The Prairie Astronomer

May, 2011 Volume 52, Issue #5

The Official Newsletter of the Prairie Astronomy Club

May Program

"Safely Viewing the Sun"

By Dave Churilla & Jim Kvasnicka

This month's meeting will feature club members Dave and Jim and how to safely view the sun. The program will not be technical but will focus on what you can see when viewing the sun and the equipment you need. Dave will be setting up his Denkmeier Modified Coronado PST, which is an H-Alpha dedicated telescope, and his NexStar with a Day Star T-Scanner, also an H-Alpha filter, to view surface details of the sun. Jim will be setting up his telescope with a White Light filter as contrast. If the weather is clear **the program will be first** (at 7:30 PM) as we will be setting up scopes for viewing the sun.

In This Issue:

Featured Photo

These two eye-catching galaxies lie far beyond the Milky Way, at a distance of over 300 million light-years. Their distorted appearance is due to gravitational tides as the pair engage in close encounters. Cataloged as Arp 273 (also as UGC 1810), the galaxies do look peculiar, but interacting galaxies are now understood to be common in the universe. From our perspective, the bright cores of the Arp 273 galaxies are separated by only a little over 100,000 light-years.

Credit: NASA, ESA, and the Hubble Heritage Team (STScI / AURA)

Meeting Minutes - Brett Boller

April 26th PAC Meeting

Dan Delzell Brought the meeting to order
Next meeting May 31st

Viewing the Sun will be the program that night.

June Meeting will be PAC Family Social . $5.00 a meal.

Star Parties

March 26th Cloudy
April 1st 6 people and 1 dog
April 8th Cloudy
April 22nd 7 people

Upcoming Star Parties

April 29th
May 6th
May 13th

Evening Planets

Saturn – The rings with be 7-8 degrees

Morning Planets

Venus, Neptune, Uranus, Jupiter, Mercury and Mars

May 12th all morning planets will be in FOV of binoculars.

Virgo was the topic constellation.

Upcoming events

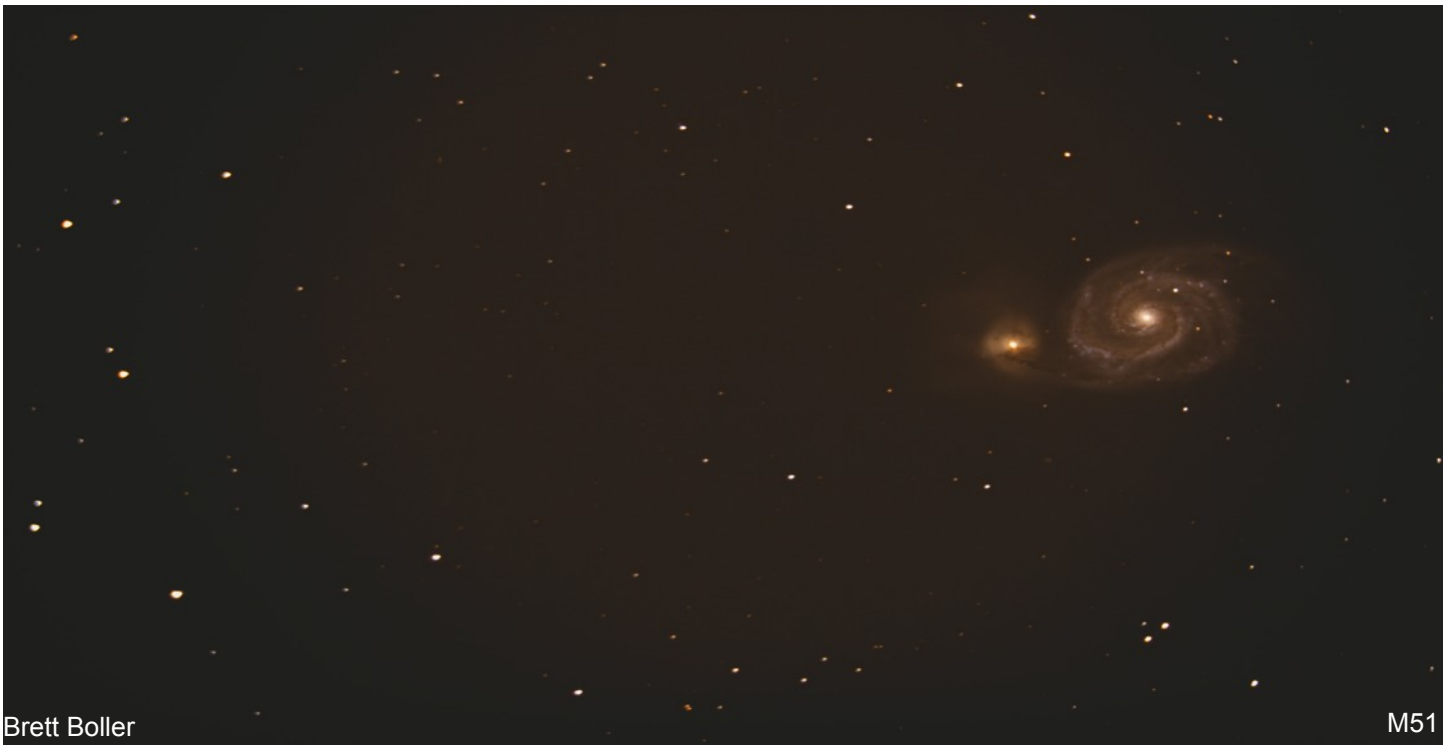
Astronomy Day on May 7th.

Club Recognition

Bob Kacvinsky was quoted in Popular Mechanics

Bob has also won Hyde Volunteer of the Year.

Dave Knisley presented an excellent presentation on filters and which one work the best on the type of object that one's looking at.



Club Events

Newsletter submission deadline, June 15, 2011

PAC Club Meeting:
Tuesday May 31, 2011 7:30pm @ Hyde Observatory.
Program: Safely Viewing the Sun by Dave Churilla

PAC Club Meeting:
Tuesday June 28, 2011 7:30pm @ Hyde Observatory
BBQ & Swap Meet

PAC Club Meeting:
Tuesday July 26, 2011 7:30pm @ Hyde Observatory
Program: Comet Hunting by Cal Beard

PAC Club Meeting:
Tuesday August 30, 2011 7:30pm @ Hyde Observatory
Program: Astrophotography by Brett Boller & John Willman

2011 PAC Star Party Dates

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:

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

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

Please see the website or email a club member for more information and as always additional volunteer events will occur when they are scheduled.

ON THE NET

PAC:
www.prairieastronomyclub.org

PAC E-Mail:
info@prairieastronomyclub.org

NSP:
www.nebraskastarparty.org

NSP E-Mail:
info@nebraskastarparty.org

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: imailsrv@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.

June Observing: What to View--Jim Kvasnicka

This is a partial list of objects visible for the upcoming month.

Planets
Saturn: Shines at magnitude 0.8, the rings are tilted 7.3°from edge on.

Mercury: Look for it in the evening sky around June 22nd.

Uranus/Neptune: In Pisces and Aquarius high in the predawn sky.

Jupiter: Rises two hours before the Sun at magnitude-2.2.

Mars: Magnitude 1.3 far to Jupiter's lower left.

Venus: Bright at magnitude -3.8 to Mar's lower left.

June Messier List (Coma - Virgo Galaxy Cluster)
M58: Oval shaped galaxy.
M59/M60: Both fit in the same FOV, both are oval shaped and dim.
M84/M86: Both fit in the same FOV. Both are roundwith bright cores.
M87: Round fuzzy galaxy with brighter core.
M88: Oval shaped fuzzy patch with brighter core.
M89/M90: Both fit in the same FOV. M89 is round and M90 is oval shaped.
M91: Faint oval shaped patch of light.
M98: Elongated streak of light.
M99: Bright round galaxy.
M100: Round hazy glow of light with a brighter center.

Last Month: M49, M51, M61, M63, M64, M85, M94, M101, M102, M104
Next Month: M3, M4, M5, M53, M68, M80, M83

NGC and Other Deep Sky Objects
NGC 4274: Elongated galaxy in Coma Berenices with a bright core.
NGC 4494: Oval shaped galaxy in Coma Berenices.
NGC 4559: Elongated galaxy in Coma Berenices.
NGC 4565: Large edge on galaxy in Coma Berenices.

Double Star Club List
Sigma Corona Borealis: Equal bright yellow stars.

16/17 Draconis: Equal pair of white stars.

Mu Draconis: Close pair of white stars.

Kappa Herculis: Yellow pair.

Alpha Herculis: Orange primary with greenish secondary.

Delta Herculis: Bright white primary with a blue-purple secondary.

Rho Herculis: Close white stars.

95 Herculis: Yellow and white pair.

Alpha Librae: Wide yellow and white stars.

Focus On Constellations - Jim Kvasnicka

Coma Berenices

Coma Berenices, Berenice's Hair, covers 386 square degrees of sky. Coma is exceptionally rich in galaxies even for an off Milky Way constellation. The reason for so many galaxies is that toward Southwest Coma is the dense Coma-Virgo Galaxy Cluster. Many of the galaxies are excellent to observe even in modest size telescopes. Coma contains eight Messier objects, seven are galaxies.

Mythology and History

Coma Berenices represents the hair of Queen Berenices of Egypt, who cut off her flowing locks and placed them in a shrine as an offering to the gods for the safe return of her husband, Ptolemy II, from battle. When the hair disappeared the royal astronomer saved the priests from execution by claiming the offering was met with such favor that the gods placed the hair in the sky for all to see.

Objects Magnitude 11.0 and Brighter

Galaxies: M64, M85, M88, M91, M98, M99, M100, NGC4189, NGC4571, NGC4212, NGC4208, NGC4889, NGC4037, NGC4064, NGC4136, NGC4150, NGC4203, NGC4237, NGC4245, NGC4251, NGC4274, NGC4278, NGC4293, NGC4298, NGC4302, NGC4312, NGC4314, NGC4340, NGC4350, NGC4394, NGC4414, NGC4419, NGC4421, NGC4450, NGC4459, NGC4473, NGC4474, NGC4477, NGC4494, NGC4539, NGC4540, NGC4559, NGC4565, NGC4651, NGC4689, NGC4710, NGC4725, NGC4793, NGC4874, NGC5172
Open Clusters:
Globular Clusters: M53, NGC5053, NGC4153, NGC4147
Planetary Nebulae:
Bright Nebulae:
SNREM:
Dark Nebulae:
Named Stars: Diadem (Alpha)

Number of Objects in Various Observing Clubs

Messier Club: 8 objects
Double Star Club: 1 object
Herschel 400 Club: 24 objects
Globular Cluster Club: 4 objects
Open Cluster Club: 0 objects
Planetary Nebula Club: 0 objects
Urban Club: 1 object

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.

100mm Orion refractor:
Available

10 inch Meade Dobsonian:
Available

13 inch Truss Dobsonian:
Available

Program Chair Minute - Dave Churilla

I want to take this opportunity to thank all the Club members who have been kind enough to give presentations at the club meetings. Not only are you generous to share your time preparing for the programs, but it takes some courage for some of you to get up in front of an audience of your peers. I know many have benefited from the information you've presented. And we have a few more members who are going to be giving presentations this year so thanks to them in advance. You can see what those presentations are and who's giving them below.

If you would like to present a program at one of the PAC meetings, please let me or Dan Delzell know. I know there are a lot of you who have different interests in astronomy and it would be great to share that with the rest of the club.

This month (on May 31st) yours truly (Dave Churilla for those who don't know me – lucky you) with the help of Jim Kvasnicka will be presenting "Safely Viewing the Sun". If the weather is clear the program will be first (at 7:30 PM) as we will be setting up scopes for viewing the sun (actually, I'll have them set up by 6:30 PM for those who want an early peek). The program will not be technical but will focus on what you can see when viewing the sun and the equipment you need. I will be setting up my Denkmeier Modified Coronado PST, which is an H-Alpha dedicated telescope, and my NexStar with my Day Star T-Scanner, also an H-Alpha filter, to view surface details of the sun. Jim will be setting up his telescope with a White Light filter as contrast. Having the program first will allow us to view the sun before it gets to low. Afterward, we'll move inside for the business portion of the meeting. If it's cloudy or badly hazy I'll give the presentation inside at the normal time.

Following are upcoming programs you won't want to miss.

Jun 2011: ***BBQ & Swap Meet*** by the PAC Board. We plan to have a swap meet & BBQ in June. It will feature Cajun Bob K's Smoked Pulled Pork sandwiches. Cost will be $5 a head (at the door) & we'll need those coming to RSVP to Dave Churilla. If you came to the Star-B-Que at the 2010 MSRAL Convention then you sampled Bob's work and trust me, it's worth the taste. Stay tuned for details.

Jul 2011: ***Comet Hunting*** by Cal Beard. This presentation should be very interesting. More to come.

Aug 2011: ***Astrophotography*** by Brett Boller & John Willman. Brett and John will try to help show everyone how they can get started and what to look for. More to come.

Sep 2011: ***Making Telescopes*** by Brian Sivill. Building your own scope isn't as difficult as many think it is. Brian will help with some basics. More to come.

Oct 2011: ***Astronomy Update*** by Jack Dunn. Jack will fill us in on things space and astronomy as well as multimedia. More to come.

Nov 2011: ***How to Buy a Telescope*** This will be our now annual public seminar on how to buy a telescope. We'll need your help assisting guests. More to come.

I'll try to keep you apprised of upcoming programs so you can plan to attend.

The members of the PAC Executive Committee work together to plan the monthly PAC Programs. Our goal for the programs is to provide a good mix of information, entertainment (including time to visit with one another), and to make them relevant for all experience levels as well as to hit all interests in astronomy. In addition we want to get club members involved with giving presentations as there is a lot of expertise in different areas that we all could benefit from. So we would love to have your comments and suggestions concerning what you would like see in our programs. Call me at 402-467-1514 or email me at weber2@inebraska.com.

Challenge Observing Objects for May/June

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

NGC 5466

A class XII globular cluster in the constellation Boötes. Located 51,800 light years from Earth and 52,800 light years from the Galactic center, it was discovered by William Herschel on May 17, 1784. It is thought to be the source of a stellar stream discovered in 2006, called the 45 Degree Tidal Stream. This star stream is an approximately 1.4° wide star lane extending from Boötes to Ursa Major. It has an apparent magnitude of 9.1 and it somewhere between 6' and 11' across.

Image credit: NASA

Beginner Object

The moons of Saturn

Since Saturn is dominate night sky object right now, these are the seven largest moons of Saturn with their apparent magnitudes. See how many you can find!

1.Titan - 8.82

2. Rhea - 10.16

3. Tethys - 10.68

4. Dione - 10.83

5. Iapetus - 11.66

6. Enceladus - 12.21

7. Mimas - 13.45

The Flip Side of Exoplanet Orbits by Jason Major (Universe Today)

It was once thought that our planet was part of a "typical" solar system. Inner rocky worlds, outlying gas giants, some asteroids and comets sprinkled in for good measure. All rotating around a central star in more or less the same direction. Typical. But after seeing what's actually out there, it turns out ours may not be so typical after all…

Astronomers researching exoplanetary systems – many discovered with NASA's Kepler Observatory – have found quite a few containing "hot Jupiters" that orbit their parent star very closely. (A hot Jupiter is the term used for a gas giant – like Jupiter – that resides in an orbit very close to its star, is usually tidally locked, and thus gets very, very hot.) These worlds are like nothing seen in our own solar system…and it's now known that some actually have retrograde orbits – that is, orbiting their star in the opposite direction.

"That's really weird, and it's even weirder because the planet is so close to the star. How can one be spinning one way and the other orbiting exactly the other way? It's crazy. It so obviously violates our most basic picture of planet and star formation."

– Frederic A. Rasio, theoretical astrophysicist, Northwestern University

Now retrograde movement does exist in our solar system. Venus rotates in a retrograde direction, so the Sun rises in the west and sets in the east, and a few moons of the outer planets orbit "backwards" relative to the other moons. But none of the planets in our system have retrograde orbits; they all move around the Sun in the same direction that the Sun rotates. This is due to the principle of conservation of angular momentum, whereby the initial motion of the disk of gas that condensed to form our Sun and afterwards the planets is reflected in the current direction of orbital motions. Bottom line: the direction they moved when they were formed is (generally) the direction they move today, 4.6 billion years later. Newtonian physics is okay with this, and so are we. So why are we now finding planets that blatantly flaunt these rules?

The answer may be: peer pressure. Or, more accurately, powerful tidal forces created by neighboring massive planets and the star itself. By fine-tuning existing orbital mechanics calculations and creating computer simulations out of them, researchers have been able to show that large gas planets can be affected by a neighboring massive planet in such a way as to have their orbits drastically elongated, sending them spiraling closer in toward their star, making them very hot and, eventually, even flip them around. It's just basic physics where energy is transferred between objects over time.

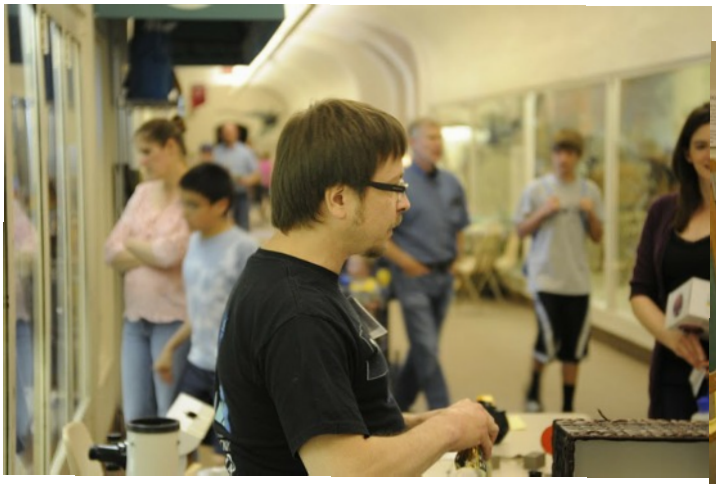
It just so happens that the objects in question are huge planets and the time scale is billions of years. Eventually something has to give. In this case it's orbital direction.

"We had thought our solar system was typical in the universe, but from day one everything has looked weird in the extrasolar planetary systems. That makes us the oddball really. Learning about these other systems provides a context for how special our system is. We certainly seem to live in a special place."

– Frederic A. Rasio

Yes, it certainly does seem that way.

Astronomy Day Photo Recap



THE *Prairie Astronomy Club*

Amateur Astronomy --
A Hobby as Big as the Universe

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 $30/yr, Family $35/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 to the right. Newsletter comments and articles should be submitted to: **Jason Noelle at oegrad2002@yahoo.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.

The Prairie Astronomer
c/o The Prairie Astronomy Club, Inc.
P.O. Box 5585
Lincoln, NE 68505-0585

FIRST CLASS MAIL

Next PAC Meeting
Tuesday
April 26 , 2011
7:30 PM
Hyde Observatory