

THE EVENT HORIZON



ST. LOUIS ASTRONOMICAL SOCIETY

Devoted to the Interest and Advancement of the Science of Astronomy

VOLUME 30, Issue 1
January, 2020

Boot Prints and Rover Tracks: Where Will We Land Next?

by
Dr. Ryan Watkins
The Planetary Institute

Dr. Ryan Watkins of the Planetary Science Institute will be featured at the January meeting of the Saint Louis Astronomical Society. The meeting will begin at 7:30 PM Friday, January 17 in McDonnell Hall, Room 162, on the Washington University campus, Saint Louis, MO 63105. McDonnell Hall is accessible from Forsyth Boulevard via Tolman Way.

It has been 50 years since the Apollo missions to the Moon, and the U.S. has yet to land another robotic or crewed spacecraft on the lunar surface. However, there is renewed interest by both NASA and commercial companies to return humans to the Moon in the next decade. While much has been learned from the Apollo missions and robotic orbiters, many questions still remain. Among them are details about the Moon's formation and evolution, the variety of its surface materials, and its internal structure. Possible landing sites for conducting high-priority scientific investigations have been examined and selected by lunar scientists and highlighted in a recent Lunar Science for Landed Missions Report. Dr. Watkins will

discuss how data from NASA's Lunar Reconnaissance Orbiter is being used to evaluate these and other potential lunar landing sites for the next U.S. human and robotic missions to the Moon.

Dr. Ryan Watkins is a Research Scientist with the Planetary Science Institute. She uses remote sensing to study the physical and compositional properties of the lunar surface. Dr. Watkins serves on the Science Advisory Board for Blue Origin's Blue Moon lander project, as well as on the Next Generation Lunar Scientists and Engineers Organizing Committee and the Lunar Exploration and Analysis Group Executive Committee.

<https://www.psi.edu/about/staffpage/rclegg-watkins>

Upcoming Presentations for 2020

- February** K Michael Malolepszy Probing the Sub-Microwave Universe Part II SLAS
March Joseph N Marcus, MD Carl Lampland, Pioneer Infrared Astronomer SLAS
April Raymond E Arvidson, PhD What Controls Planetary Climates Washington University
May William McKinnon, PhD Something about Ultima Thule of Course! Washington University
June Vayujeet Gokhale, PhD The Science of Light Pollution Truman State University
July Amy E Kimball, PhD Radio Quasars & the VLA National Radio Astronomy Observatory (Zoom)
August Jeffrey Gillis-Davis, PhD Apollo XIII Plus 50 Years Washington University
October Marco Cavaglia, PhD Gravitational Waves Part II University of Missouri: S & T

Inside This Issue

President's Corner	2
Homemade Fest	
Volunteer Hours 2019	3
Recent Reports of the Demise of Betelgeuse	3-6
Gallery	7
Board minutes	8
Financials	9
Events	10
Contacts	11

January 2020 Membership Recognition Recipients

The following members of SLAS will receive membership recognition pins and certificates at the November meeting. Please come to the meeting if possible!

5 Year Certificates and Pins
David Ebers
Nicholas Kirschman
Roy Lieberman
Rosanne Naunheim

Chris Nobbe
Major Michael Floyd Thompson

10 Year Certificates and Pins

Bruce Boston
Diana Boston
Brent Buch
Larry Campbell
Alan Sapia

15 Year Certificates and Pins

Afred Schonvanez
Daniel Corso
John Duchek
Thomas Schloemann

Ann Trull
Jim Trull
Jim Twellman

20 Year Certificates and Pins - Rodney Rynearson

John Sullivan
25 Year Certificate and Pin -
Paul Baldwin

30 Year Certificate and Pin

Allan Stewart
45 Year Certificates -
Rich Heuermann
Mark Jones

President's Corner
by
Jim Small

The budget passed at the last meeting without a problem. Again, thanks to all who helped put it together and document all the various areas. Thanks for all the input from various people to clear up some areas of interest.

Some materials were purchased for outreach using the library budget. An updated Moon globe was purchased as well as a Celestial Sphere model which may be used to explain things like the ecliptic, equinoxes, solstices, right ascension and declination, etc.

This month at the regular meeting, we will award recognition pins as advertised on the front page for various levels of continuous membership. The max for the awards this year is 45 years! See page one to see if you are on the list.

Elsewhere in the newsletter is a list of all members who participated in outreach events for 2019. Check the list and get back to Mark Jones if there are errors in the number of events/hours for your listing. Outreach awards will be given out at the February meeting.

Homemade Fest is next month the day after the regular meeting on Saturday, February 22nd. We sure hope to see

you there for our annual middle-of-winter pot luck dinner event! Be sure to RSVP so we know how much to bring in the way of plates, drinks, etc. Be sure to bring a dish of some kind for the event as well. It can be a main dish or a side or a dessert! If you have anything you would like to share with the group during the presentations, let us know you want to present and we'll get you on the program!

We will be doing outreach volunteer training and participation in the training will get you a SLAS volunteer t-shirt! Watch for an announcement for that event to take place. Speaking of outreach, we are looking to modify our rules of engagement for booking outreach events and we need help to work through the details. Mark Jones has put together a proposal to help our overbooked outreach dilemma and has some possible solutions to help out with the volunteer situation we are encountering. Less than 1/3 of our members actually volunteer for outreach, so we will be looking for ways to get more people involved.

We are still working on nomination forms for our new membership recognition awards program and we hope to get that information to the membership as soon as possible.

MSRAL dates (June 12-14) have been set and you can look for information about the conference at www.msral.org

Homemade Fest 2020

Saturday, February 22, 2020
Kirkwood Community Center

Join fellow SLAS members and guests for our annual winter pot-luck dinner meeting!

Doors open at 4pm to unload equipment and food and to set up the room. We will begin eating at 6pm.

Formal Opening and presentations begin at 6:45pm. This is a show-and-tell meeting.

Members are encouraged to present anything of astronomical interest they have bought, built, refurbished, improved or just can't do without.

You can present your favorite image or explanation of a concept as well.

This is your chance to share with your fellow SLAS members!

SLAS will provide the soda, coffee and paper goods.

So bring a favorite dish or dessert to share and let's enjoy each other's company and love for Astronomy on this long winter's night.

Attendance prizes will be drawn throughout the evening

If you have questions or wish to present, please contact Mark Jones for more information.

This event is free to all SLAS members and their families. Guests are \$5 each.

RSVP on SLAS Night Sky Network is optional but encouraged.

**SLAS Volunteer Hours for 2019
by
Mark Jones**

Based on the volunteer hours logged in Night Sky Network, the members listed below contributed in 2019.

A total of 1475.5 hours have been logged in NSN

If you believe your hours are in error please let me know or update NSN before Jan 20th.

For those events lasting more than 6 hours volunteers were credited with 2 events if they accumulated 6 or more hours for that event.

Based on these numbers 22 members have 5 or more events.

4 members had 4 events and 24 members has 1-3 hours.

That means 53 members volunteered for 2019 Outreach programs.

Thank you to all !

Donald Ficken	84	events;	195	hours
Bradley Waller	57	events;	162	hours
Cook Feldman	42	events;	119	hours
Mark Jones	34	events;	101	hours
Richard Jennings	30	events;	77	hours
James Small	26	events;	91	hours
John Beaury	23	events;	70.5	hours
Bill Breeden	21	events;	68.5	hours
Rita Breeden	20	events;	65	hours
Frank Mack	19	events;	37.5	hours
Larry Campbell	16	events;	43	hours
Rich Heuermann	16	events;	24	hours

John Strebeck	14	events;	40.5	hours
Sharon Bertram	13	events;	31.5	hours
Kathryn Czeschin	12	events;	24	hours
Richard Fefferman	10	events;	25.5	hours
Rick Menendez	9	events;	29.5	hours
Alfred Schovanez	9	events;	26.5	hours
William Neubert	8	events;	25	hours
Phyllis Nolan	8	events;	22	hours
Carl McCullough	6	events;	15.5	hours
Bill Biermann	5	events;	13	hours
Ann Trull	4	events;	14.5	hours
Jim Trull	4	events;	14.5	hours
David Adkins	4	events;	13.5	hours
Raymond Mueller	4	events;	11	hours
Robert Sullentrup	4	events;	11	hours
John Boncek	4	events;	6.5	hours
Randy Harrison	3	events;	14	hours
Mary Barteau	3	events;	7	hours
Timothy Hulla	3	events;	7	hours
Charles Laughton	3	events;	5	hours
John Zinn	2	events;	9	hours
Jeff Kisslinger	2	events;	6	hours
Anna Schroeter	2	events;	4.5	hours
John Sullivan	2	events;	4	hours
Brett Wilhelm	2	events;	2.5	hours
Mark Fedde	1	events;	5	hours
Maryanne Angliongto	1	events;	3.5	hours
Brittany Burney	1	events;	3	hours
Gregory Rigelman	1	events;	3	hours
Lance Traylor	1	events;	3	hours
Renee Mettle	1	events;	3	hours
Yamiel Bell	1	events;	3	hours
Brian Mills	1	events;	2.5	hours
Derek Kalista	1	events;	2.5	hours

**Recent Reports of the Recent Demise of Betelgeuse
by
Grant Martin**

Isn't it always the case that when you go "Off the grid" all the really interesting things happen? I recently dropped off just to get away from all the hoopla in politics. I just needed a break from the surreal world. When I came back up for air, I was mildly amused by some recent headlines of an astronomical nature:

"Betelgeuse dims, may be nearing Supernova",

"Betelgeuse dramatically changing – signals demise is near",

"Betelgeuse's bizarre dimming has astronomers scratching their heads",
and one of my favorites

"Betelgeuse: Star is behaving strangely and could be about to explode into a supernova, astronomers say"

*"The more things change, the more they stay the same". *Deep sigh* What the heck is all this about? After suffering through several news stories written by professional writers that don't know there's a difference between Astronomy and Astrology, I kinda got the gist of what's going on: Betelgeuse is just going through the normal phase of a variable star. The reports of the imminent demise of Betelgeuse seemed more like "Click-Bait" than anything of true concern (although seeing a star only 642 light years away go Supernova would be a pretty cool thing to see!).*

(Continued on page 4)

(Continued from page 3)

The reports from various sources about the rapid dimming of this once glorious star are true (see it for yourself – that’s why this missive is being written), the estimates of when it may or may not go Supernova differ. More information on this phenomenon can be found via a SMART web search so we won’t go into detail here. But, presented for your personal edification are several finder charts for brightness estimation.

The area of interest is shown at right (Larger version of these charts are at the end of this write-up). Betelgeuse is the star on the right shoulder of Orion (The star on the left from our perspective).

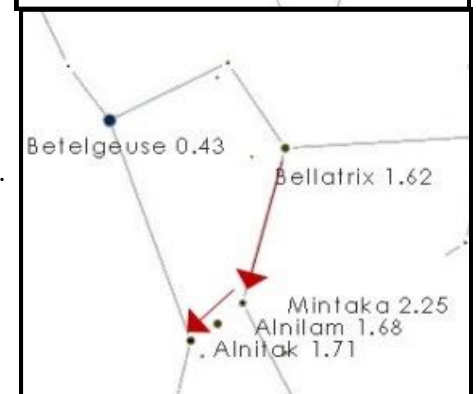
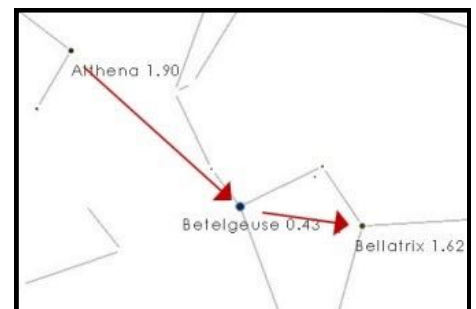
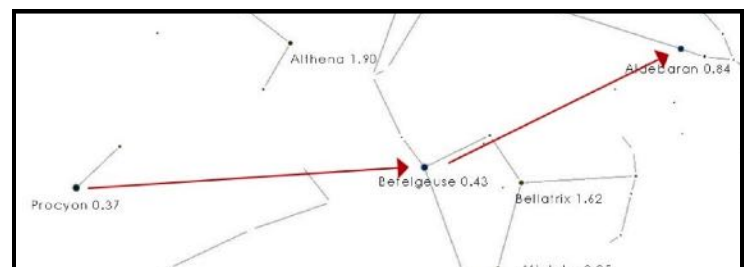
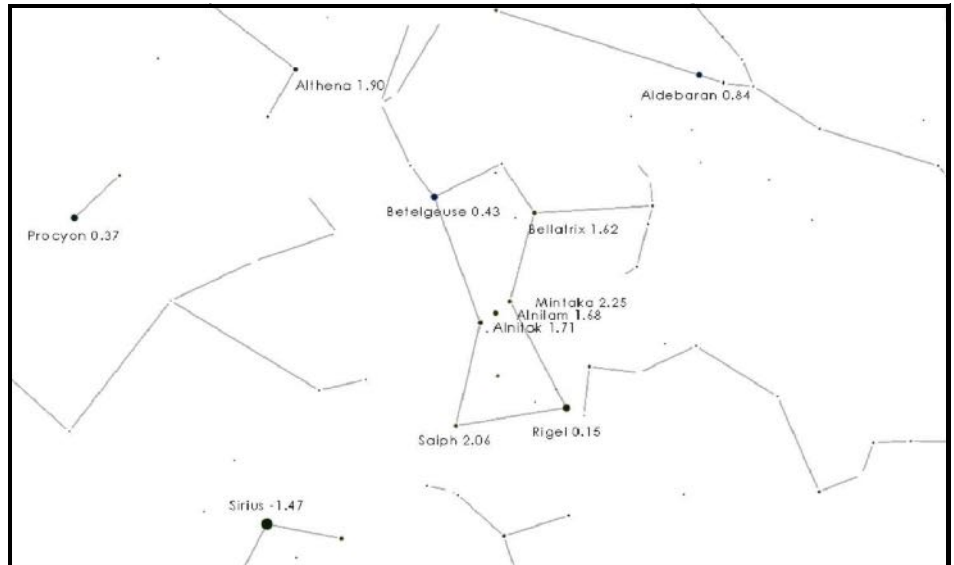
Of note are the brightness levels for the indicated stars. Betelgeuse is a red giant variable star running from magnitude 0.0 to +1.3 so brightening and dimming are nothing new. Prior to “The dimming”, it was officially at magnitude 0.43. It’s right up there with Procyon at magnitude 0.37 which is just ever so slightly brighter. And right behind Betelgeuse is the very slightly dimmer Aldebaran at magnitude 0.84. Betelgeuse should be decidedly brighter than its lower neighbors Bellatrix at 1.62, Alnitak at 1.71, Alnilam at 1.68 and distant neighbor Althena at 1.90. Marking the upper and lower brightness limits in the chart is Sirius at a whopping -1.57 and Saiph at 2.06.

SoOoOo...what do we do with this? We scan these stars and see if we can match up Betelgeuse with a star of nearly equal value. We can start by scanning from Procyon to Betelgeuse to Aldebaran and back. That’s .37 to .43 to .84. It will be obvious where Betelgeuse sits on the brightness scale. If it were not dimming, it would be almost as bright as Procyon yet notably brighter than Aldebaran.

Spoiler alert: Betelgeuse will be most noticeably dimmer than both so that confirms the reports of its recent dimming.

So let’s try scanning from Althena to Betelgeuse to Bellatrix. That’s 1.90 to .43 to 1.62. At 0.43, Betelgeuse should be very much brighter than both yet it’s only slightly brighter than Bellatrix at a published magnitude of 1.62! That’s a difference of 1.19 magnitudes dimmer than just a few months ago. AWESOME!

But wait, wait, there’s a wrinkle here. Scanning from Bellatrix to the belt stars Mintaka, Alnilam and Alnitak (1.62 to 2.25 to 1.68 to 1.71) shows Bellatrix definitely dimmer than Alnitak & Alnilam when its brightness should be between them. Right now it appears to be slightly brighter than the mag 2.25 star Mintaka. If we want to use Bellatrix in our comparisons to Betelgeuse, we need to resolve this problem. But let’s leave this discrepancy for later – we can’t use Bellatrix in our comparisons till we figure this out. What we CAN do is admire the relative brightness differences between these stars though and watch them for future changes if they occur.



(Continued on page 5)

(Continued from page 4)

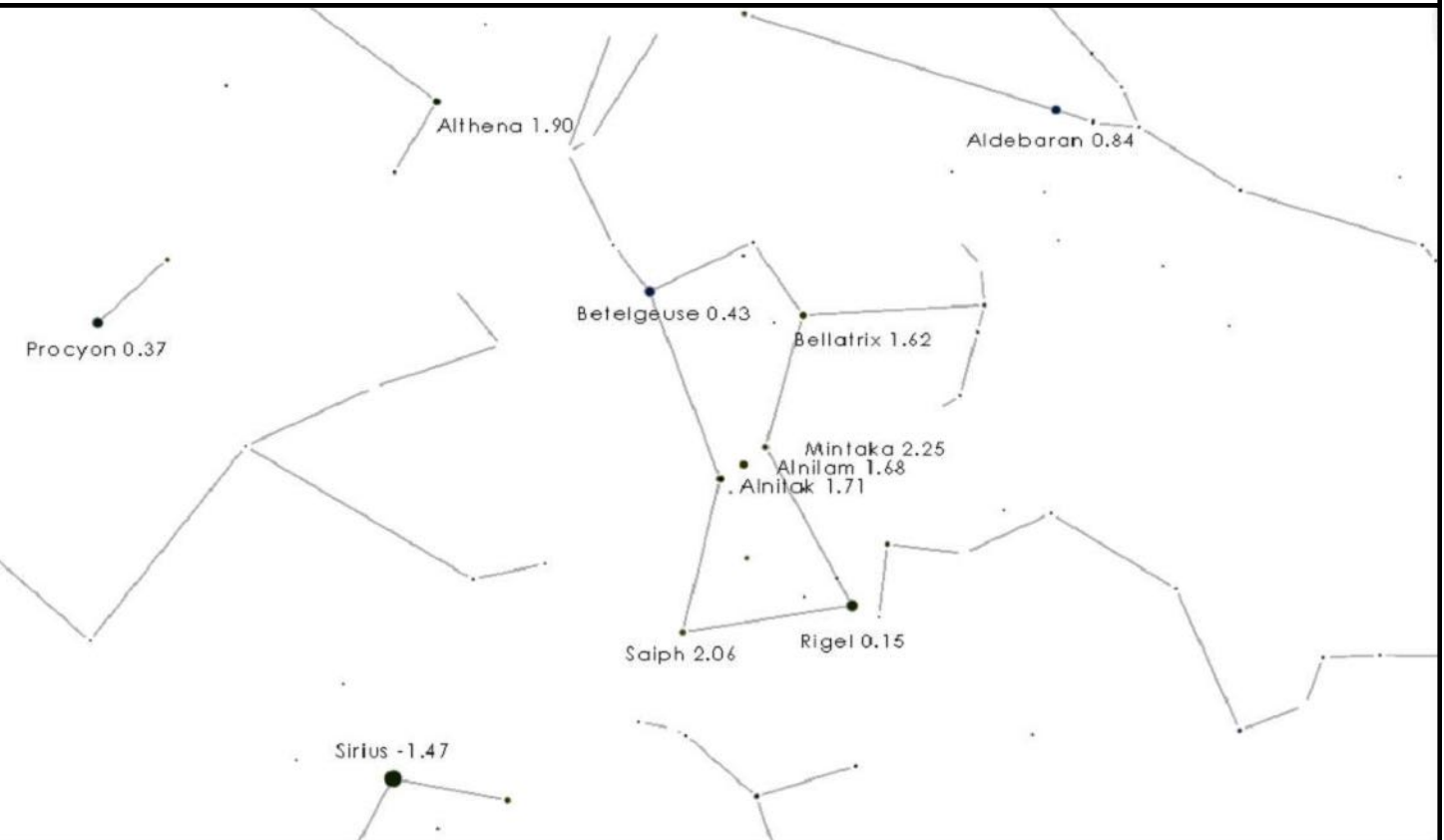
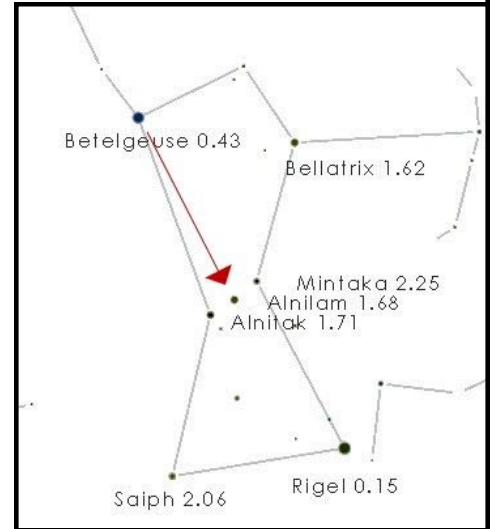
This leaves the comparison of Betelgeuse to the belt stars. And looking at them, we can see right off that Betelgeuse is definitely on par with them (Beltalowda!)

Comparing Betelgeuse to Alnitak & Alnilam with direct vision shows all three are almost identical in brightness. Using averted vision shows a brightness order of Alnitak at 1.71, then Alnilam at 1.68 then Betelgeuse at what? Maybe 1.6? They are really that close.

So what does this mean? The difference between magnitude .43 and 1.6 is 1.17 and THAT is definitely discernable. In fact, a magnitude difference of 1.00 means Betelgeuse would be 2.5 times DIMMER than normal. At 1.17 it's even dimmer yet (but not by much). Betelgeuse really should be more than 2 ½ times brighter than the belt stars! Any further changes in the brightness of Betelgeuse will REALLY be evident going forward. If this is a one-time thing then we may see it get dimmer before it returns to its usual place of glory. If this is a new phase in its aging process, then we are on the cutting edge of NEW observations and only the future knows what Betelgeuse has in store for us.

A couple of caveats here: 1] I'm an old fart now, my eyes aren't what they used to be – your estimates may vary based on your age and experience. 2] These observations were made 1 January 2020 from 23:30 to 2 January 00:30. Transparency (perfectly clear) and seeing (Very steady) were very good though. Your observations may differ due to changes since this date. N] Add whatever caveats of your own as you feel necessary.

Bottom line is you have a really neat opportunity to watch an easily locatable & visible star go through a period of variability that could (or could not) be a rare event. At the very least, it would be something to point out to friends, family and attendees at outreach events!



And here's a reward for reading this far: With Betelgeuse ONLY 642.5 light years away, the light we see from Betelgeuse left in June of the year 1377. Here's what Wikipedia reports as the highlights for the year 1377:

(Continued on page 6)

(Continued from page 5)

Here's what Wikipedia reports as the highlights for the year 1377:

- January 17: Pope Gregory XI moves the Papacy back from Avignon to Rome.
- January 27: The Bad Parliament begins sitting in England. Influenced by John of Gaunt, 1st Duke of Lancaster, it undoes the work done by the Good Parliament, the previous year, to reduce corruption in the Royal Council. It also introduces a poll tax.
- February: The Pope's representative in northern Italy, Robert of Geneva (the future antipope Clement VII), pillages Cesena, and 4,000 antipapal rebels are massacred.
- March 2: The Bad Parliament dissolves.
- May
 - * Continuous riots in Rome induce Pope Gregory XI to move temporarily back to Avignon.
 - * Wladyslaw II Jagiello succeeds his father, Algirdas, as Grand Duke of Lithuania. Jagiello removes his uncle, Kestutis, as co-ruler.
- May 22: Pope Gregory XI issues five Bulls condemning the opinion of John Wycliffe, that Catholic priests should live in poverty, like the twelve disciples of Jesus.
- July 16: Richard II, the 10-year-old grandson of Edward III, is crowned. A minority government is established, and a series of continual councils rule on his behalf until 1381.
- July 27: Fourteen-year-old Maria of Sicily succeeds her father, Frederick the Simple.
- August: The Hongwu Emperor of the Ming dynasty of China scraps the Office of Reports Inspection (established in 1370) for a new Office of Transmission, in his efforts to create a more efficient communicatory system in the empire. A month before this he noted that anyone could send memorials to the throne; commoners often did, although the only times their petitions were read aloud to the emperor, was when they called for the impeachment of local officials, that were not up to par with their official duties.
- August 2: Battle on Pyana River: The Russians are defeated, while their commander drowns in the river.
- October 13: Richard II's first parliament meets.
- October 26: Tvrtko I of Bosnia is crowned.

Yeah, I don't think the light from Betelgeuse will be all that impressed either when it finds out what was happening here when it left home. In fact, I wouldn't be surprised if it wished it had stayed home in front of a nice warm fire.

GM



**Teacher Package:
\$350.00 – Riker Box + 30 student
\$250.00 - Riker Box + 20 student
\$10 Donation - One student
Proceeds to Jefferson College
Observatory. They will be avail-
able for purchase at the meeting**



Above: The December meeting was held upstairs because of audio problems in 162. The group and Dr. Lorimar had patience and we had an excellent talk!

Left: Dr. Lorimar getting mugged by Brad Waller!

Right: Meteorites available as part of a fundraiser for the JC Observatory





DARK SKIES!! There are a couple of new areas for dark skies in use in the region. The Jefferson College Observatory on the left and Big Blue Observatory at Cedar Creek in New Haven. Eastern Missouri Dark Sky Observers run Big Blue.

Left: Bill Breeden and Rick Menendez at the Jefferson College Observatory.

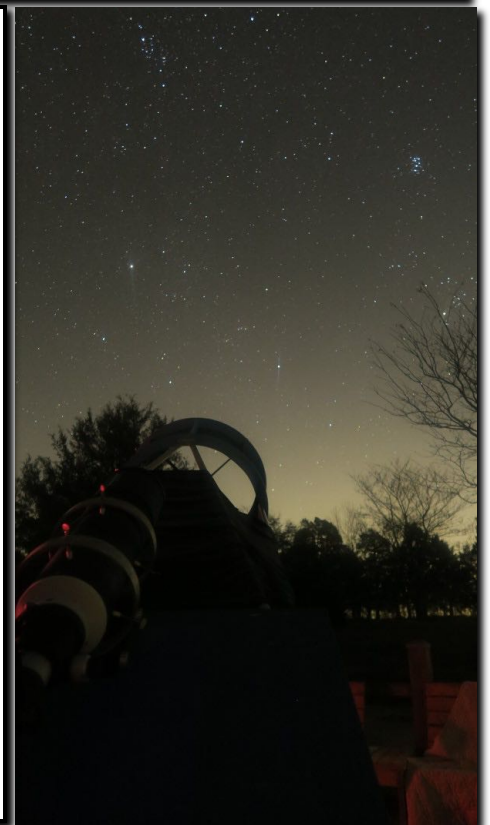
Above: Rick Schwentker with the Big Blue Observatory in New Haven at Cedar Creek. The observatory is among some of the darkest skies around as shown to the right.

Right: Big Blue with the Pleiades and the Hyades to the right of some very dark skies!

Middle left: Brad Waller and Rich Jennings at First Friday, Jan 3 at the James S. McDonnell Planetarium

Below left: Cook and Carol Feldman, Rita and Bill Breeden and Rich Jennings at First Friday.

Below right: Bill Breeden talks to patrons at First Friday



St. Louis Astronomical Society Executive Board Meeting Minutes December 5, 2019

1. Opening Activities Meeting opened at 7:04pm Attendees: Jim Small, Brent Buch, Mark Jones, John Newcomer, Larry Campbell, Brad Waller November Meeting distributed before the meeting. Motion to approve minutes by Jim second by John. Minutes approved

2. External Business:

Next board meeting: Meetings posted on NSN Board meetings will be held at Nicoletti's Restaurant in Valley Park until further notice. Dates suggested for 2020: Jan 2, Feb 6, Mar 5, Apr 2, May 7, Jun 4, Jul 2, Aug 6, Sep 3, Oct 1, Nov 5, and Dec 3

3. Director Reports:

President: Jim Small: IDSA event downtown STL April 25th. SLAS has been invited to setup telescopes and astrophotography equipment. Some lights will be turned off including the Arch and buildings. First Friday for December. We need table setup inside. Jefferson College Observatory observing is Sunday night

Vice President: Bradley R Waller. Reimbursement to Rich Heuermann for speaker hotel fee is taken care of

Presentations 2019

Month	Name	Topic	Sponsor
20-Dec-2019	Duncan Lorimer, PhD	Fast Radio Bursts: "Lorimer Bursts"	University of West Virginia (Zoom)

Presentations 2020

Month	Name	Topic	Sponsor
17-Jan-2020	Ryan Clegg-Watkins, PhD	Exploring the Moon from Orbit: Paving the Way for Future Astronaut Explorers	Washington University
21-Feb-2020	K Michael Malolepszy	Probing the Sub-Microwave Universe Part II	SLAS
20-Mar-2020	Joseph N Marcus, MD	Carl Lampland, Pioneer Infrared Astronomer	SLAS
17-Apr-2020	Raymond E Arvidson, PhD	What Controls Planetary Climates	Washington University
15-May-2020	William McKinnon, PhD	Something about Ultima Thule of Course!	Washington University
19-Jun-2020	Vayujeet Gokhale, PhD	The Science of Light Pollution	Truman State University
17-Jul-2020	Amy E Kimball, PhD	Radio Quasars & the VLA	NRAO (Zoom Event)
21-Aug-2020	Jeffrey Gillis-Davis, PhD	Apollo XIII Plus 50 Years	Washington University
16-Oct-2020	Marco Cavaglia, PhD	Gravitational Waves Part II	University of Missouri: Science & Technology

Brad will send speaker bio and telephone number to Jim Small so Jim can coordinate the Zoom

***Astro 101:** Attendance prizes. Randy Harrison show-n-tell of astro gadgets. *Welcome Aboard Meetings for new members are still planned for each month.

Secretary: Mark Jones: I have placed all the Executive Board Meeting minutes and reports in the files section of SLASDialogs.io <https://groups.io/g/SLASDialogs/files/SLAS%20Exec%20Board%20Meetings/SLAS%20Board%20Minutes%20-%20Copy>

Treasurer/ALCor: Bill Winningham See Budget sheet. Trout Lodge remaining balance is \$14.21. Bill will talk to Don about sending final check. Fixed assets now includes the JC Observatory for \$15,000. Balance report; \$1000 in LTP S&T ownership has changed and Bill working on renewal lists. About 20 members for Astronomy and 30 members for S&T for renewals. 2020 Budget presented at November meeting. One comment about funding of volunteer training and T-shirts

Hospitality: Larry Campbell

Member Anniversary Recognition: Certificates and pins presented at December meeting. Larry needs certificates printed. Larry will send e-copy to Brad. Brad will print, before meeting.

Membership recognition: no report Jim Small - New Award nomination forms will be done next week and submitted to the newsletter.

Board member at large reports

John Newcomer (2022): John needs hi-res SLAS logo. We need to create a page on the SLAS website for Francis Park schedule.

4. Committee Reports: If needed

Library Telescope Program:

Membership: November 2019 membership report showing 177 members which is 2 members lower than last month.

Merchandise: no report

Telescope Making: No report

Librarian: no report

Newsletter: Please forward articles to newsletter@slasonline.org

Website: no report

Social Networking: 1. Public FaceBook status Total Page Likes 473 Total Page Followers as of Today: 518 2. Private SLAS FB page-Members · 45

Night Sky Network: No report

SLASdialogs: 130 members group started 10-17-2019 group transfer from Yahoo completed 11-6-2019 8 email addresses were not added because they were bouncing. 19,793 messages were transferred 1052 photos were transferred. 195 files were transferred.

Dark Site: no report

Loaner Scopes: no report

Publicity: Press release will go out next week

Observing Programs: no report

Star Parties: Outreach volunteer hours for 2019. So far, SLAS volunteers logged 1440 hours from Jan 1st to Dec 1st 2019 Members with 5 or more events for 2019, can qualify for the Night Sky Network pin. Currently, we have 21 members qualifying for the NSN pin and 8 more that only need 2 more events

5. Old Business:

New recognition Award Program: New Award nomination forms need to be posted on website. Program will be funded under 2020 budget.

6. New Business: Star Party request policy table to next month. Volunteer Training Program start a committee

7. Closing Activities Motion to adjourn the meeting by Larry second by Brent Meeting adjourned at 9:07pm

9:47 AM
01/14/20
Accrual Basis

**St. Louis Astronomical Society
Profit & Loss Budget vs. Actual
January through December 2019**

	<u>Jan - Dec 19</u>	<u>Budget</u>	<u>\$ Over Budget</u>
Ordinary Income/Expense			
Income			
Loaner Scope Sales	75.00	0.00	75.00
Total Magazine Subscription	1,429.30	1,664.65	(235.35)
Membership Dues	4,160.00	3,965.00	195.00
Total Income	<u>5,664.30</u>	<u>5,629.65</u>	<u>34.65</u>
Cost of Goods Sold			
Total Magazine Subscriptions	1,437.10	1,664.65	(227.55)
Total Merchandise	8.00	100.00	(92.00)
Total COGS	<u>1,445.10</u>	<u>1,764.65</u>	<u>(319.55)</u>
Gross Profit	<u>4,219.20</u>	<u>3,865.00</u>	<u>354.20</u>
Expense			
1-Programs & Events	1,726.84	2,950.00	(1,223.16)
2-Newsletter	452.20	500.00	(47.80)
3-Library expense	306.33	470.00	(163.67)
4-Astronomical League Dues	860.00	825.00	35.00
5-Loaner Scopes	79.94	100.00	(20.06)
6-Brochures	322.00	610.00	(288.00)
7-Insurance	825.00	825.00	
8-Website	279.35	285.00	(5.65)
9-Administrative Expenses	181.49	260.00	(78.51)
Total Expense	<u>5,033.15</u>	<u>6,825.00</u>	<u>(1,791.85)</u>
Net Ordinary Income	<u>(813.95)</u>	<u>(2,960.00)</u>	<u>2,146.05</u>
Other Income/Expense			
Other Income			
Total Donations	2,849.70	0.00	2,849.70
Interest Income	345.90	100.00	245.90
LTP Receipts	22,830.77	0.00	22,830.77
Proceeds from Lens Sales	693.75	0.00	693.75
YMCA Trout Lodge Scope Proceeds	450.00	0.00	450.00
Total Other Income	<u>27,170.12</u>	<u>100.00</u>	<u>27,070.12</u>
Other Expense			
LTP Disbursements	22,093.12	0.00	22,093.12
LTP Escrow Funding	500.00	500.00	0.00
YMCA Trout Lodge ESCROW Expense	838.50	0.00	838.50
Total Other Expense	<u>23,431.62</u>	<u>500.00</u>	<u>22,931.62</u>
Net Other Income	<u>3,738.50</u>	<u>(400.00)</u>	<u>4,138.50</u>
Net Income	<u>2,924.55</u>	<u>(3,360.00)</u>	<u>6,284.55</u>

**St. Louis Astronomical Society
Balance Sheet
As of December 31, 2019**

	<u>Dec 31, 18</u>	<u>Dec 31, 19</u>
ASSETS		
Current Assets		
Checking/Savings		
Checking - First Bank	9,990.59	7,287.45
Deposit, Certificate of	20,239.11	15,841.67
Library Telescope Escrow	91.35	1,053.86
PayPal	0.00	77.94
Savings - First Bank	46,379.35	41,122.69
YMCA Trout Lodge Escrow	627.87	14.21
Total Checking/Savings	<u>77,328.27</u>	<u>65,397.82</u>
Other Current Assets		
Inventory Asset	821.53	761.53
Undeposited Funds	105.00	20.00
Total Other Current Assets	<u>926.53</u>	<u>781.53</u>
Total Current Assets	<u>78,254.80</u>	<u>66,179.35</u>
Fixed Assets		
JC Scope and Observatory*	0.00	15,000.00
Total Fixed Assets	<u>0.00</u>	<u>15,000.00</u>
TOTAL ASSETS	<u>78,254.80</u>	<u>81,179.35</u>
LIABILITIES & EQUITY		
Equity		
Opening Bal Equity	8,497.66	8,497.66
Retained Earnings	65,418.58	69,757.14
Net Income	4,338.56	2,924.55
Total Equity	<u>78,254.80</u>	<u>81,179.35</u>
TOTAL LIABILITIES & EQUITY	<u>78,254.80</u>	<u>81,179.35</u>

* Once all associated setup expenses are incurred, the JC Scope will be depreciated over a 60 month period.

We could use articles for the newsletter. The following topics are fine for submission.

- 1. Star party reports. Let us know how a star party you attended went! Photos would be most welcome in addition to the article.**
- 2. Observing reports. Actually made it out observing? Let us know how it went. Taken some astro photos? Please submit!**
- 3. Bought something or built something? How about a review or an article!**

Send to newsletter@slasonline.org

Upcoming Star Parties and Other Events

For details on these and other upcoming events, check out the Night Sky Network Calendar linked on the Home Page for SLAS at <http://www.slasonline.org>

SLAS Executive Board Meetings Location will be at *Nicoletti's Restaurant in Valley Park* All meetings are on First Thursdays unless noted. Feb 6, Mar 5, Apr 2, May 7, June 4, July 2, Aug 7, Sept 3, Oct 1, Nov 5, Dec 3

Dark Sky Observing Dates
Jan 25, Feb 22, Mar 21

Francis Park Events: These events are on Wednesdays of the week nearest the first quarter Moon
Apr 1, Apr 29, May 27, Jun 24, July 29, Aug 26, Sept 23, Oct 21

Sky Orienteering Events For members who want to gather and do some relaxed observing at Babler State Park

Please RSVP if you plan to come!

SLSC Public Telescope Viewing Events: These events are held the first Friday of the month
Planetarium shows start at 7pm Feb 7, Mar 6, Apr 3, May 1, Jun 5, July 3, Aug 7, Sept 4, Oct 2, Nov 6, Dec 4

Pattonville Observatory Public Viewing Dates
Jan 31, Feb 14, Feb 28, Mar 6, Mar 13, Apr 3, Apr 23, May 8, May 14

Broemmelsiek Astronomy Park Public Viewing
Every Friday night with ASEM members

UMSL Observatory
For directions and map
<http://www.umsu.edu/~physics/About%20the%20Department/astro.html>

All sessions include viewing of 1st quarter Moon with additional objects

Skywatch Hotline: 314-516-5706

Saturdays:

LET US KNOW YOU ARE COMING!

To RSVP for any of these events log in to the Night Sky Network and submit your RSVP. If the event is canceled, you will be notified immediately according to the preferences you have selected.

SLAS EVENTS

January

17 Fri SLAS Regular Meeting
18 Sat Solar Saturday
19 Sun SLAS Sky Orienteering
25 Sat SLAS Dark Sky Observing
28 Tues Eureka Hills Library
29 Wed Daniel Boone Library
30 Thur Meramec Valley Library

February

5 Wed St Louis Central Library
6 Thur SLAS Board Meeting
7 Fri SLSC Public Telescope Viewing
9 Sun Jefferson College Observatory
21 Fri SLAS Regular Meeting
22 Sat Solar Saturday
22 Sat Homemade Fest
22 Sat SLAS Dark Sky Observing
26 Wed Parkway North Star Gazing
27 Thur Florissant Valley Library
29 Sat Library Telescope Maintenance

March

4 Wed St Louis Public Library
5 Thur SLAS Board Meeting
6 Fri Parkway School STEM Fest
6 Fri SLSC Public Telescope Viewing
8 Sun Jefferson College Observatory
9 Mon Rock Hill Library
15 Sun SLAS Sky Orienteering
20 Fri Carondelet Leadership
20 Fri SLAS Regular Meeting
21 Sat Solar Saturday
21 Sat SLAS Dark Sky Observing
24 Tue Oak Bend Library
25 Wed Bridgeton Trails Library
26 Thur Samuel Sachs Library
30 Mon Grants View Library
31 Tue Grand Glaize Library
31 Tue STLCO HQ Library

April

1 Wed Francis Park Stargazing

SLAS Merchandise Available

SLAS merchandise is now set up for embroidery at **Headz n Threadz** at <https://hnt.threadthis.com/>

There are two locations:

Galleria: 2495 St. Louis Galleria, St. Louis, MO 63117 Telephone: 314.862.2695
galleria@headznthreadz.com

Simply take the garment, hat, etc you wish to have embroidered and they will take care of it. They have the SLAS logo on file. You may make modifications to the colors if you wish.

SLAS Logo is also available at Infini-tees



SLAS MEMBERSHIP APPLICATION

Name: Last _____
 First, Middle Initial _____
 Address _____
 City, State, Zip Code _____
 email address _____



Please send completed form with check (no cash please) made payable to
 St Louis Astronomical Society

Don Ficken, Membership
 13024 Barrett Crossing CT
 St. Louis, MO 63122

Youth @ \$10.00 / 1 year (18 yrs or younger) \$ _____

Individual @ \$25.00 / 1 year \$ _____

Family @ \$40.00/1 year \$ _____

Publications with discount available with your SLAS membership:

Sky and Telescope @ \$32.95 / 1 year \$ _____

(S&T may also be renewed at their website:
<http://www.skyandtelescope.com>)

Astronomy @ \$34.00 / 1 year \$ _____

TOTAL ENCLOSED \$ _____

Check all that apply:

- Renewal
- Address Change Only
- Please send my newsletter by regular mail
- New Member!**

SLAS OFFICERS

President *Jim Small* 314-307-0692
 president at slasonline.org

Vice President *Bradley R Waller* 314-481-7250
 vicepresident at slasonline.org

Secretary *Mark Jones* 636-394-2342
 secretary at slasonline.org

Treasurer *Bill Winningham, (Don Ficken - membership)*
 treasurer at slasonline.org 636-357-2763

Hospitality *Larry Campbell* 636-244-2867
 hospitality at slasonline.org

Board Members at Large:

Tom Nickelson 314-346-9565
 board20 at slasonline.org

Brent Buch 314-239-0329
 board21 at slasonline.org

John Newcomer 314-496-4636
 board22 at slasonline.org

ALCOR *Bill Winningham* 636-357-2763
 (Astronomical League Correspondent)
 treasurer at slasonline.org

MSRAL Rep. *Jim Small* 314-909-7211
 msral_rep at astroleague.org

COMMITTEE CHAIRS

Dark Site Coordinator *Mark Jones* 636-394-2342
 darksite at slasonline.org

Librarian *Jim Small* 314-909-7211
 librarian at slasonline.org

Library Telescope Program *Don Ficken* 636-851-9630
 librarytelescope at slasonline.org

Loaner Equipment *Greg Gaines* 314-277-3082
 loaner at slasonline.org

Merchandise *Vacant*
 merchandise at slasonline.org

Membership *Don Ficken* 636-225-0269
 membership at slasonline.org

Newsletter Editor *Jim Small* 314-909-7211
 newsletter at slasonline.org

Observing Programs *Mark Jones* 636-394-2342
 observing at slasonline.org

Publicity *Rich Heuermann* 314-962-9231
 publicity at slasonline.org

Recognition *Larry Campbell* 636-244-2867
 recognition at slasonline.org

Social Media *Vacant*

'SLASdialogs' Moderator *Mark Jones, Rhonda Whelan*
 dialogsmoderator at yahoo.com

Star Party Coordinator *Bill Breden* 314-276-3613
 starparty at slasonline.org

Telescope Making *Bill Davis, Jim Melka* 314-469-3061
 telescope at slasonline.org

Webmaster *Jim Small* 314-909-7211
 webmaster at slasonline.org

Devoted to the Interest and Advancement of the Science of Astronomy

ST. LOUIS ASTRONOMICAL SOCIETY

We're on the Web!
<http://www.slasonline.org>

Follow us on
Twitter: @stlastro
Facebook: @stlastro

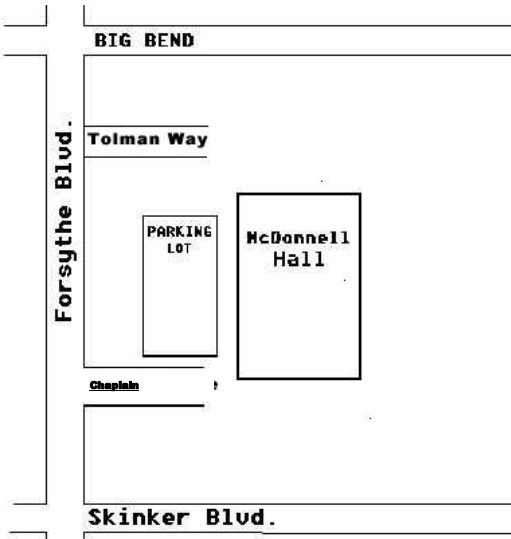


Who We Are and What We Do

St. Louis Astronomical Society is a not-for-profit organization established in 1936. SLAS is devoted to the interest and advancement of the science of astronomy. Our mission is to promote an understanding of the science of astronomy to our members and to the public. Membership is open to anyone with an interest in astronomy.

For more information contact any SLAS officer or visit our website listed above. SLAS is affiliated with the Astronomical League, Night Sky Network and the Mid-States Region of the Astronomical League.

Meetings are held the 3rd Friday of each month at McDonnell Hall at Washington University. See the map to the right for directions.



St. Louis Astronomical Society

Jim Small
13128 Cozyhill Drive
St. Louis, MO 63122

