud of dark dust and gases, which is similar to that of a horse's head when viewed from Earth.

Apparent Dimensions: 8x6 arc minutes



Beginner Object

NGC 7023: The Iris Nebula

A bright reflection nebula and Caldwell object in the constellation Cepheus. NGC 7023 is actually the cluster within the nebula, LBN 487, and the nebula is lit by a magnitude +7 star, SAO 19158. It is located near the Mira-type variable star T Cephei, and near the bright magnitude +3.23 variable star Beta Cephei (Alphirk). It lies 1,300 light-years away and is six light-years across.

Apparent Dimensions: 18' x 18' arc minutes

Apparent Magnitude: 6.8



Voyager 1 Has Outdistanced the Solar Wind: Nancy Atkinson of Universe Today

The venerable Voyager spacecraft are truly going where no one has gone before. Voyager 1 has now reached a distant point at the edge of our solar system where it is no longer detecting the solar wind. At a distance of about 17.3 billion km (10.8 billion miles) from the Sun, Voyager 1 has crossed into an area where the velocity of the hot ionized gas, or plasma, emanating directly outward from the sun has slowed to zero. Scientists suspect the solar wind has been turned sideways by the pressure from the interstellar wind in the region between stars.

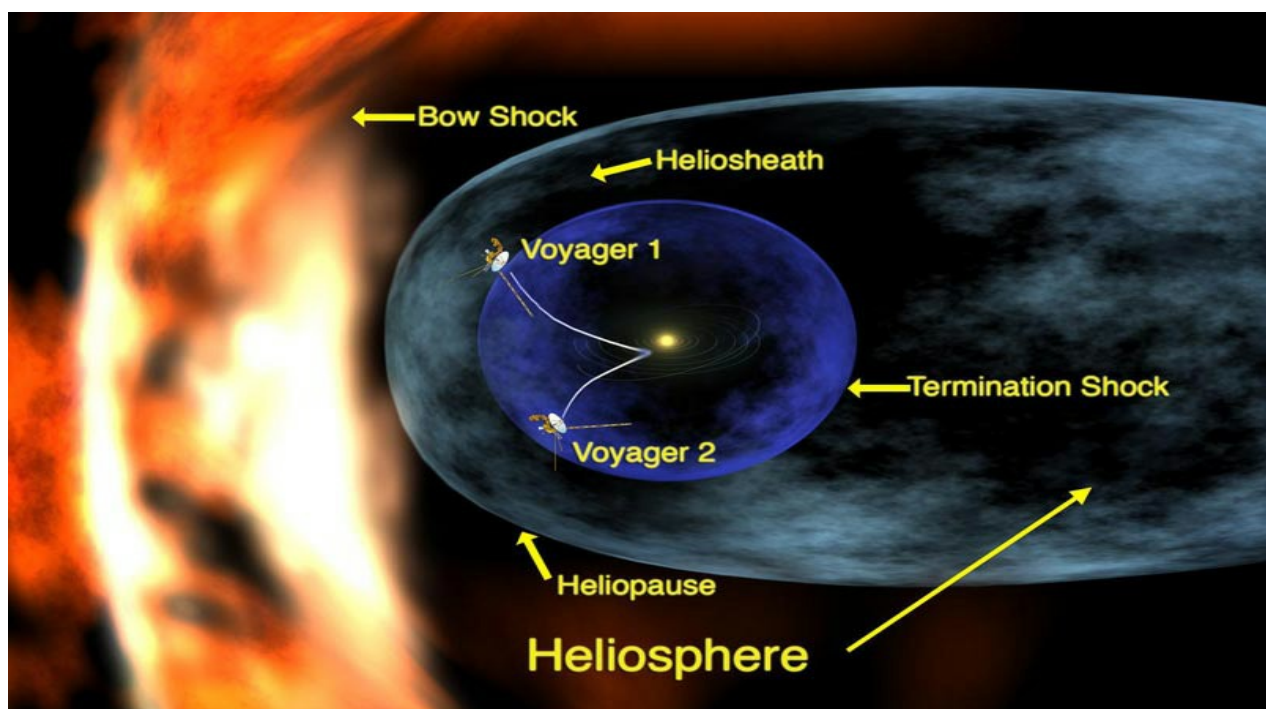
“The solar wind has turned the corner,” said Ed Stone, Voyager project scientist based at the California Institute of Technology in Pasadena, Calif. “Voyager 1 is getting close to interstellar space.”

The event is a major milestone in Voyager 1's passage through the heliosheath, the turbulent outer shell of the sun's sphere of influence, and the spacecraft's upcoming departure from our solar system.

Since its launch on Sept. 5, 1977, Voyager 1's Low-Energy Charged Particle Instrument has been used to measure the solar wind's velocity.

When the speed of the charged particles hitting the outward face of Voyager 1 matched the spacecraft's speed, researchers knew that the net outward speed of the solar wind was zero. This occurred in June, when Voyager 1 was about 10.6 billion miles from the sun.

However, velocities can fluctuate, so the scientists watched four more monthly readings before they were convinced the solar wind's outward speed actually had slowed to zero. Analysis of the data shows the velocity of the solar wind has steadily slowed at a rate of about 45,000 mph each year since August 2007, when the solar wind was speeding outward at about 130,000 mph. The outward speed has remained at zero since June.



“When I realized that we were getting solid zeroes, I was amazed,” said Rob Decker, a Voyager Low-Energy Charged Particle Instrument co-investigator and senior staff scientist at the Johns Hopkins University Applied Physics Laboratory in Laurel, Md. “Here was Voyager, a spacecraft that has been a workhorse for 33 years, showing us something completely new again.”

Scientists believe Voyager 1 has not crossed the heliosheath into interstellar space. Crossing into interstellar space would mean a sudden drop in the density of hot particles and an increase in the density of cold particles. Scientists are putting the data into their models of the heliosphere’s structure and should be able to better estimate when Voyager 1 will reach interstellar space. Researchers currently estimate Voyager 1 will cross that frontier in about four years.

Our sun gives off a stream of charged particles that form a bubble known as the heliosphere around our solar system. The solar wind travels at supersonic speed until it crosses a shockwave called the termination shock. At this point, the solar wind dramatically slows down and heats up in the heliosheath.

A sister spacecraft, Voyager 2, was launched in Aug. 20, 1977 and has reached a position 8.8 billion miles from the sun. Both spacecraft have been traveling along different trajectories and at different speeds. Voyager 1 is traveling faster, at a speed of about 38,000 mph, compared to Voyager 2’s velocity of 35,000 mph. In the next few years, scientists expect Voyager 2 to encounter the same kind of phenomenon as Voyager 1. The results were presented at the American Geophysical Union meeting in San Francisco.

Year End Treasurer Report

On December 11, 2010 Bob Leavitt, Jim Kvasnicka, and Dan Kincheloe completed the annual audit of the PAC Year End books. The club has the following present value in the club's accounts.

Bank of the West Checking:	\$2,595.66
Bank of the West Savings:	\$7,380.34
Bank of the West CD 161	\$4,216.41
Bank of the West CD 414	\$5,788.62
Cornhusker Bank CD 084	\$19,066.72
Total Present Value PAC:	\$39,047.75

Please contact Bob Kacvinsky, Treasurer if you have any questions.

Photo Recap from “How to Buy a Telescope”



The Dobsonian,
the equatorial
reflector, and
the refractor

Good Crowd!



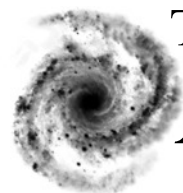


President Dan Delzell welcoming the group

Observing Chair Jim Kvasnicka giving his monthly observing report



Program Chair Dave Churilla explaining the benefits of joining the club



THE *Prairie* *Astronomy* *Club*

Amateur Astronomy --
A Hobby as Big as the Universe

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FIRST CLASS MAIL

Next PAC Meeting
TUESDAY
December 28, 2010
6:30 PM
Mueller Planetarium