

NOVA



Official Newsletter of the [Salt Lake Astronomical Society](http://www.slas.org)

Volume 48 Number 1 January - February, 2018

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Please Welcome The Newest SLAS Members!

Kenneth Ward

Jansen Gunther

Lisa Graghead

Thomas Delosso

LeAdelle Maez



M74 Processed by Don Colton



M1 taken remotely from Frisco Peak, Processed by Don Colton

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Princess Andromeda, the Moon masks Aldebaran, and Mercury Attends the Pre-dawn Planet Party!

By Chris Vaughan

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**(Chris is a volunteer regular (continuing) contributor to our SLAS
newsletter who lives in Toronto, Canada!)**

Chris Vaughan is a professional Exploration Geophysicist and Astronomer (graduate of University of Toronto, 1982) with a passion for education and public outreach. He is the recipient of the 2014 Bertram Topham Award for Observing and the 2013 and 2014 Andrew Elvins Awards for Promotion of Astronomy from the Royal Astronomical Society of Canada Toronto Centre. Since 1996, Chris has been visiting classrooms, hosting science-themed assemblies, running science clubs, and holding Star Parties for schools and other groups around the GTA. He is also the author of the Astronomy Skylights newsletter and an operator of the DDO's 74" Great Telescope.



The 60 cm telescope at the Allan I. Carswell Observatory at York University



(Above: This image of the Andromeda Galaxy and its two smaller companions was taken by Stephen McKinney of Toronto. The distance from the lower left to the upper right spans six full moon diameters in the sky! In a large telescope, the dark dust lanes in the spiral arms can be seen.)

Astronomy Skylights for this week (from December 24th, 2017) by Chris Vaughan. (Feel free to pass this along to friends and send me your comments, questions, and suggested topics.) I post these with photos at <http://astrogeoguy.tumblr.com/> where the old editions are archived. You can also follow me on Twitter as @astrogeoguy! Unless otherwise noted, all times are Eastern Time. Please click this MailChimp link to subscribe to these emails. If you are a teacher or group leader interested joining me on a guided field trip to York University's Allan I. Carswell Observatory, or another in your area, visit www.astrogeo.ca.

Happy Holidays, everyone! Or, as we astronomers say, "Have a Happy Solstice and a Merry Perihelion!"

Telescope Buying Tips

If you missed it, I covered buying a first telescope last week [here](#). If you get one for the Holidays and want some help with it, send me a note.

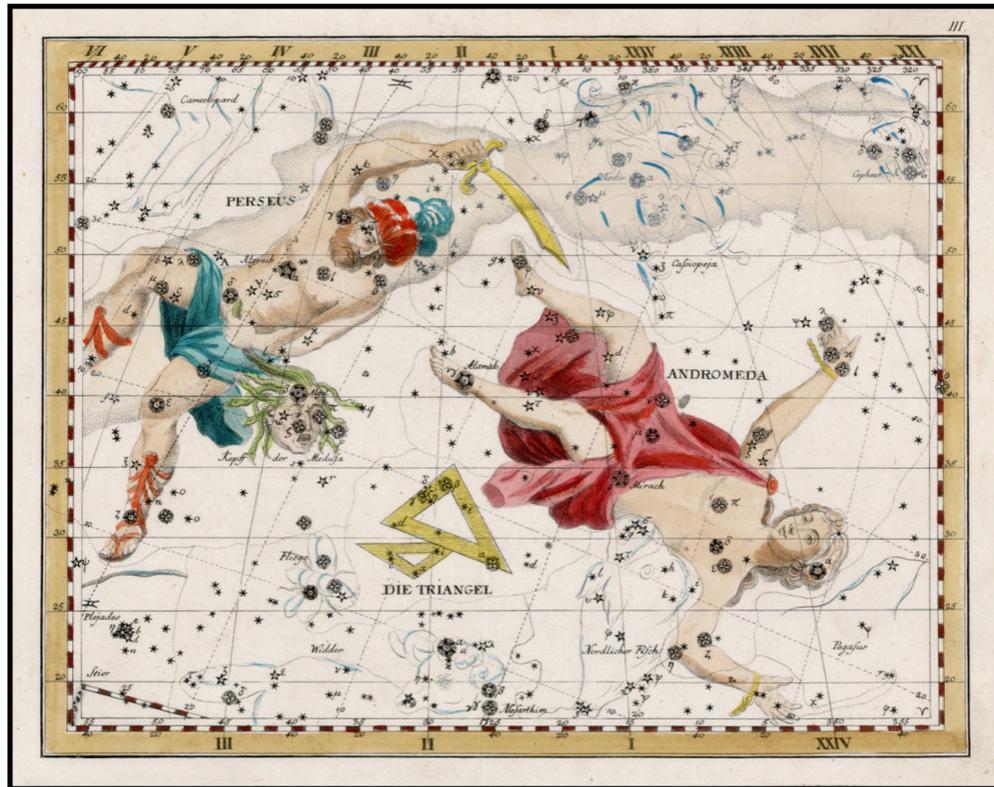
Princess Andromeda's Treasure

A few weeks ago, we started touring the constellations involved in the story of Perseus and Andromeda. This week, I'll tell you more about the princess herself.



(Above: The Andromeda legend's cast of characters appear in evenings during early winter annually.)

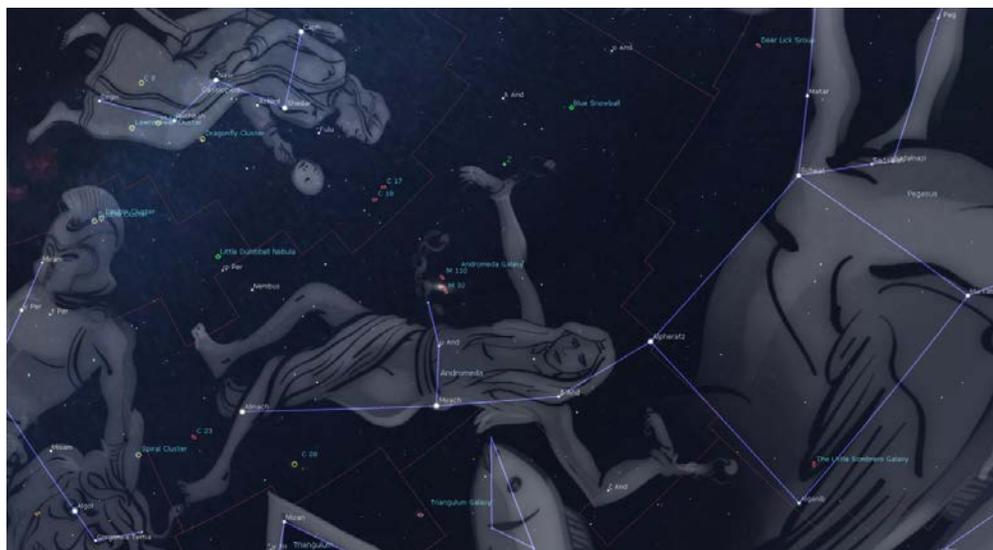
Andromeda was the beautiful daughter of Queen Cassiopeia and King Cepheus of Ancient Ethiopia. Through no fault of her own, the princess became the centre of a hair-raising story. After her mother angered the Nereids (Sea Nymphs) by boasting of Andromeda's unrivaled beauty, the god of the sea Poseidon (aka Neptune) sent Cetus (the Sea-monster) to ravage Ethiopia's coast. An oracle told King Cepheus that his only solution was to sacrifice Andromeda to Cetus. So she was chained to rocks by the sea. Just as Cetus was about to take Andromeda, the hero Perseus happened to be flying by. She must have been beautiful indeed, because he fell instantly in love with her, slew the beast, and cut her free from her chains. After a few more adventures, including one where Perseus accidentally killed his evil grandfather to fulfill a prophecy, the couple sailed to Argonis, where they raised a family of many children. Hercules is descended from them.



(Above: Andromeda lies below the Milky Way. Her rescuer, the hero Perseus, is to the east of her. Map by Johann Bode.)

Andromeda is one of the original classical constellations, and is 19th largest by area (out of 88). Also known as the Chained Lady, she is depicted as laying prone with her body and legs extending to the east (left) using two chains of stars that diverge towards her feet. Another set of dimmer stars extends upwards, near the Milky Way. These represent her chains. A number of ancient cultures saw a woman's figure in those stars. The Chinese also saw legs, but use a different arrangement of stars.

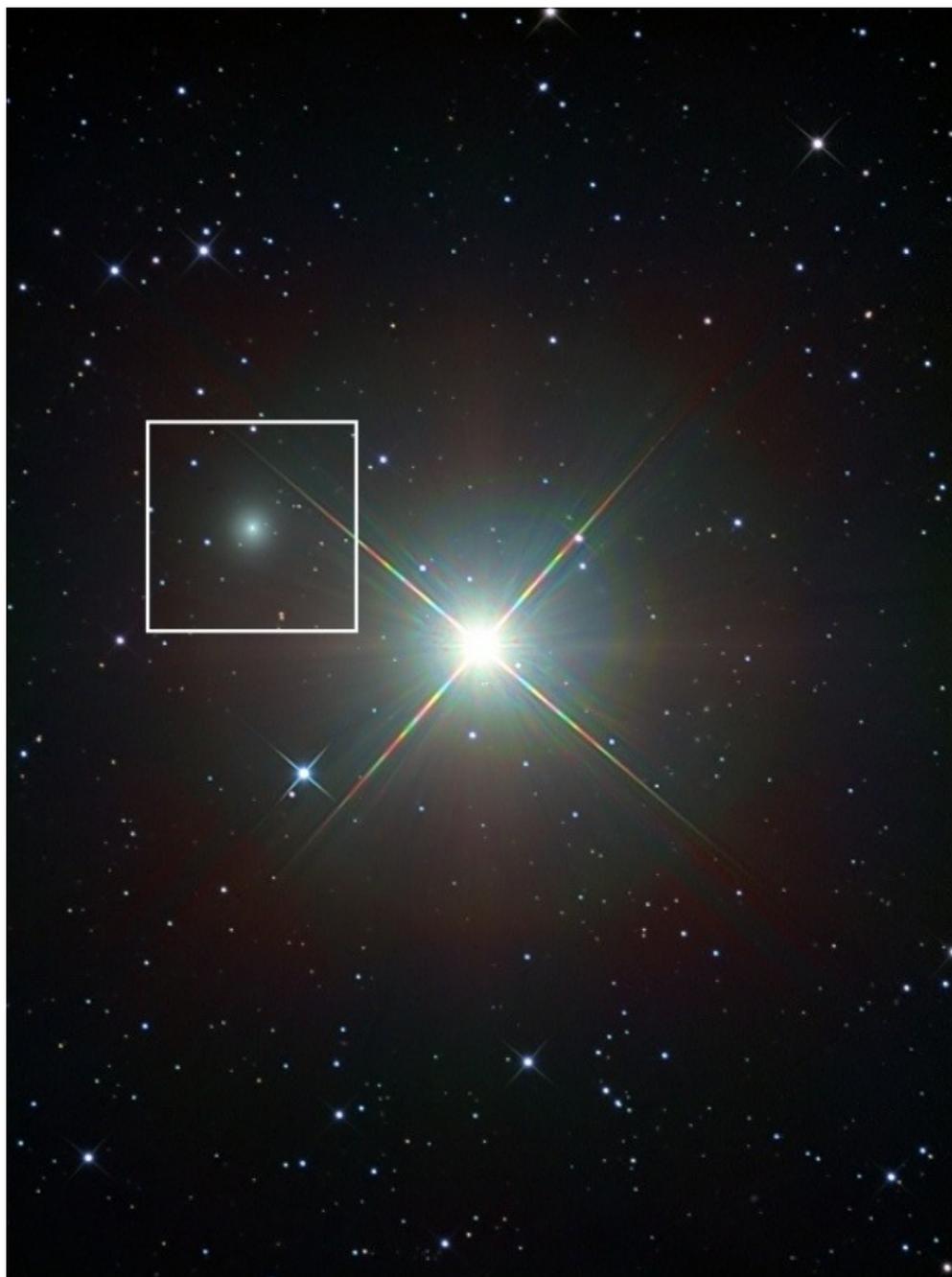
Andromeda is visible throughout the fall and winter, but right now she is directly overhead in early evening. She is located adjacent to Pegasus on his eastern (left) side. Her brightest star, named Alpheratz "the Horse's Shoulder", marks her head, and is also serves as "third base" of Pegasus' great square. Pisces (the Fishes) sits below her, as does Triangulum (the Triangle). Her mother Cassiopeia is above her, and Perseus lies to the east, below her feet. but he's slightly to the upper left in the sky.



(Above: The constellation of Andromeda features one of the sky's best sights - the Andromeda Galaxy and its two companions Messier 32 and Messier 110. The Blue Snowball at upper right, and open cluster Caldwell 28 at lower left, are other good targets for medium sized telescopes. A galaxy designated Caldwell 23 can be viewed in larger telescopes.)

Let's tour the best of Andromeda. Start at bright Alpheratz. It's a hot blue-white supergiant star located only 97 light-years away from us. The spectrum of this star's light indicates that it is highly enriched in the metal Mercury. To see the rest of her, look for two slightly bent, roughly horizontal, lines of three modest stars each extending off to the northeast (left). The two lines are longer than the great square's diagonal, and the lower set is brighter than the upper set. They diverge as you move away from Alpheratz, the way her gown would spread out towards her feet.

Tracing the lower line of three stars from Alpheratz, the first star we come to is reddish Delta Andromedae, roughly a palm's width left from Alpheratz. The next star, another palm width left, is a bright reddish star called Mirach. This is a cool red giant star located 200 light-years from Earth that produces 1,900 times more light than our sun! Mirach happens to have a distant elliptical galaxy beside it called Mirach's Ghost, but you need a large telescope to see that fuzzy patch. (Make note of Mirach – we'll return to it later.)



(Above: A close up view of the bright star Mirach at centre reveals a very distant elliptical galaxy, aptly nick-named Mirach's Ghost, to the upper left of the star. NASA APOD for Oct 29, 2008 by Anthony Ayiomamitis)

Continuing left by a fist's diameter, we reach one of Andromeda's feet – the star bright Almach "desert lynx". This very beautiful golden and sapphire pair of stars easily is seen in a small telescope. Almach's stars differ in brightness as well as colour.

Now, back to Mirach. Sitting about four finger widths above Mirach is a dimmer white star designated Mu (μ) Andromedae. (It's actually the centre star of Andromeda's upper chain.) A few finger widths above that star is another yet dimmer star. Look just above *that* one for a large fuzzy patch. That's Messier 31 (or M31 for short), better known as the Andromeda Galaxy – one of

(Above: The moon's orbital motion carries it past Neptune on Sunday, December 24 and then past Uranus on Wednesday, December 27, 2017. The sky is shown for 6 pm local time this week.)

I'm mentioning the moon's motion here because tonight (Sunday), the moon will be sitting 5° (a bit less than a palm's width) to the left of tiny Neptune, and on Wednesday night, the moon will be 5° below Uranus. That 5° separation won't help you locate the planets that easily, but it'll give you an idea of where they are in the sky after the moon passes on.

Uranus and Neptune are the only planets left in the evening sky, setting about 2 am and 10:30 pm local time respectively. Blue-green Uranus is midway between the two chains of stars that form the dim constellation of Pisces (the Fishes), about two finger widths higher than the two visible stars Omicron (\omicron) and Mu (μ) Piscium that bracket it. Tiny blue Neptune, which can only be observed in a telescope, is about half a finger's width below the medium-bright star Hydor in Aquarius (the Water-Bearer).

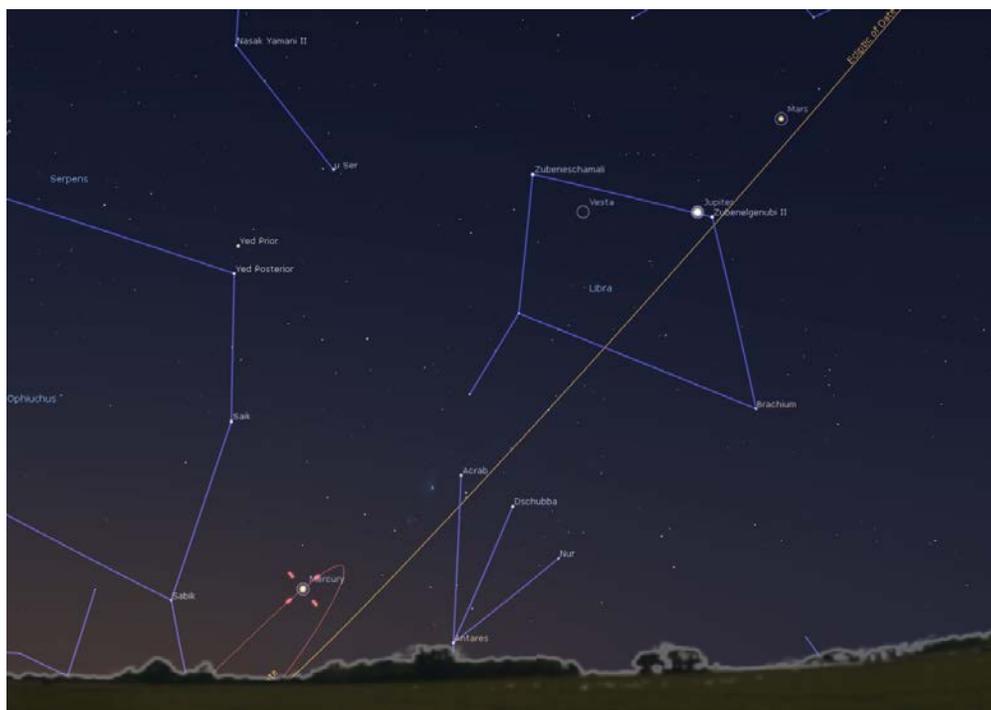


(Above: For the second time in December, the moon will pass in front of the bright star Aldebaran, which marks the reddish eye of Taurus the Bull. Times vary by region. In the GTA, the moon's dark edge will cover the star at 6:20:30 pm Eastern Time. Then it will emerge from the opposite limb at 7:19 pm. Be watching a few minutes ahead of each event.)

For the second time this month, the moon returns to cross the face of Taurus (the Bull) on Saturday evening. This time, for observers in most of North America, Greenland, and parts of Europe and Russia, the moon will pass in front of (or occult) Taurus' brightest star Aldebaran. In the GTA, the star will wink out behind the moon's dark leading limb at 6:20:30 pm Eastern time, and reappear at the opposite lit limb at 7:19 pm. Times vary slightly by region.

You can watch the event in binoculars or, better yet, a small telescope. Start watching a few minutes ahead of time, while Aldebaran is still nicely separated from the moon. Remember that the moon is closer to the star than you think because its leading edge is darkened. You can watch as the moon closes the gap – and then the star will suddenly disappear. (If the moon had an atmosphere, the star would gradually fade out!) Feel free to zoom in with your telescope for that part. If you're not sure where Aldebaran will pop out from behind the opposite side of the moon, use a lower power eyepiece that shows all or most of the moon's bright right-hand edge. As before, start looking a couple of minutes beforehand. And don't look away – it re-appears suddenly!

The planet party is in the pre-dawn sky! If you're an early riser, you've probably been seeing a very bright object shining in the eastern dawn sky. That's Jupiter, which rises just before 4 am local time this week. It's well above the southeastern horizon by dawn. It might remind you of the Christmas star shining in the east! At the same time, have a look at the bright star sitting only a finger's width to the right of Jupiter. That's the double star Zubenelgenubi in Libra (the Scales). Try your binoculars on it. That unusual name comes from the Arabic phrase for "southern claw", because the star used to be part of Scorpius (the Scorpion).



(Above: The morning sky planet party, shown on December 25 at 6:45 am, is led by Mars at upper right, followed by Jupiter near Zubenelgenubi, then Mercury.)

Much dimmer, and red-tinted, Mars rises about 30 minutes before Jupiter. Look for it sitting to Jupiter's upper right. On Christmas morning, Mars will be about a palm's width from Jupiter. But over the course of this week, Mars' eastward orbital

motion will carry it towards Jupiter, so that the separation between them will shrink to half of that next weekend. Keep an eye on them. The two planets will “kiss” next week!

This is an absolutely terrific week to see Mercury with your unaided eyes or binoculars! The normally elusive planet is climbing the pre-dawn sky this week and then descends next week. It’s going to be quite easy to see between about 6:30 and 7 am local time. It will be the medium bright “star” sitting low in the east-southeastern sky.

First Week in January

Quadrantid Meteor Shower, by Chris Vaughan

The annual Quadrantid Meteor Shower is underway. It peaks before dawn on Thursday, January 4, and you can continue to watch for fewer of them until the shower tapers off around January 10. The source material for these meteors is an asteroid designated 2003 EH. The average hourly rate is about 25, but during the short, intense peak period, it’s possible to see more than 100 per hour! Unfortunately, bright moonlight from moon’s waning gibbous phase on the peak night will reduce the number of meteors we see.

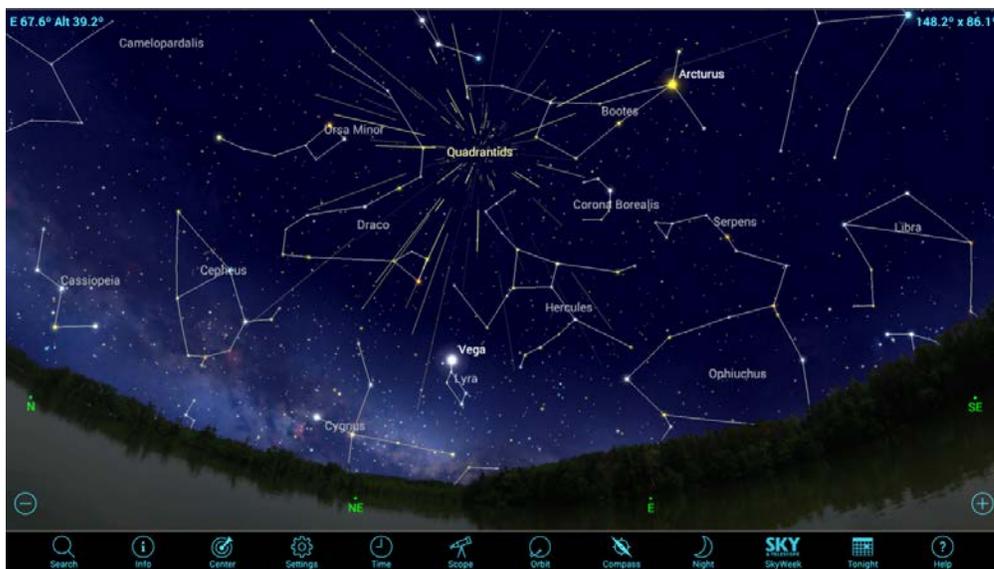


Photo: Chris Vaughan

(Above: The radiant for the Quadrantid Meteor Shower is located north of Bootes. The meteors can appear anywhere in the sky, but will be travelling away from the radiant. A very bright moon will wash out all but the brightest Quadrantids this year.)

The Quadrantid Meteor Shower is named for a former constellation called the Mural Quadrant, which was located between Hercules and the tip of the Big Dipper. The meteors can appear anywhere, but true Quadrantids will appear to be travelling

away from a location in the northern sky near the Big Dipper (their radiant point). This shower favours Northern Hemisphere observers worldwide. I'll post a sky chart showing the radiant on Tumblr here.

<http://astrogeoguy.tumblr.com/post/155270793372/a-beautiful-evening-moon-the-quadrantid-meteors>

The Moon and Planets

The January full moon phase, known as the Wolf Moon, Old Moon, or Moon after Yule, arrives at 9:24 pm Eastern Time on Monday evening. Like every full moon, this one rises at sunset and sets at sunrise. But the upright position of the ecliptic on winter nights causes January moons to climb much higher in the night sky and cast shadows similar to the summer sun. This full moon also occurs less than five hours after perigee, the point in the moon's orbit when it is closest to Earth, making this full moon the largest and brightest supermoon of 2018. **A month from now on January 31, the moon will also be "super" and pass through the Earth's shadow for a morning total lunar eclipse.**



(Above: A simulated small telescope view of Mars and Jupiter at closest approach. Jupiter will appear MANY times brighter than reddish Mars.)

On the coming weekend, we get a special treat! For weeks, the eastward orbital motion of red-tinted Mars has been carrying it towards Jupiter. And this weekend, they finally kiss! On both Saturday and Sunday morning, January 6 and 7, observers in the Americas will see the two planets separated by about one-third of a degree (less than a full moon's diameter). In a backyard telescope, the planets, plus Jupiter's four Galilean moons, will appear together within the field of view of a low power eyepiece! It will be a nice binocular sight, too. I'll post a diagram here.

ANOTHER SUPER NOVA DISCOVERY BY PATRICK WIGGINS!





NEWS RELEASE

For the second time this year, Patrick Wiggins, a Tooele County amateur astronomer, has discovered a supernova – the universe’s most ferocious type of explosion, which occurs when a massive star explodes.

Wiggins, a member of the Salt Lake Astronomical Society, gained international notice in May, when he recorded a supernova in the nearby bright galaxy NGC6946. In the early morning of Nov. 30 he did it again, noticing a faint blip on a galaxy he had just photographed in the Ursa Major, or Big Dipper, constellation. The dot was in the spiral galaxy NGC5480.

The galaxy is so far from Earth, estimated at more than 85 million light-years, that it appeared as a small smudge.

This is the fourth supernova he has discovered since he began searching in 2011. Automated observatories, such as the Gaia satellite orbited by the European Space Agency and the asteroid-hunting ATLAS telescopes in Hawaii, make more frequent supernova discoveries. But few amateurs operating their own telescopes have spotted these violent celestial events.

In a typical night looking for supernovas from his home observatory, Wiggins will spend at least two hours on the hunt – usually much longer, he says.

He has programmed a computer to point the telescope and take several hundred photographs of galaxies each time he mounts a search. He then compares earlier views he has taken of the same “star cities” with the most recent, carefully examining each for the sometimes-subtle indications of an exploding star.

At 3:42 a.m. on Nov. 30 he photographed the galaxy in question. When he peered at a pair of his photos of it, he thought he might have noticed a change in one of the images. “I almost missed it,” he said in an email.

“Unlike the supernova I found earlier this year which was very bright and pretty much called attention to itself the new find looked so much like a bad spot in the image that I initially passed it by. It’s only because of the little voice in the back of my head bugging me to go back and look again that I eventually caught it.”

He decided to take another picture of the faint galaxy an hour later, and the bright dot remained where he had noticed it, to the southeast of the center of NGC5480.

Wiggins reported the find to the International Astronomical Union and waited for confirmation. Soon afterward, an observatory in California checked and also saw the dot of light. A few days later, a spectroscopic analysis confirmed that it is a Type Ib supernova. This is a type that occurs with the detonation of a rare type of star, a supergiant that has lost its hydrogen and most or all of its helium, according to a study by Alexei V. Filippenko of the University of

California, Berkeley. The gases may have been stripped off by stellar winds or mass transfers of material to a nearby companion, the study adds.

A Type Ib supernova is far less common than the Type II that Wiggins discovered earlier this year. Once the latest find was officially confirmed, it received the designation SN 2017iro and the discovery was credited to Wiggins.

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Note: Photo of galaxy NGC5480, with supernova indicated, is by Patrick Wiggins. Photo of Wiggins is by Joe Bauman

For more information call

Wiggins at (435) 882-1209, email 4099wiggins@gmail.com

or Bauman at 801-913-3588, email josephmbauman@yahoo.com

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Link to article in Salt Lake Tribune: <http://www.sltrib.com/news/2017/12/20/how-this-dedicated-utah-amateur-astronomer-discovered-not-one-but-two-supernovas-in-2017/>

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“Finding Darkness” Project to Help Save Dark Sky Areas in Rural Utah

Press Release

Media Contact

Royce Bair

royce.bair@gmail.com

801-558-2701 - Mobile

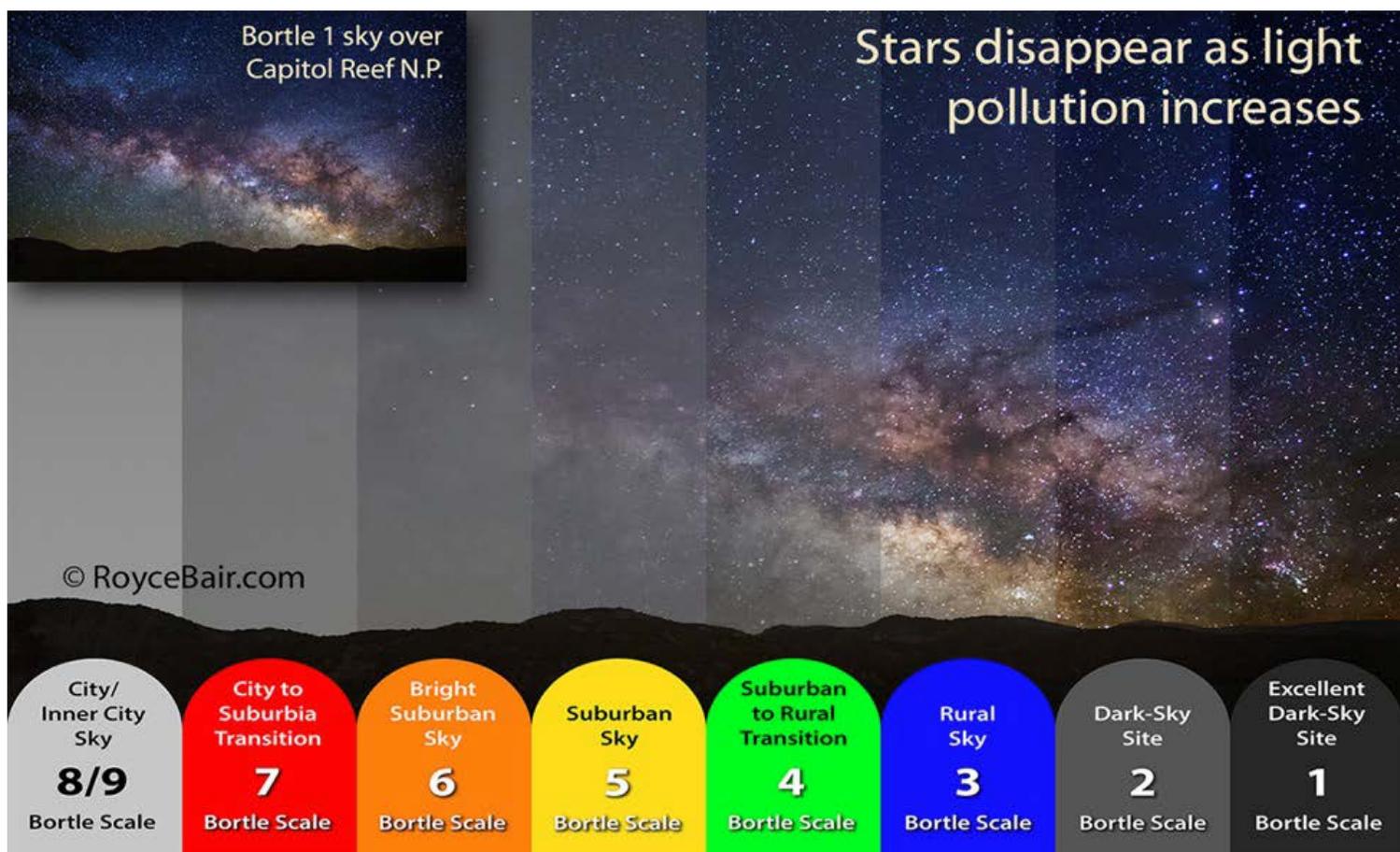
FOR IMMEDIATE RELEASE:

“Finding Darkness” Project to Help Save Dark Sky Areas in Rural Utah

Local photographer on a quest to find and preserve night sky regions

as sanctuaries for starry night sky observation

WEST JORDAN, Utah – December 27, 2017 – Photographer, Royce Bair, is on a “Finding Darkness” quest to locate, photograph and help preserve remote areas in rural America as sanctuaries where people can retreat to see the starry night sky.



“Less than 80% of us in the United States have ever seen the Milky Way,” says Royce Bair!
 “Most us can see only a few of the brightest stars from our suburban homes. As late as 1889, Van Gogh was able to experience and paint his famous ‘Starry Night’. If he were alive today, there would be nothing in the night skies over Saint Rémy, France to inspire him, as the Milky Way can no longer be seen from there,” continues Royce.

Royce’s “Finding Darkness” project is not an effort to eliminate modern light pollution, but to increase awareness of its effects, in an effort to help preserve the dark sky areas we have left in rural America—sanctuaries where people can contemplate, dream and relate to the universe above us.

Mr. Bair recently completed a Kickstarter crowdfunding calendar project called “Starry Night Quotes” <https://www.kickstarter.com/projects/477834367/milky-way-and-starry-nights-calendar-with-quotes>

Five dollars from each 2018 calendar sale via his FindingDarkness.com Etsy website

<https://www.etsy.com/listing/580190197/starry-night-quotes-2018-wall-calendar>

will be donated to the International Dark-Sky Association <http://www.darksky.org/> to help preserve dark sky regions.



Currently, all of Utah’s five national parks and most of its national monuments provide excellent retreats to see and photograph the starry night sky. “Unfortunately, Arches National Park has begun to lose some of its better dark sky regions due to encroaching light pollution from nearby Moab, Utah,” laments Royce. He points out that many concerned citizens in Moab are working to reduce this intrusion. Other towns, like Torrey which is next to Capitol Reef National Park, have already begun steps to significantly reduce their night lighting footprint.

###

MINUTES OF THE SALT LAKE ASTRONOMICAL SOCIETY BOARD MEETING

November 8, 2017

Board members in attendance: Dave Bernson, Joe Bauman, Aleta Cox, Nate Goodman and Rodger Fry

General members in attendance: Patrick Wiggins, Charlie Green, Cory Bauman, Leslie Fowler, Luke Moses, Enid Norton and Joan Carman

Meeting called to order: 7:00 PM

Christmas Party Gift Shopping

Dave Bernson asked for volunteers to help purchase gifts for the Solstice Party that will be held at the Golden Corral on Dec. 2nd at 6:30PM. Rodger Fry mentioned that we have \$1,045 in the fund of which \$200 should go toward the tip. Rodger Fry presented a motion that we present for vote next week at the general meeting to spend up to \$800 from this fund for gifts. Aleta Cox seconded the motion and the vote was unanimous. Dave said he would send out a SLAS Blast asking members for suggestions on what they would like purchased for drawing gifts. Rodger Fry mentioned that we have two of the Universe Books from SPOC that will be brought for the drawing and several shirts and hats from the Kolob Building dedication that will be available.

Board Member Reports:

Aleta Cox

Said that we have a request from Kathy Donnell to have a star party at the event for the Dark Sky Designation at Wasatch Mountain State park in conjunction with Deer Creek State Park and Jordanelle State Park. This will be at 6:00PM on Friday November 17, 2017. She indicated that up to 10 members have indicated that they would come. She will not be able to attend but will add the event to the SLAS website calendar of events

Nate Goodman

Nate Goodman that he had good support for volunteers at the SPOC star parties and that the Solar parties in 2017 went well. The first solar party at the Natural History Museum of Utah will be held from noon to 3:00PM on Saturday December 9th weather permitting.

Joe Bauman

Joe Bauman reported he has signed the contract between SLAS and the Salt Lake County ZAP grant. This has stipulations that we must follow that include our recognizing ZAP's support of functions. He will make the stipulations available, so we will be sure to abide by them. Joe said that the final imaging session using the Eccles Observatory with the U of U will be on Monday evening November 13, 2017. Following that, Paul Ricketts will go to the observatory and close it down for the winter. Joe said he will send out a SLAS Blast about that.

Rodger Fry-Secretary/Treasurer

The secretary treasurer's report was given as can be found on the website.

Rodger Fry-Observatory Director

The observatory was closed for the season on October 31, 2017. Rodger Fry has scheduled a SPOC advisory committee meeting at 1:00PM on Saturday November 18, 2017 at the Denny's at 255 West 500 South. Rodger Fry said he would like to see a section placed on the web site documenting the construction of the Kolob Building. Patrick said that he has this in the works. Rodger Fry mentioned that he has purchased a 2" beta-hydrogen filter for the Clements telescope to help enhance the Horsehead Nebula.

Rodger Fry mentioned that he is working on a magazine article about the Clements telescope at SPOC and is hopeful to have it in Sky & Telescope magazine. Rodger will forward a copy of this to attendees at this meeting.

Patrick mentioned that Kyle Dawson (U of U Professor) donated to SLAS an original Sloan Digital Sky Survey mask which is now mounted on the west wall of the Kolob Building.

Joan Carman-Library Loaner Telescope Project

Joan Carman said that she has scheduled a build of the telescopes to be held on Saturday November 25th time to be determined at the St. Matthew Lutheran church located at the corner of 27th West and Builders Drive (5225 South). She is asking for volunteers to help with this. Joan said that she would provide lunch.

Dave Bernson

Dave Bernson said that the David W. Teske star map is now back in print and suggested that we order one to be displayed at SPOC. Rodger Fry said that we have room on the west wall of the Kolob Building.

Old Business

Enid Norton has been doing an excellent job of documenting attendance at the star parties this year. She has been keeping this information on a spreadsheet on Google Drive, but they will be discontinuing this service in 2018. Patrick Wiggins said that he would see that a copy was posted on our web site.

Enid Norton said that we had 2,454 people ask for drawing tickets at the various SPOC star parties during the season and that we had one totally clouded out with no visitors and two that were clouded out but we had visitors present.

New Business

No new Business

Meeting Adjourned: 8:00PM

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SLAS General Meeting Minutes

Date: November 15, 2017 7:30 p.m. Meeting called to Order

Location: Room 209 Calvin Rampton Technology Building at Salt Lake Community College

Attendance: 30 members and guests

Board Members present were: Dave Bernson, Joe Bauman, Nate Goodman, Aleta Cox and Rodger Fry

Dave Bernson acknowledged the current SLAS board members, all of which were present, and indicated that the two newly elected board members for 2018 were Denise Larsen and Jim Keane. Dave mentioned that due to the efforts of Joe Bauman, we were granted a \$2,000 ZAP from Salt Lake County. The grant will come in two \$1,000 installments one in February and one in May.

Dave presented a preliminary star party schedule generated by Siegfried Jachmann and said the transitional board meeting will address this next month. Joe Bauman indicated that we should schedule some star parties on nights other than Friday and Saturday because not all of those interested can make weekend events.

It was mentioned Wasatch Mountain State have scheduled the star party this coming Friday night, November 17, 2017 but the weather looks very unfavorable. We currently have at least 10 people signed up for this event.

Dave Bernson indicated that because of our volunteer efforts in assisting the AstroCon 2017 SLAS will be receiving \$5,000 from Astronomy League as our part of the proceeds.

Joe Bauman Talked about the imaging sessions using the Eccles telescope operated from the U of U. The session scheduled for this past Monday, November 13, 2017 was cancelled due to a hard drive failure. Paul Ricketts with the U of U is planning to go there and repair this and it is hoped that we can have an imaging session on Monday, November 20, 2017. Joe will send out a SLAS blast.

Dave Bernson Presented:

Across the Water to the Princess in Chains
Celestial Highlights of the Autumn Sky

The meeting was adjourned at 8:55 p.m. and dismissed to Advanced Training.

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November 18, 2017

SPOC ADVISORY COMMITTEE MEETING AGENDA

1. Discussion of 2017 season
 - a. Things that worked
 - b. Things that need attention
 - i. The sound with announcements was distracting to many folks. Suggest moving the announcements to the east by the skateboard park. Also, turn down the volume. Also recommended getting a 2-digit sign that will display those requested at the telescope (Rodger will look for this).
 - c. Crowd control recommendations

- i. The system worked adequately last year for crowd control. (Rodger will purchase a clicker to count visitors)

2. Off-Season Projects to think about and work on

a. Bogdan Refractor

- i. Paddle control system.
 - 1. We will remove the paddle system.
- ii. Extension tubes for finder (Bill Kennedy will do this) also add friction device to focuser so that gravity won't let it slide when pointed near Zenith.
- iii. Sand Blast and re-prime/paint dome (Rodger will find contractor)
- iv. Stainless steel kick plates on door or replace door (Rodger will look into this)

b. Ealing

- i. Sky Wizard (We will check on ways to keep the belt drive system from slipping (friction tape?) and leave system in place (Rodger Fry & Jim Keane will look at this)
- ii. Patrick Wiggins and Ann House are working on a list of recipients and contributors for additions to the "Micky Mouse Telescope" a list of what they summarize will be placed in the display case.

c. Grim

- i. Inspect Belt drives & pulley alignment (Rodger Fry & Jim Keane will look at this).
- ii. Lubricate bearings (Rodger Fry & Jim Keane will look at this).
- iii.

d. Clements

- i. Install one Red LED work light (Bill Kennedy will provide information on red LED lights. Rodger Fry will order and install.
- ii. Finish counter weight cart (Mike and Luke will finish this)
- iii. Make charging and power system more user friendly (Luke Moses has some ideas on this (Bill Kennedy recommended one double pole-double pole switch that will have Charge-Off-Operate positions)
- iv. Add alarm system to building (Rodger C. Fry will handle this)
- v. New shrubs (Stansbury has agreed to pay for these)

e. Bill Kennedy will replace battery in Princes Lea (Rodger will bring to Solstice Party)

3. Wish list of items for purchase

- a. Bogdan
- b. Ealing Order short 2" to 1 1/4" adaptor with threads for filter & GSO superview w/80 degree FOV
15mm eyepiece 1 1/4" (Rodger Fry will do this)
- c.
- d. Grim
- e. Clements
- f. ADA telescope
- g. C-14 telescope GSO 30mm 2" super view eyepiece w/80 degree FOV. (Rodger Fry will do this)
 - i. Install three paver stones to set up telescope on. (Rodger Fry will do this)
- h. General
 - i. SPOC committee meeting to be held about third Saturday in February 3:00PM
 - ii. SPOC training to begin about first of March weather dependent with Instructor refresher followed by general refresher and then general training.
 - iii. Rodger Fry will order a star chart map which Dave Bernson will email him the information on. This will be hung on the northwest wall of the Kolob Building.

#

**MINUTES OF THE SALT LAKE ASTRONOMICAL SOCIETY BOARD MEETING
December 13, 2017**

Board members in attendance:

2017 Dave Bernson, Joe Bauman, Aleta Cox, Nate Goodman and Rodger Fry

2018 Dave Bernson, Joe Bauman, Jim Keane, Nate Goodman and Denise Larsen

General members in attendance: Patrick Wiggins (without his Voice what a treat!), Tony Sarra, Cory Bauman, Leslie Fowler, Luke Moses & Jill, Siegfried Jachmann and Joan Carman

Meeting called to order: 7:00 PM

Dave recognized the outgoing 2017 Board Members

Board member at large Aleta Cox and Secretary-Treasurer Rodger Fry (They have both been extremely gracious about walking the plank).

Dave Bernson Welcomed the new 2018 board members:

Jim Keane will be handling the Special Star Parties and Denise Larsen is the new Secretary/Treasurer. Dave asked Aleta Cox if she would be willing to coach Jim Keane in his duties and Rodger Fry if he would coach Denise Larsen in hers. Both agreed to help as needed.

2018 Membership Dues Structure

A lengthy discussion was made about whether or not to increase the dues or leave it as it is. The biggest need to increase the dues would be to cover the increased cost for insurance but we have a surplus in the general fund. After the discussion the motion by Rodger Fry was made for the dues structure as follows:

General Fund	Entertainment	Astronomy League	Insurance	SPOC
\$4.00	\$3.00	\$5.00	\$5.00	\$3.00

This will leave the dues at \$20/year. This motion also included that the \$5,000 that we will receive from ALCON at the end of the year will be placed in a special (other) fund for allocation at a later date. Dave Bernson indicated that the voice of Lowell Lion should weigh heavy on how this money is spent because of his work in putting the convention together.

Joe Bauman seconded this motion and the vote was unanimous.

2018 Star Party Schedule

A discussion was held regarding the proposed 2018 star party schedule that Siegfried Jachmann volunteered to put together. The only change that was suggested was to add a SPOC star party on July 27, 2018 for the closest approach of Mars to Earth in the next 10 years.

Rodger Fry presented a motion to approve the schedule with the noted change to add the Mars star party and Nate Goodman seconded the motion. The vote by the 2017 board was unanimous. (The schedule is below).

Joe Bauman indicated that we should encourage certified operators of the SPOC equipment to volunteer to open the observatory for mid-week public star parties so that those who have conflicts in attending weekend star parties can do so. This schedule will be in the January NOVA for the members to review.

2018 Meeting Schedule

Patrick Wiggins reminded the board that we need to establish the 2018 meeting schedule for the board and general meetings and have this published in the January NOVA. Rodger Fry presented a motion that the board meetings be held on the 2nd Wednesday of each month at 7:00PM and the General meetings be held the 3rd Wednesday of each month at 7:30PM except for December when the Solstice Party is held.

Joe Bauman seconded the motion and the vote by the 2017 board was unanimous.

Old Business

Rodger Fry had the 2018 board members sign the Bank of Utah signature cards and provide identification for the bank. Rodger Fry issued a check to Dave Bernson in the amount of \$378.60 for the Solstice Party gifts. Dave couldn't find the receipt for the binoculars and eyepieces, so this expense will be forthcoming after he procures the receipt.

New Business

Aleta Cox received a request for a volunteer to provide a telescope for students to view the moon at a science night for Welby Elementary School on the Evening of February 27, 2018. Joan Carman said she would do this.

Meeting Adjourned: 8:00PM

STAR PARTY 2018 SCHEDULE VOTED ON BY BOARD (as described in the minutes above)

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Mars	Dusk until.
MAR					1	2	3		
	4	5	6	7	8	9	10		
	11	12	13	14	15	16	17		
	18	19	20	21	22	23	24		
	25	26	27	28	29	30	31		
APR	1	2	3	4	5	6	7 SPOC	9	9:00
	8	9	10	11	12	13 Private	14 Private		
	15	16	17	18	19	20 Taylorville Harmons	21 SPOC	10.1	9:00
	22	23	24	25	26	27	28 Sun Party		
MAY	29	30	1	2	3	4 Wheeler Farm	5 SPOC		
	6	7	8	9	10	11 Private	12 Private	12.4	10:00
	13	14	15	16	17	18	19 SPOC		
	20	21	22	23	24	25 Cougar Harmons	26 SPOC	14.4	10:00
JUNE	27	28	29	30	31	1	2 Sun Party		
	3	4	5	6	7	8 Wheeler Farm	9 SPOC	16.8	11:00
	10	11	12	13 BRY	14 BRYCE	15 BRYCE / Private	16 BRYCE / Private		
	17	18	19	20	21	22 (Ryan Morris) Brickyard Harmons	23 SPOC	19.4	11:00
24	25	26	27	28	29	30 Sun Party			
JULY	1	2	3	4	5	6	7 SPOC	22	11:00
	8	9	10	11	12	13 Private	14 Private		
	15	16	17	18	19	20 7th Street	21 SPOC	23.9	11:00

						Harmons		
	22	23	24	25	26 24.2	27 24.3  SPOC Mars Closest approach	28 Sun Party Mars SPOC party?	24.3
AUG	29	30	31	1	2	3 Wheeler Farm	4 24.3  SPOC	24.3 11:00
	5 24.2	6 24.2	7	8 24.1	9	10 Private	11  Private	
	12	13	14	15	16	17 Bangerter Harmons	18  SPOC Stansbury Days	23 11:00
	19	20	21	22	23	24	25 Sun Party	
SEP	26 	27	28	29	30	31 Wheeler Farm	1 SPOC	20.8 10:00
SEP	2 	3	4	5	6	7 Private	8 Private	
	9 	10	11	12	13	14 So Jordan Harmons	15 SPOC	18.4 10:00
	16 	17	18	19	20	21	22 Sun Party	
	23	24 	25	26	27	28 Wheeler Farm	29 SPOC	17 10:00
OCT	30	1	2 	3	4	5 Private	5 Private	
	7	8 	9	10	11	12 7th Street Harmons	13 SPOC	14 9:00
	14	15	16 	17	18	19	20 SPOC (Optional)	9:00

7th Street	7750 S 700 East	2		
Brickyard	3200 S 1300 East 13800 South	1	SPOC	18
Bangerter	150 East 5400 S Redwood	1	Harmons	7
Taylorsville	Road 10400 S. Redwood	1	Wheeler	6
So Jordan	Road 4800 W	1	Sun	6
Cougar Harmons	6200 South	1	Bryce	1

HQ	4000 W 3500 South	0	Public Star- Parties	38
Holiday		0	Private	7
114th Harmons	11400 S. 700 East	0		

Total: 7

#

From the Editor:

All are welcome to submit personal viewing experiences, knowledge topics, reviews of equipment and any other material to the Editor. All submissions welcome.

Thank you for your support of your SLAS Newsletter, NOVA

Warmly, Shoshana Ebertz, Editor
ebertz@comcast.net

SLAS Member Information

The SLAS Member Information file is available at <http://slas.us/slasbooks/NEWMEM.PDF>.

Loaner Telescopes for SLAS Members

SLAS has several scopes available for loan to current SLAS members. Check the SLAS website under "Membership Benefits" for details.

General Meetings are held monthly, and are open to the public. General meetings are held the third Wednesday of each month January through November, begin at 7:30 pm and generally end by 9:00 pm. In December the annual members-only Solstice Festival replaces the General meeting on the first Saturday of the month. The board meets on the second Wednesday of each month from 7:00 to about 8:30 pm. Board meetings are open to everyone.

Please check the [website](http://www.slas.us) for meeting locations. The website is located at www.slas.us and provides information on most all SLAS activities. Club members may log in to the site's Members Only area and access information not available to the public.

NOVA is an official publication of the [Salt Lake Astronomical Society](http://www.slas.us), a non-profit organization and can be found here slas.us/nova_archive.asp. NOVA contains minutes of meetings, Board member names & contact info, educational and instructional articles and photographs, activities, reports and special club events and is published to the membership and friends on the last day of a bi-monthly schedule. The editor of NOVA is appointed by the Board. Members are encouraged to contribute content. The current NOVA editor is Shoshana Ebertz 801.884.7522

2018 SLAS Board of Directors

President Dave Bernson	801.263.9264	bernsondave@gmail.com
Meetings		
Vice President Joe Bauman	801.583.7935	josephmbauman@yahoo.com
Publicity, PR and Web Content		
Secretary-Treasurer Denise Larsen	801.913.1622	climberette@yahoo.com
Membership Dues & Renewals		
Board Member at Large Nate Goodman	801.277.0193	ngoodman6053@gmail.com
SPOC Star Party Coordinator		
Board Member at Large Jim Keane	801-942-3516	jimk@sisna.com
School & Special Star Parties		

Appointed Positions

Astronomical League Contact	Aleta Cox	801.966.2636	alc@fredccox.com
Equipment Manager	Luke Moses	970.376.2529	luke.moses1@gmail.com
Historian	Patrick Wiggins	435.882.1209	4099wiggins@gmail.com
NASA Night Sky Ambassador	Ann House	801.671.8447	ann@annhouse.org
Newsletter Editor	Shoshana Ebertz	801.884.7522	ebertzs@comcast.net
Observatory Director	Rodger Fry	801.288.0851	rcfry@comcast.net
Private Star Party Coordinator	Don Colton	801.571.9757	dcoltonsprint@earthlink.net
Solar Scope Manager	Ken Porras	801.210.8427	kennethprrrs@gmail.com
Webmaster	Ken Warner		webmaster@slas.us
ZAP Grant Writer	Joe Bauman	801.583.7935	josephmbauman@yahoo.com

Current SPOC Advisory Committee

Chair through DEC 2018	Rodger Fry	801.288.0851	rcfry@comcast.net
Member through JAN 2018	Rodger Fry	801.288.0851	rcfry@comcast.net
Member through JAN 2018	Stan Eriksen	801.446.1479	staneriksen@icloud.com
Member through DEC 2017	Larry Holmes	801.467.7855	larry@kijoda.com
Member through JAN 2018	Bill Kennedy	801.964.6199	truss_tube@hotmail.com
Member through JAN 2018	Nate Goodman	801.277.0193	ngoodman@lgcy.com
Member through JAN 2019	Ken Porras	801.210.8427	kennethprrrs@gmail.com
Member through JAN 2019	Jim Keane	801.913.7372	jimk@sisna.com
Member through DEC 2020	Patrick Wiggins	435.882.1209	4099wiggins@gmail.com
Member while SLAS President	Dave Bernson	801.263.9264	bernsondave@gmail.com
Member as Obser. Dir. Emeritus	Bruce Grim	435.882.5237	bmargrim@msn.com
Member while Harmons Rep.	Tara Haynie		

SPOC Telescope Instruction Coordinators

Patrick Wiggins	Refractor	435.882.1209	4099wiggins@gmail.com
Bill Kennedy	Ealing	801.964.6199	truss_tube@hotmail.com
Rodger Fry	Grim	801.288.0851	rcfry@comcast.net
Mike Clements	Clements	801.557.0187	mr70inch@gmail.com

Updated January 1, 2018

Events Calendar

View a list of all SLAS events online on the [Events Calendar](#)

Activities:

SPOC committee meeting to be held about third Saturday in February 3:00PM

SPOC training will begin about first of March weather dependent with Instructor refresher followed by general refresher and then general training.

General Meeting: SLCC Redwood Campus, (App. 4600 s. Redwood Road.) at the Calvin L Rampton Building, at the north east corner of the campus, room to be announced. Free parking is available east of the building, in the Q lot.

General Meeting Schedule 2018

January 17, 2018 at 7:30 pm (above)
 February 21, 2018 at 7:30 (above)
 March 21, 2018 (above)

Board Meeting: All members and guests are welcome from 7:00 – about 8:00 p.m. at Denny’s Restaurant, 250 W. 500 S., Salt Lake City.

Board Meeting Schedule 2018:

January 10, 2018 at 7:00 pm at Denny’s (above)

February 14, 2018 at 7:00 pm at Denny’s (above)

March 14, 2018 at 7:00 pm at Denny’s (above)

SPOC Observatory: http://slas.us/images/MAPS/SPOC_Map.gif

Clear Skies!



Photo Credit: Chris Vaughan (astrogeoguy)