



# The Prairie Astronomer

The Official Newsletter of the Prairie Astronomy Club

## October Program:

The October program will be a video update on the Rosetta mission and election of officers for 2015.

## IN THIS ISSUE:

What to View in November

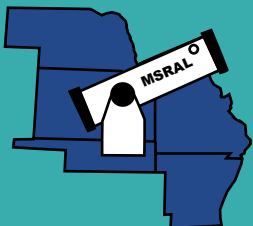
Moser Star Party

NGC Objects

Rosetta Selfie

Cubesats

Featured photo: NGC4051 by Rick Johnson. 14" LX200R @ f/10, L=7x10' RGB=3x10', STL-11000XM, Paramount ME cropped at 0.8" per pixel.



**Night Sky Network**

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: **Mark Dahmke, P. O. Box 5585, Lincoln, NE 68505** or [mark@dahmke.com](mailto:mark@dahmke.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.



## Meeting Minutes

PAC Meeting Minutes September 30, 2014

Dan Delzell (non officer, past president) called to order at 7:35.

Welcomed visitors and announced program for night Don Cox "Electric Cars and Radio Astronomers." Next meeting will be October 28, 2014 @ 7:30 in Hyde Observatory with presentation of the Rosetta Mission.

Outreach and volunteer activities were detailed. Howling Homestead annual star party will be October 25 6-9:00.

Announced Earl Moser, an important contributor and long-standing PAC member, had died recently. Request was received from Earl's family to hold a star party at his residence instead of at regular farm site. Club decided it should be October 17.

Observing report was provided by Jim Kvasnicka. Star parties in September were September 19<sup>th</sup> and 26<sup>th</sup>. October star parties will be held October 17<sup>th</sup> and 24<sup>th</sup>, with the 17<sup>th</sup> at Earl Moser's, and 24<sup>th</sup> at farm. A lunar party will occur on October 3 at Jim Kvasnicka's.

Nominations were held for officers. Elections will be held at October meeting. Nominations can come from floor prior to election. Nominees must be currently paid members of PAC. Jack Dunn (President) had resigned, and moved from Nebraska and would not be running. Brett Boller was willing to remain Vice President. Dale Bazan and Zach Thompson would not be running for office. Bob Kacvinsky was at his term limit. Cassie Etmund was in an appointed position, but had announced she would not run for any office. Nominations during the meeting were:

President: Jim Kvasnicka

Vice President: Brett Boller

Secretary: Lee Taylor

Treasurer (Bob is term limited): Open at end of meeting

2nd VP program chair: Open at end of meeting

Treasurers report was provided by Bob Kacvinsky. There are currently 55 members. Finances were reported as stable. Estimated that assets will be flat at end of year as expected. Notice were provided to update emails for membership renewal reminders with Night Sky Network.

An update to remote observing site by Brett Boller. Costs are undetermined. A potential partner was wanting to move forward with automation. Debate occurred between members as to possible worth versus return on investment and potential for PAC member usage. Tabled to next meeting. Brett and Brian will prepare a presentation.

Meeting adjourned at 8:05.

## 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.

STUDENT MEMBER - \$10.00 per year with volunteer requirement.

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 telescopes, contact Cassie Spale. If you keep a scope for more than a week, please check in 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

## PAC Star Party Dates

Dates in bold are closest to the new moon

### 2014 Star Party Dates

Oct **24**, Nov 14, **21**  
Dec 12, **19**

### 2015 Star Party Dates

Jan 16,**23**, Feb 13,**20**  
Mar 13,**20**, Apr 10,**17**  
May 8,**15**, Jun 12,**19**  
Jul 10,**17**, NSP **Jul12-17**  
Aug 7,**14**, Sep 4,**11**  
Oct **9**,16, Nov 6,**13**  
Dec 4,**11**

### Lunar Party Dates

Mar 27, Apr 24, Jul 24, Aug 21 (Lunar party dates are tentative, sites to be determined.)

### PAC E-Mail:

[info@prairieastronomyclub.org](mailto:info@prairieastronomyclub.org)

### PAC-LIST:

To subscribe send a request to PAC. To post messages to the list, send to the address:

[pac-list@prairieastronomyclub.org](mailto:pac-list@prairieastronomyclub.org)

# Events

PAC Meeting  
Tuesday October 28th, 2014  
@Hyde Observatory

PAC Meeting  
Tuesday November 25th,  
2014 @Hyde Observatory

PAC Meeting  
Tuesday December 30th,  
2014 @Hyde Observatory

PAC Meeting  
Tuesday January 27th, 2015  
@Hyde Observatory

Newsletter submission  
deadline November 15, 2014

## Links

PAC: [www.prairieastronomyclub.org](http://www.prairieastronomyclub.org)

Night Sky Network: <https://nightsky.jpl.nasa.gov/>

CafePress (club apparel) [www.cafepress.com](http://www.cafepress.com)

[www.hydeobservatory.info](http://www.hydeobservatory.info)

[www.nebraskastarparty.org](http://www.nebraskastarparty.org)

[www.OmahaAstro.com](http://www.OmahaAstro.com)

[Panhandleastronomyclub.com](http://Panhandleastronomyclub.com)

[www.universetoday.com/](http://www.universetoday.com/)

[www.planetary.org/home/](http://www.planetary.org/home/)

<http://www.darksky.org/>

NGC4603 Credit: NASA



## Great Plains Ecotourism Coalition Promotes Dark Skies as Natural Resource

A 321-mile bike trail, a byway for more than 500,000 sandhill cranes, dancing chickens, and some of the darkest night skies in the country – the Great Plains has much to offer travelers.

The Center for Great Plains Studies at the University of Nebraska is launching a project to help these ecological marvels become top ecotourism destinations. Friday, Nov. 7, marks the birth of the Great Plains Ecotourism Coalition – a group committed to promoting environmental conservation and building thriving communities through nature-based tourism in the Great Plains.

Several public institutions and private landowners have already joined the coalition. Switzer Ranch and Nature Reserve, the Grand Island Convention and Visitors Bureau, the Nebraska Star Party, the Nebraska State Museum, The Nature Conservancy Nebraska Program, and Big Blue Ranch are among the members. The coalition continues to add to this list.

“Ecotourism offers a way to combine conservation of biodiversity with new economic opportunities for rural towns across the Great Plains,” said Edwards, director of the Center for Great Plains Studies. “And it’s the best way to engage with the natural beauty and wonder of the region.”

To help ecotourism locations market themselves and spread the word about the beauty of these destinations, the Center has created a series of posters featuring scenes from Nebraska and the wider Great Plains. The posters, designed by Center communications coordinator Katie Nieland, are modeled after the Works Progress Administration’s National Park posters of the 1930s and serve as a launching point for the coalition.

The poster series, combined with a website ([www.visittheprairie.com](http://www.visittheprairie.com)), will give the public an access point to discover more about the ecotourism sites in the Plains. Center for Great Plains Studies consultant Kat Shiffler has been traveling the state this summer discussing the coalition with potential members.

“Getting the word out about ecotourism can mean great things for both rural communities and conservation,” she said. “The coalition, and these



fun posters, are another tool in our tool box moving forward.”

To mark the launch of the coalition, the Center will host a First Friday reception unveiling the complete poster series on Nov. 7 from 5 to 7 p.m. At 5:30 coalition organizers Edwards and Shiffler will speak about the project. Brian Baskerville, a geographer, will speak about ecotourism in the Great Plains. Posters and postcards will be available for purchase at the event and afterward at the museum and online. For more information, visit [www.unl.edu/plains](http://www.unl.edu/plains) or [www.visittheprairie.com](http://www.visittheprairie.com).

## November Observing—Jim Kvasnicka

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

### Planets

**Mars:** Comes into view at dusk in Sagittarius.

**Saturn:** Too low in the Sun's afterglow to be seen, after November 18<sup>th</sup> it becomes visible in the east at dawn.

**Neptune:** In Aquarius at magnitude 7.9.

**Uranus:** In Pisces at magnitude 5.7.

**Jupiter:** Rises around 1:00 am to start November and by 10:00 pm at the end.

**Venus:** Sets in the west just 10 minutes after the Sun and is not visible.

**Mercury:** Starts the month rising about 90 minutes before the Sun.

### Messier List

**M27:** The Dumbbell Nebula in Vulpecula

**M30:** Class V globular cluster in Capricornus.

**M56:** Class X globular cluster in Lyra.

**M57:** The Ring Nebula in Lyra.

**M71:** Class XII globular cluster in Sagitta.

**M72:** Class IX globular cluster in Aquarius.

**M73:** Asterism in Aquarius.

**Last Month:** M11, M16, M17, M18, M24, M25, M26, M55, M75

**Next Month:** M2, M15, M29, M31, M32, M39, M110

### NGC and other Deep Sky Objects

**NGC 654:** Open cluster in Cassiopeia.

## NGC Objects—Jim Kvasnicka

NGC 891 is a 10.1 magnitude edge on galaxy in Andromeda. It was discovered by William Herschel in 1784. NGC 891 is one of the sky's best edge-on galaxies.

NGC 891 appears much fainter than its listed magnitude due to a low surface brightness. Through a 10 inch telescope the galaxy is 9' x 2' extended NNE-SSW. The dust lane that you see in pictures is not visible. Increase your aperture and the dust lane becomes visible with averted vision. With a 16 inch telescope the galaxy is stunning despite the low surface brightness. The center is noticeably brighter and the dark dust lane bisects the galaxy the full length.

**NGC 663:** Open cluster in Cassiopeia.

**NGC 752:** Open cluster in Andromeda.

**NGC 779:** Galaxy in Cetus.

**NGC 869/884:** The Double Cluster in Perseus.

**NGC 891:** Edge on galaxy in Andromeda.



### Double Star Program List

**Iota Trianguli:** Yellow and blue pair.

**Gamma Arietis:** Equal blue-white pair.

**Lambda Arietis:** Wide yellow and pale blue pair.

**65 Piscium:** Yellow pair.

**Psi 1 Piscium:** Matched pair of blue-white stars.

**Zeta Piscium:** White primary with a yellow secondary.

**Alpha Piscium:** Alrisha, close bluish white pair.

**Gamma Andromedae:** Almach, gold and greenish blue stars.

### Challenge Object

**NGC 708 Group:** The brightest member in a small cluster of four galaxies within the Abell 262 galaxy cluster in Andromeda. The other three galaxies are NGC 703, 704, and 705. The galaxies lie within a 3' circle. Use a large aperture telescope to see the group.

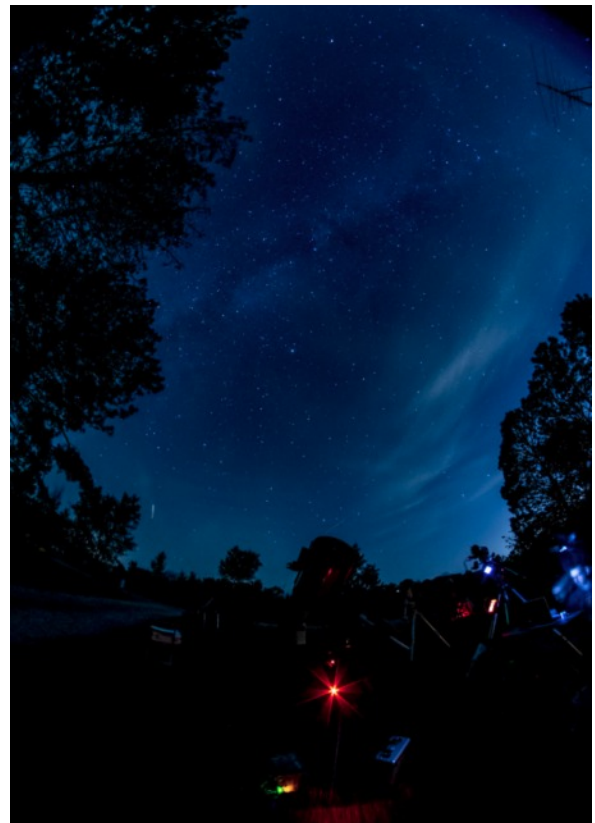
NGC 891 is 10 million light years distant and it has an apparent size of 13.5' x 3'.

NGC 891 is part of the Herschel 400 list and also Caldwell Object 23.



## Photos of the October 17<sup>th</sup> Star Party at the Moser Home

The Star Party in honor of Earl Moser was well attended - about 20-25 club members. The following photos were taken by Leona Barratt, Lee Taylor, Brad Moser and Mark Dahmke.



# Earl Moser Star Party, continued



## Rosetta Selflessly Beams Back Comet Selfie

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A camera aboard the European Space Agency's Philae lander snapped this "selfie" of one of the Rosetta spacecraft's 52-foot-long (16-meter) solar arrays, with comet 67P/Churyumov-Gerasimenko hovering in the background some 10 miles (16 kilometers) away. The image, taken by the Comet Infrared and Visible Analyser (CIVA), was taken on Oct. 7. Philae, which is connected to the Rosetta orbiter at this time, will make its descent to the surface of the comet on Nov. 12.

In the image, the active 'neck' region of the comet is now clearly visible, with streams of dust and gas extending away from the comet. The primary landing site, currently known as "Site J," can also be seen on the smaller lobe of the comet.

This is the last image from Philae before the lander separates from Rosetta on Nov. 12. The next image will be taken by CIVA shortly after separation, when the lander will look back at the orbiter to bid it a final farewell.

Two individual CIVA images, one with a short exposure time, one with a longer one, were combined to capture the whole dynamic range of the scene, from the bright parts of the solar arrays to the dark comet and the dark insulation covering the Rosetta spacecraft.

CIVA, one of 10 instruments on board Philae, comprises seven micro-cameras arranged around the top of the lander, and a visible/infrared microscope imager/spectrometer.

Launched in March 2004, Rosetta was reactivated in January 2014 after a record 957 days in hibernation. Composed of an orbiter and lander, Rosetta's objectives since arriving at comet 67P/Churyumov-Gerasimenko earlier this month have been to study the celestial object up close in unprecedented detail, prepare for landing a probe on the comet's nucleus in November, and following the landing, track the comet's changes as it sweeps past the sun.

Comets are time capsules containing primitive material left over from the epoch when the sun and its planets formed. Rosetta's lander will obtain the first images taken from a comet's surface and will provide comprehensive analysis

of the comet's possible primordial composition by drilling into the surface. Rosetta also will be the first spacecraft to witness at close proximity how a comet changes as it is subjected to the increasing intensity of the sun's radiation. Observations will help scientists learn more about the origin and evolution of our solar system and the role comets may have played in seeding Earth with water, and perhaps even life.

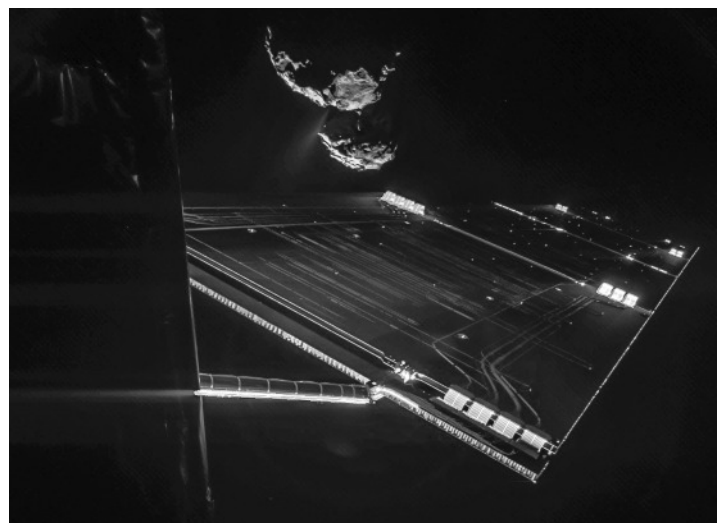
Rosetta is a European Space Agency mission with contributions from its member states and NASA. Rosetta's Philae lander is provided by a consortium led by the German Aerospace Center, Cologne; Max Planck Institute for Solar System Research, Göttingen; National Center of Space Studies of France (CNES), Paris; and the Italian Space Agency, Rome. NASA's Jet Propulsion Laboratory in Pasadena, California, a division of the California Institute of Technology, manages the U.S. participation in the Rosetta mission for NASA's Science Mission Directorate in Washington.

For more information on the U.S. instruments aboard Rosetta, visit:

<http://rosetta.jpl.nasa.gov>

More information about Rosetta is available at:

<http://www.esa.int/rosetta>

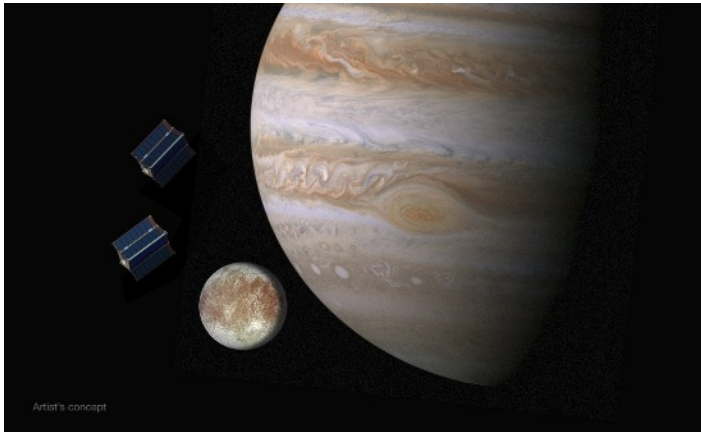




## Tiny Satellites Could Hitchhike To Europa With Bigger NASA Mission Concept

By Elizabeth Howell, Universe Today

When you've got a \$2 billion mission concept to head to Europa, it's likely a good idea to pack as much science on this mission as possible. That's the thinking that NASA had as it invited 10 universities to send their ideas for CubeSats — tiny satellites — that would accompany the Europa Clipper mission to the Jupiter system.



*Artist's conception of CubeSats near Europa (left) and Jupiter. Credit: NASA/JPL*

Europa Clipper is only on the drawing board right now and not fully funded, and should not be confused with the lower-cost \$1 billion Europa mission that NASA proposed earlier this year (also not fully funded). But however NASA gets there, the agency is hoping to learn if the moon could be a good spot for life.

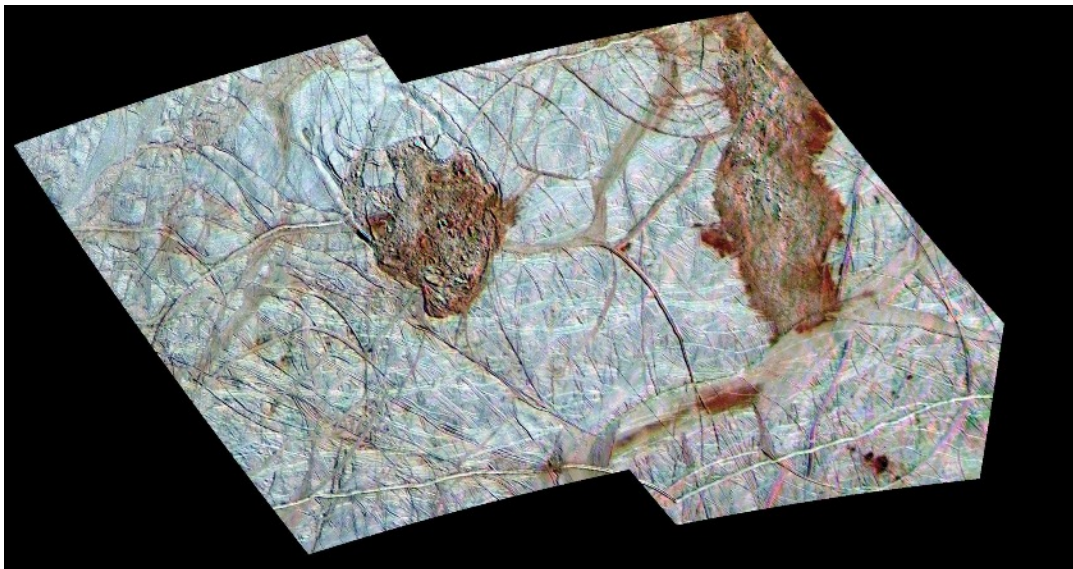
Each university is being awarded up to \$25,000 to develop their ideas further, and they will have until next summer to work on them. Investigations include searching the surface for future landing sites, or examining European properties such as gravity, its atmosphere, magnetic fields or radiation.

“Using CubeSats for planetary exploration is just now becoming possible, so we want to explore how a future mission to Europa might take advantage of them,” said Barry Goldstein, pre-project manager for the Europa Clipper mission concept, in a press release.

If Europa Clipper flies, it would do at least 45 flybys at altitudes between 16 miles and 1,700 miles (25 kilometers and 2,700 kilometers.) Part of its expense comes from the long distance, and also from all the radiation shielding the spacecraft would need as it orbits immense Jupiter.

Science instruments are still being figured out, but some ideas include radar (to look under Europa's crust), an infrared spectrometer (to see what is on the ice), a camera to image the surface and a spectrometer to look at the moon's thin atmosphere.

While there are no Europa missions officially booked now, NASA does have an active spacecraft called Juno that will arrive at Jupiter in July 2016.



*Two reddish spots (Thera and Thrace) stick out on this image of Europa taken by the Galileo orbit in the 1990s. NASA says they display “enigmatic terrain.” Credit: NASA/JPL/University of Arizona*



**Amateur Astronomy —  
A Hobby as Big as the  
Universe**

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**FIRST CLASS MAIL**

**Next PAC Meeting  
TUESDAY  
October 28, 2014  
7:30 PM  
Hyde Observatory**