

**Peoria Astronomical Society, Inc.**

P.O. Box 10111 Peoria, IL 61612-0111  
Section of Peoria Academy of Science  
Affiliate of the Astronomical League

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

# STARLITE

*WINTER, 2016*

***WHAT'S IN THIS ISSUE?***

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***Directors:***

President: Dan Son, [sonshine1992@gmail.com](mailto:sonshine1992@gmail.com)  
Vice-President: Jesse Hoover, [hooveje@gmail.com](mailto:hooveje@gmail.com)  
Secretary: Phil Burroughs  
Treasurer: Brian Hakes, [bhakes02@comcast.net](mailto:bhakes02@comcast.net)  
Parliamentarian: Nick Johnson, [johnsnl@comcast.net](mailto:johnsnl@comcast.net)  
Nominating Chairman: Tatiana Johnson, [2gsheps@gmail.com](mailto:2gsheps@gmail.com)  
Legal Agent:  
Northmoor Chairman: Nick Johnson, [johnsnl@comcast.net](mailto:johnsnl@comcast.net)  
Jubilee Chairman: Robert Pauer, [sbpauer@winco.net](mailto:sbpauer@winco.net)

**PEORIA ASTRONOMICAL SOCIETY IS NOW ON FACEBOOK:**  
[www.facebook.com/PeoriaAstronomicalSociety](http://www.facebook.com/PeoriaAstronomicalSociety)

**Editor's Notes:** *Special thanks to Linda Hay for all the hard work put in over the years as the Starlite editor! I will do my best to keep the torch going, and I welcome your ideas and content...*  
*Thank you,*  
*Jesse Hoover*

**PLEASE NOTE:**

Please notify Scott Swords at [sswords3@comcast.net](mailto:sswords3@comcast.net) if you will be getting a new mailing address, email address and/or phone number. It is important that he has your personal information correct so you will continue to receive the Starlite and the Reflector. He would also like to receive any changes to your e-mail address as this is part of his database.

If you would like to join the Peoria Astro e-group or if you have changed your e-mail address, please notify Mike Frasca at [mfrasca@att.net](mailto:mfrasca@att.net) with your e-mail address (for in-club use only – not given out to other sources). He does not need your mailing address or phone number. If you are not a member of the e-group, you may want to consider joining. A great deal of club activity information is sent via the e-group. And by the way, it is free to join!!!

**FUTURE EDITIONS OF THE STARLITE NEWSLETTER**

**New delivery method for the Starlite:**

From Dan Son

The PAS board has talked about stopping the process of printing and mailing Starlites out to members. We have considered this for a long time and with the costs being so high for this, we have decided to try emailing them to members as well as having them online at our website. For members who have already joined the email group, you will just get an email with the Starlite attached, for those members who have not joined the email group, you will have to go to the website and download it from there. This would be a good time to join the email group to get the Starlite and also get information for star parties and such. The stopping of mailed copies will start with the **Fall Starlite**. If you have question feel free to email me or any board member with your concerns.

**NEW MEMBERS:**

The Peoria Astronomical Society welcomes new members:

Madisons, Peoria  
Larry Reeves, Pekin  
Keith Curtis, Pekin  
Alex Shepard, Washington

**PRESIDENT'S RAMBLINGS: Dan Son**

Well it's still warm and I know most of us enjoy that, no ice or snow. Here at PAS we are gearing up for the coming year, what need to be maintained, fixed, upgraded, closed up for the winter. It take a lot of work by many volunteers to make Jubilee, Northmoor, Starlite and more to run at a high quality that we want for ourselves and for others to use and enjoy.

I hope those trained will still come out to Northmoor or Jubilee and enjoy the equipment and sky. Look for notices on the e-group email if we take a scope out of use for maintenance. If you are not an e-group member look in the Starlite about joining and then you can get the latest information via email. I hope you have enjoyed PAS the past year and taken time to use the grounds and scope's we have to offer.

Before I go, think hard about the coming 2017 observing season. The biggest and best is the Solar Eclipse coming August 21st. I have a tent site in Nebraska and a possible closer site in southern Illinois. At our Banquet in September, Sheldon Schaffer gave a great talk on the coming programs and some valuable information on the coming eclipse. I will admit, when I called for motes rooms in Nebraska, I found non in the area I wanted, but did find a few, and I mean like 2 or 3 tent sites at local state parks. Plan today or you may be wishing in August you did.

May you have a Merry Christmas and a Happy New Year.  
Dan Son

**Submission of photos / article content for the website: Jesse Hoover**

If you have taken a nice photo that you would like to display on the PAS website, please send these to [hooveje@gmail.com](mailto:hooveje@gmail.com). Photos can be anything relating to astronomy. Maybe you snapped a good photo from a star party, club event, personal viewing, etc. Any astro-photography is encouraged! Also, if you have educational content, tips, techniques, lessons learned, or how-to articles with photos, we encourage that material also for the website. Just send me your photos or content, and I can review and post it to the website. Thanks!

**The Caterpillar Matching Gifts Program: Brian Hakes**

As of July 1, 2012 the Cat matching gifts program changed. Employees/Retirees are asked to submit matching gift forms electronically via the Caterpillar Foundation website, [www.caterpillar.com/foundation](http://www.caterpillar.com/foundation). The process is easy. Once you made your gift to the PAS you can go on line to the Cat Foundation website and complete the electronic form, there is no paper involved. Once the form is registered with the foundation they will notify the PAS and the treasurer will then verify the gift has been received. Because there will be no mailings, the turnaround time for the whole process will be negligible. This is especially advantageous at the end of the calendar (tax) year. This is an excellent way to support the PAS. If you can, please participate in this generous program. This is a great way to help the society and the promotion of astronomy in the greater Peoria area.



**PROGRAM SCHEDULE FOR 2016 – 2017**

**\*\* Coming Attraction for the next 3 months highlighted Blue. Please check email, local radio stations or PAS Facebook Page if a show may be canceled due to weather.**

October 5, 2016 Asteroid Capture Missions: Rob Landis (via Skype-NASA)  
November 2, 2016 Astro Jeopardy: Gene Hodel  
December 7, 2016 The March 9, 2016 Total Solar Eclipse Cruise to Indonesia: Sheldon Schafer  
January 4, 2017 Dawn of the Space Age (or other Full Dome Show)  
February 1, 2017 Horizon: The End of the Solar System (BBC show filmed in Peoria)  
March 1, 2017 Astronomical Tourism: Members of the PAS : tentatively including:  
Brian Hakes: Mauna Kea and Greenwich Observatory and Astronomy Museum  
Tim McGrath: Nebraska Star Party  
Steve Russell: Texas Star Party  
Rich Tennis: Nebraska Star Party  
Greg Neaveill: Lowell Observatory, Flagstaff  
Rena Kerrigan Greenbank Radio Observatory  
Sheldon Schafer – Various archaeoastronomical sites

A review of sites of astronomical interest (observatories, etc. ) and national star parties and that various members have attended. Presenters who have been somewhere would share his/her experience with a short presentation including the when, where, photos, etc.

April 5, 2017 The Alpha Centauri Star System: Brian Bill  
May 3, 2017 Great American Eclipse: Where will you be on August 21, 2017 ?  
Members of the PAS, Review of individuals' plans, and any group

***Mission Updates: Jesse Hoover***

Upcoming Launches and Landings

Credit: National Aeronautics and Space Administration, <https://www.nasa.gov/launchschedule/>

**Date: December 9, 2016 - 8:26 a.m. Eastern**

Mission: HTV-6 Cargo Craft

Description: Launch of the Japan Aerospace Exploration Agency (JAXA) H-II Transfer Vehicle (HTV) cargo transfer spacecraft from Tanegashima, Japan. HTV-6 "KOUNOTORI6" will deliver supplies to the International Space Station.

**Date: December 12, 2016 - 8:19 a.m. Eastern**

Mission: Cyclone Global Navigation Satellite System (CYGNSS)

Description: The CYGNSS mission will probe the inner core of hurricanes to learn about their rapid intensification. CYGNSS will launch aboard an Orbital ATK Pegasus XL rocket to be deployed from Orbital's "Stargazer" L-1011 carrier aircraft, which will take off from Cape Canaveral Air Force Station, Florida. Once airborne, the Pegasus rocket will launch over the Atlantic Ocean. The 90-minute launch window opens at 8:19 a.m. EST.

**Date: February**

Mission: Expedition 50 Undocking and Landing

Description: NASA astronaut Shane Kimbrough and cosmonauts Sergey Ryzhikov and Andrey Borisenko of the Russian space agency Roscosmos undock their Soyuz MS-02 spacecraft from the International Space Station's Poisk module and land in Kazakhstan.

**Date: March**

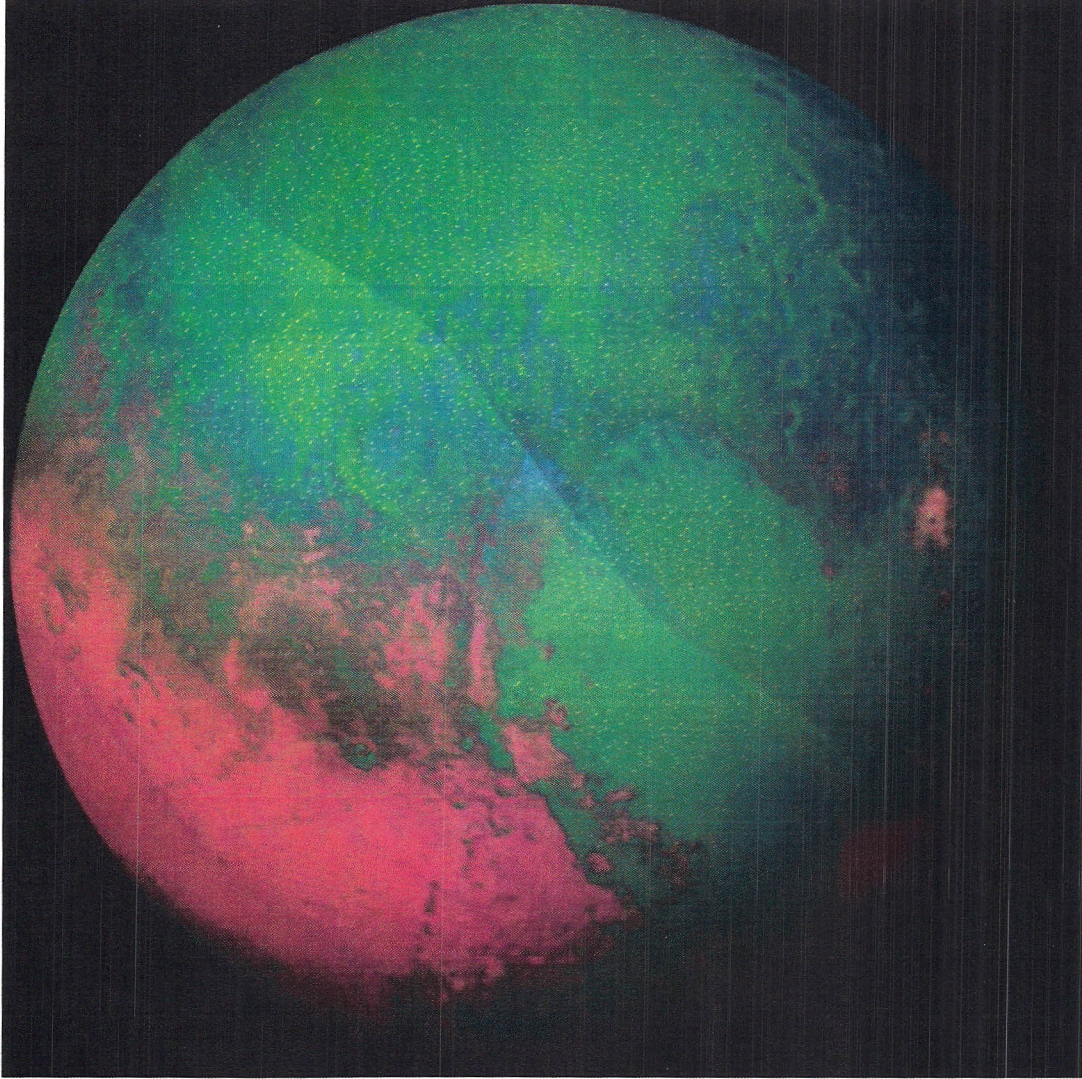
Mission: Expedition 51 Launch

Description: In March 2017, Expedition 51/52 crew members NASA astronaut Jack Fischer and cosmonaut Fyodor Yurchikhin of the Russian space agency Roscosmos launch to the International Space Station. Yurchikhin will be the Expedition 52 commander.



**Christmas Pluto:**

Pluto gets into the holiday spirit, decked out in red and green using a pair of Ralph/LEISA instrument scans.



Credit: National Aeronautics and Space Administration,  
[https://www.nasa.gov/mission\\_pages/newhorizons/images/index.html](https://www.nasa.gov/mission_pages/newhorizons/images/index.html)

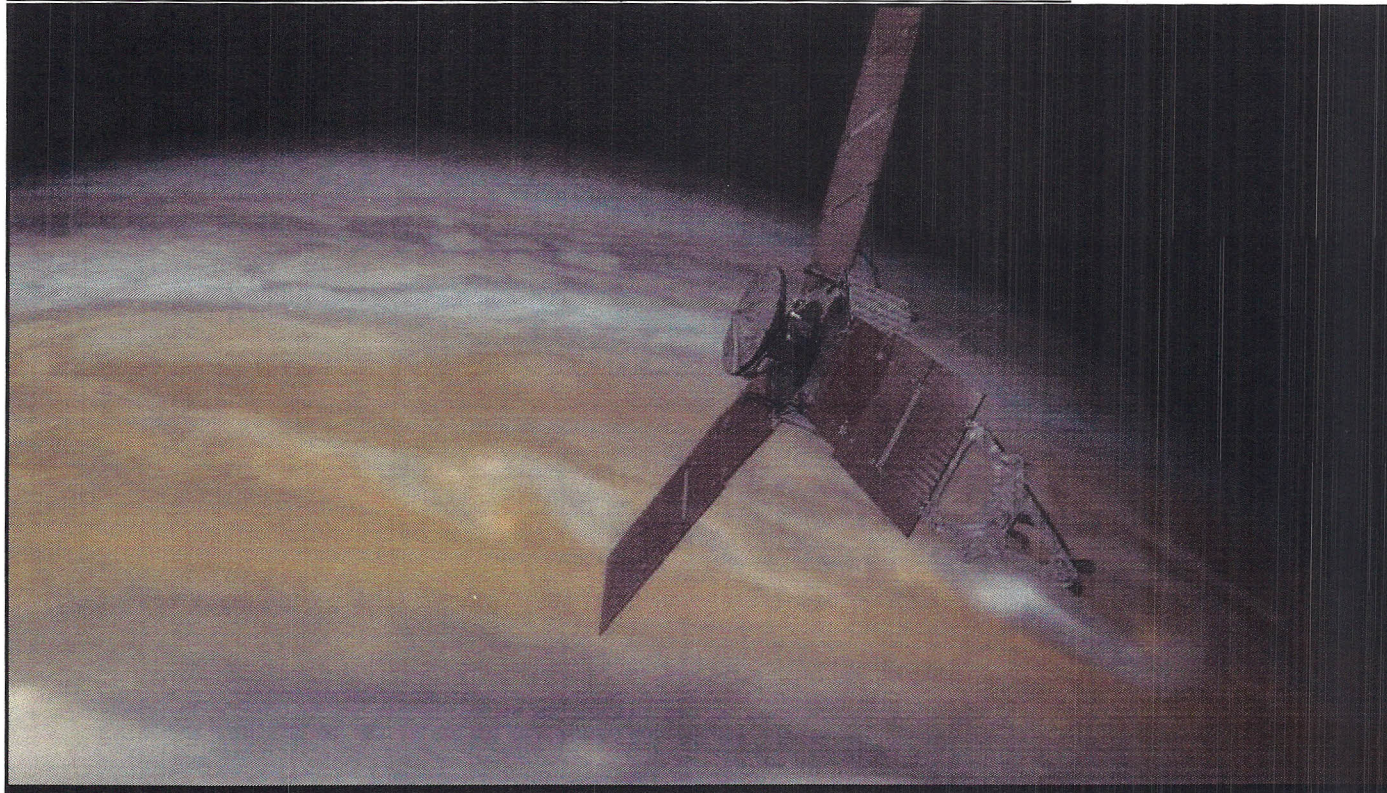
**For the latest updates on New Horizons, articles for each discovery are listed here:**

<https://www.nasa.gov/press-release/from-mountains-to-moons-multiple-discoveries-from-nasa-s-new-horizons-pluto-mission>



***Juno Update: 10.25.16***

***NASA'S JUNO MISSION EXITS SAFE MODE, PERFORMS TRIM MANEUVER***



NASA's Juno spacecraft at Jupiter has left safe mode and has successfully completed a minor burn of its thruster engines in preparation for its next close flyby of Jupiter.

Mission controllers commanded Juno to exit safe mode Monday, Oct. 24, with confirmation of safe mode exit received on the ground at 10:05 a.m. PDT (1:05 p.m. EDT). The spacecraft entered safe mode on Oct. 18 when a software performance monitor induced a reboot of the spacecraft's onboard computer. The team is still investigating the cause of the reboot and assessing two main engine check valves.

"Juno exited safe mode as expected, is healthy and is responding to all our commands," said Rick Nybakken, Juno project manager from NASA's Jet Propulsion Laboratory in Pasadena, California. "We anticipate we will be turning on the instruments in early November to get ready for our December flyby."

In preparation for that close flyby of Jupiter, Juno executed an orbital trim maneuver Tuesday at 11:51 a.m. PDT (2:51 p.m. EDT) using its smaller thrusters. The burn, which lasted just over 31 minutes, changed Juno's orbital velocity by about 5.8 mph (2.6 meters per second) and consumed about 8 pounds (3.6 kilograms) of propellant. Juno will perform its next science flyby of Jupiter on Dec. 11, with time of closest approach to the gas giant occurring at 9:03 a.m. PDT (12:03 p.m. EDT). The complete suite of Juno's science instruments, as well as the JunoCam imager, will be collecting data during the upcoming flyby.

"We are all excited and eagerly anticipating this next pass close to Jupiter," said Scott Bolton, principal investigator of Juno from the Southwest Research Institute in San Antonio. "The science collected so far has been truly amazing."



The Juno spacecraft launched on Aug. 5, 2011, from Cape Canaveral, Florida, and arrived at Jupiter on July 4, 2016. During its mission of exploration, Juno soars low over the planet's cloud tops -- as close as about 2,600 miles (4,100 kilometers). During these flybys, Juno probes beneath the obscuring cloud cover of Jupiter and studies its auroras to learn more about the planet's origins, structure, atmosphere and magnetosphere.

More information on the Juno mission is available at:  
<http://www.nasa.gov/juno>

Credit: National Aeronautics and Space Administration,  
<https://www.missionjuno.swri.edu/news/mission-status-report-10-25-2016>

### ***Curiosity - past discovery:***

Dec. 8, 2014

Sedimentary Signs of a Martian Lakebed

Rock layers on Mars



This evenly layered rock photographed by the Mast Camera (Mastcam) on NASA's Curiosity Mars Rover shows a pattern typical of a lake-floor sedimentary deposit not far from where flowing water entered a lake.

The scene combines multiple frames taken with Mastcam's right-eye camera on Aug. 7, 2014, during the 712th Martian day, or sol, of Curiosity's work on Mars. It shows an outcrop at the edge of "Hidden Valley," seen from the valley floor. This view spans about 5 feet (1.5 meters) across in the foreground. The color has been approximately white-balanced to resemble how the scene would appear under daytime lighting conditions on Earth. Figure A is a version with a superimposed scale bar of 50 centimeters (about 20 inches).

This is an example of a thick-laminated, evenly-stratified rock type that forms stratigraphically beneath cross-bedded



sandstones regarded as ancient river deposits. These rocks are interpreted to record sedimentation in a lake, as part of or in front of a delta, where plumes of river sediment settled out of the water column and onto the lake floor.

NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology, Pasadena, manages the Mars Science Laboratory Project for NASA's Science Mission Directorate, Washington. JPL designed and built the project's Curiosity rover. Malin Space Science Systems, San Diego, built and operates the rover's Mastcam. For more information about Curiosity, visit <http://www.nasa.gov/msl> and <http://mars.jpl.nasa.gov/msl>.

Image Credit: NASA/JPL-Caltech/MSSS

Last Updated: July 30, 2015

Editor: Tony Greicius

Credit: National Aeronautics and Space Administration,  
<http://mars.nasa.gov/multimedia/images/?ImageID=6866>

### **Van Zandt Article in Reflector: Bruce Brown**

Getting my Reflector Magazine today, I noticed the article about Rollin Van Zandt on page 14.

I have forwarded a pdf of the Magazine to Steve Tarter at the JS ... perhaps the Paper will 'do a story' ... about the 'Magazine Story'?

After all, The Reflector has pix from the '50/'60 era, 'Courtesy of The Peoria Journal Star'!

Thanks to Astronomical League past Presidents Bob Gent, and Jim Fox for making the article possible.

### **Thank you... Hosts: by Nick Johnson**

Hosts -

We've wrapped up yet another season of sharing the sky with the Peoria community. And what a successful season it was! Over our 22 Saturday sessions, we encountered 11 clear nights, 6 partly cloudy nights, 2 mostly cloudy nights, and only 3 cloud outs. A total of 1,328 visitors took advantage of our Saturday night sessions. Our peak event was the Oct 8 Observe the Moon night. A total of 176 visitors attended this event. It has become a perennial favorite of the public. Through our Saturday public viewing sessions, we collected approx. \$515 in donations to the Society. In monetary terms, this is the equivalent of more than 17 memberships. We also provided several private sessions to cub scout groups, home learning groups, Solar System model bicycle touring groups, and college classes from Bradley University and Eureka College. An additional 115 visitors attended these events.

As for the observatory itself, most of our efforts this year was directed toward controlling moisture in the block walls of the observatory as well as addressing leaks in the dome roof. We added a shield at the top of the block walls to divert rain water and spent considerable time in finding and addressing dome leak spots. We completed a repainting a test area in the dome to monitor paint bubbling due to moisture and are encouraged by the early results. We do not have all of the leaks fixed, but are in communication with Ash Domes to address the problems. Special thanks goes to Terry Beachler for his work in this area. Other observatory activities included conducting a complete inventory of assets, procuring new hardware for the door to the dome stairs, painting the telescope counter weight, and re-taping the counterweight shaft.

The success and accomplishments of the past year is a reflection on all of you, the group that makes Northmoor Observatory possible. Whether it be serving on the Northmoor Committee, supporting special events with ground scopes, or hosting on your assigned Saturdays, your contributions deserve a huge note of thanks. I don't think that many people

are aware of the amazing fact that we now have been hosting the public at Northmoor on Saturday nights for over 60 years. Think about that. There are only a handful of public activities with that kind of continuity. Granted, we have a great product to sell ... the night sky. But only through the unselfishness of all of your volunteer activities, do we get that product into the eyes of the community. You should be proud of being a part of that heritage. You should also know that your efforts do not go unnoticed. We recently received substantial donations to the Society that were accompanied with comments of appreciation for making Northmoor available and making visitors feel welcome. Job well done!!!

Thanks again for all you do and I hope you will all continue to support Northmoor again in 2017.

Nick