

THE EVENT HORIZON



ST. LOUIS ASTRONOMICAL SOCIETY

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January, 2016

*Devoted to the Interest and Advancement
of the Science of Astronomy*

Preview of Interesting Astronomical Events for 2016

Mark Jones will be featured at the January meeting of the St. Louis Astronomical Society. The meeting will begin at 7:30 PM Friday, January 15, in McDonnell Hall, Room 162, on the Washington University campus, Saint Louis, MO 63130.

The **transit of Mercury** across the Sun's disk and the **close approach of Mars** are two of the highlights for 2016. Mercury passes directly between the Earth and the Sun only about fourteen times each century. The next transit after May 9, 2016 will not occur until November, 2019. Since the Earth is closer to the Sun than Mars, it moves faster. As a result, the Earth passes Mars about every two years. Closest approach this time will be on May 22 – but Mars will still be more than for-

ty-seven million miles away. Mark Jones will discuss these events and include information on upcoming meteor showers, planetary conjunctions, Lunar occultations and other astronomical events for 2016. Many of these events will be visible to the unaided eye.

Mark Jones, currently the Secretary of the St. Louis Astronomical Society, is a veteran amateur astronomer with decades of experience in observing both daytime and night skies.

Upcoming SLAS Meeting topics:

February 19, 2016 - Astrophotography - Bill Neubert, SLAS

March 18, 2016 - Sundials - Don Snyder - North American Sundial Society

April 22, 2016 (note: 4th Friday) - TBA

May 20, 2016 - Extrasolar Planets - Heather Knutson, Ph.D. - California Institute of Technology

Mid States Region



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Homemade Fest 2016

Saturday, February 27, 2015

Kirkwood Community Center

Join fellow SLAS members and guests for our annual winter pot-luck dinner meeting. Doors open at 5pm to unload equipment and food and 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.

Presidents Corner—Jim Small

2015 was a banner year for the St. Louis Astronomical Society. We had a huge increase star parties, increased our membership, the Library Telescope program exploded, the eclipse committee is working hard for 2017 and held a workshop to help the community prepare, and involvement by SLAS members is way up!

HOMEMADE FEST is coming up on Saturday, February 27 at the Kirkwood Community Center. If you have anything you would like to show us at the event, contact Brad Waller to get on the list for a talk. Thank you to Kirkwood for hosting our event for FREE once again this year!

We ordered the Night Sky Network Outreach Pins. They will be presented at the February meeting. We had DOUBLE the number of SLAS members qualify for pins this year! Congratulations to all! Keep it up!

We will be continuing to build Library Telescopes and the next build will likely be about 25 scopes this time. St. Louis County is expanding because of long waiting lists. In addition, other regions around the area are interested in ob-

taining scopes..

Bill Breeden is keeping busy with setting up star parties for this year. Be sure to watch his notices, check your calendar and volunteer to take lead on an event where you can. It makes scheduling so much easier!

We moved the meeting for April to the 22nd to avoid conflict with the James Lovell lecture which 26 (and maybe more!) members are attending.

We have 37 new members who joined in 2015. The list is elsewhere in this newsletter. Be sure to welcome them at the next meeting! To new members, welcome from me and don't hesitate to ask anyone if you have any questions.

We are looking forward to a fantastic 2016!

We are co-hosting MSRAL 2016 in Columbia, MO and will be needing volunteers to help us organize the meeting and to help during the meeting. Please see me if you are interested in getting involved!

Sincerely,

Jim Small



Clockwise from upper left:

- Library Telescope Build May, 2015
- Edwardsville Telescope Build
- MSRAL 2015 attendees from SLAS
- Library Telescope Build May, 2015
- Library Telescope Training 2015



2015 SLAS Volunteer Recognition

In 2015, SLAS members volunteered for 102 events and logged 1430 hours for Night Sky Network events. Compare this to 72 events and 736 hours in 2014! Since June 2007 SLAS members have logged 5322 hrs for NSN events

Locations Served:

Parks

Gateway Arch NP	Babler SP
Francis Park	Manchester Park
Crestwood Park	

Schools

Rockwood	Parkway
Villa Duchesne	Premier Charter School
Ferguson	Christ Community Lutheran
SLPS	

Libraries

St. Louis	St. Louis County
University City	Bellville
Jefferson County	Webster
Alton	Maplewood
Richmond Heights	St. Charles

Healthcare Facilities

STL Childrens Hosp.	Nazareth Living Cntr
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Night Sky Network Offers Award Certificates and Pins to recognize individuals who have volunteered and performed Outreach in 2015. Since 2011 NSN and SLAS has been providing awards to members with 5 or more event during the calendar year.

In 2014 we had 14 members with 5 or more events logged

In 2015 we have 26 members, more than double last year!

Volunteers with 5 or more events, qualifying for NSN pins!

Donald Ficken	64 events; 155 hrs
Cook Feldman	44 events; 136.2 hrs
John Beaury	40 events; 130 hrs
Larry Campbell	31 events; 71.5 hrs
Frank Mack	29 events; 67.5 hrs
Mark Jones	29 events; 93.5 hrs
Rick Menendez	22 events; 55.5 hrs
Rich Heuermann	20 events; 52.5 hrs
James Small	18 events; 58.5 hrs
Jim Trull	17 events; 41.5 hrs
Richard Fefferman	16 events; 33 hrs
Richard Jennings	12 events; 35.5 hrs
Sharon Bertram	12 events; 27.5 hrs
Ann Trull	11 events; 26 hrs
Bill Breeden	10 events; 36 hrs
Randy Gettman	9 events; 17 hrs
Bill Biermann	8 events; 17.5 hrs
Ben Winningham	7 events; 19 hrs
Brian Mills	7 events; 18.5 hrs

Bill Winningham	7 events; 19 hrs
Lee Halbeck	6 events; 15.5 hrs
William Neubert	6 events; 16.5 hrs
Colleen O'Toole	5 events; 17.5 hrs
Dale Engelbrecht	5 events; 12 hrs
James Twellman	5 events; 6 hrs
Rita Breeden	5 events; 17.5 hrs



Other Volunteers, 1-4 events

Angie Johnson	4 events; 8 hrs
Bradley Waller	4 events; 9 hrs
Daniel Corso	4 events; 9.5 hrs
Eric Kovach	4 events; 13 hrs
Gaylene Engelbrecht	4 events; 9.5 hrs
Jerry Loethen	4 events; 11.5 hrs
Chris Nobbe	3 events; 5.5 hrs
Doug Blum	3 events; 6 hrs
Eddie Agha	3 events; 15 hrs
Gregory Rigelman	3 events; 11 hrs
Robert Fischer	3 events; 9 hrs
Steve Sands	3 events; 14 hrs
Tom Keutzer	3 events; 7.5 hrs
David Ebers	2 events; 10 hrs
Edward Frey	2 events; 8.5 hrs
Jeremy Gibson	2 events; 4 hrs
John Boncek	2 events; 4 hrs
Lynn Fee	2 events; 7.5 hrs
Marcos Do Olival	2 events; 4.5 hrs
Mark Fedde	2 events; 8 hrs
Nicholas Kirschman	2 events; 3.5 hrs
Renee Mettle	2 events; 9 hrs
Roy Lieberman	2 events; 6 hrs
Brent Buch	1 events; 6 hrs
Dan Duffy	1 events; 3 hrs
Evan Schmitz	1 events; 2 hrs

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Volunteer Recognition (con't)

Gary Holt	1 events; 3 hrs
Gregory Gaines	1 events; 3 hrs
James Griffith	1 events; 1.5 hrs
Joe McHugh	1 events; 3 hrs
Karen Loethen	1 events; 4 hrs
Kelly Robinson	1 events; 5 hrs
Michael Callaghan	1 events; 2 hrs
Mike Saville	1 events; 3 hrs
Patrick Smith	1 events; 6 hrs
Wayne Clark	1 events; 6 hrs

Other award opportunities

Members can qualify for Astronomical League Outreach Awards

Level 1 = 10 hours and 5 events

Level 2 = Additional 50 hours

Level 3 = Additional 100 hours

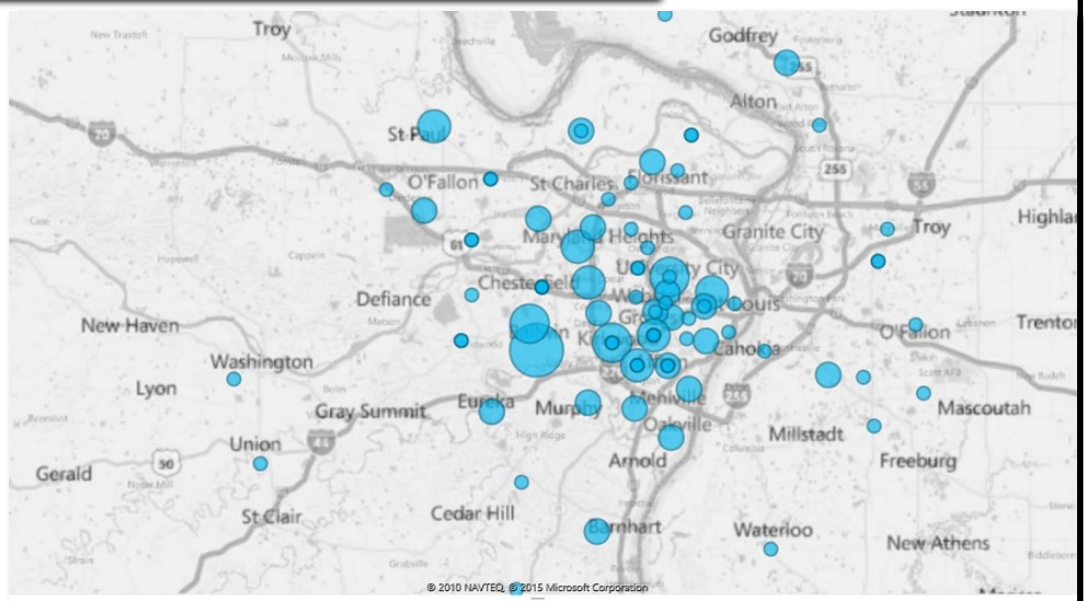


Check your hours on Night Sky Network and if there is an error on our part, please contact Mark Jones.



The map to the left indicates zipcode regions where new SLAS members live. The size of the circle is proportional to the number living in that area.

The map to the right indicates zipcode regions where all SLAS members live. The size of the circle is proportional to the number living in that area.



Welcome to New Members from 2015!

SLAS members: following is a list of the new members who joined in 2015. Be sure to welcome them when you meet them! New members: don't hesitate to ask any of us if you have any questions. There is a contact list of board members and committee heads on page 11 of the newsletter. This will help with different areas of interest in SLAS. Brad Walker (Board Member at Large 2016) also runs new member meetings before the regular meeting. Contact Brad for more information.

Name	Join	Type	No.
1 Jorge Meinhardt	01/10/15	I	1
2 Rosanne Naunheim	01/15/15	F	2
3 Nathaniel (Mo Mozingo)	01/17/15	Y	1
4 Lynn Fee	01/24/15	I	1
5 Roy Lieberman	01/27/15	I	1
6 Nicholas Kirschman	01/29/15	F	2
7 Randy Gettman	01/31/15	I	1
8 Evan Schmitz	02/02/15	Y	1
9 Jeremy Gibson	02/02/15	Y	1
10 Peggy Lambing	02/03/15	I	1

11 Eddie Agha	02/25/15	I	1
12 Brian Christian	03/17/15	F	2
13 Major Michael Thompson	04/12/15	I	1
14 Gary Holt	04/14/15	I	1
15 Brendan Walsh	05/06/15	I	1
16 Scott Lyle	06/05/15	I	1
17 Jason Googins	06/05/15	I	1
18 Liam Butler	06/12/15	I	1
19 Michelle Birch	06/20/15	I	1
20 Michael Callaghan	06/27/15	I	1
21 Marcos Do Olival	07/09/15	I	1
22 Scott Strathman	07/18/15	I	1
23 Ron Jackson	08/05/15	I	1
24 Patrick Smith	08/07/15	F	2
25 Erik Barton	08/09/15	F	2
26 Dennis McGough	08/16/15	I	1
27 Andrew Reid	08/21/15	Y	1
28 Sam Li	09/15/15	I	1
29 John Edwards	09/18/15	I	1
30 Bob Beebe	10/25/15	I	1
31 Joseph Schober	11/06/15	F	2
32 Alexandra Carr	11/14/15	F	2
33 Summer Wolfe	11/23/15	Y	1
34 Gerald Hutchins & Family	12/04/15	F	2
35 Gary Runge	12/05/15	I	1
36 Jake Siech	12/15/15	I	1
37 Nick Behymer	12/20/15	I	1
Total New Members - Last 12 months			45



Above Left: SLAS members setting up at Manchester Park



Above Right: Rick Menendez and Sharon Bertram at Children's hospital

Lunar X for 2016

by Grant Martin

OK, it's a new year and all the calendars, catalogs, observing lists etc and ad nauseum are being updated for the New Year.

One of the easiest objects to see is the "Lunar X" (Also known as the "Werner X" and the "Purbach Cross"). It's an easy object to see but only within a very small window just before the first quarter moon. In fact, it's VERY reliable IN that window but for only about four hours or so and JUST before First Quarter moon (did I mention that already?).

Usually someone has a list of observing dates and times for this apparition within a few months of the New Year. Not this year. In fact, it's tough as nails to find any mention of it for 2015. Not even a "Not even visible at any time in 2014 or 2015".

So now what do we do? We Get Smart, that's what we do (Sorry about that chief). A search of the net turns up a very interesting and informative document:

<http://wasociety.us/Lunar-X.pdf>

It documents exactly what I need to generate a table of possible observation times. It also mentions a software program to aid in determining when conditions will be right to observe it.

In addition to that tool, I have four other tools that should be able to independently verify these predications. These tools are Skytools V3, Starry Night Pro V6, Lunar Phase Pro and Virtual Moon Atlas.

So after hours (and I mean double digit hours), I *think* we might have a list of valid dates and times. The list shows two to three possible times during complete darkness this year (which is the best time to observe this phenomenon.). The other three remaining times are during daylight.

Now don't think you can't observe this thing during daylight. That's just an inconvenience (or convenience depending upon your personal observing taste). You can always observe the moon during the day when it's up and the skies are clear. The only problem is it's a little washed out. Lacking in contrast that is. But here's a tip: To observe ANYTHING astronomical during daylight, use a red filter. It will help increase the contrast so you can observe something. It won't be like complete darkness but when it comes to the moon, or observing conjunction with planets like Venus, Mars, Jupiter and Saturn, it will certainly improve your odds of actually seeing the event.

Back to the predictions. The times are for the peak event. Begin looking two hours prior and up to two hours after. Keep in mind this is the first time I've tried to make these



kinds of predictions but all the sanity checks seem to confirm these numbers. If the skies are clear and you DO see it on a particular date, please let me know so I can update the calculation process. If you DON'T see it (but you CAN see the moon at the predicted time), please let me know as well – negative information is just as valuable as positive information in this regard.

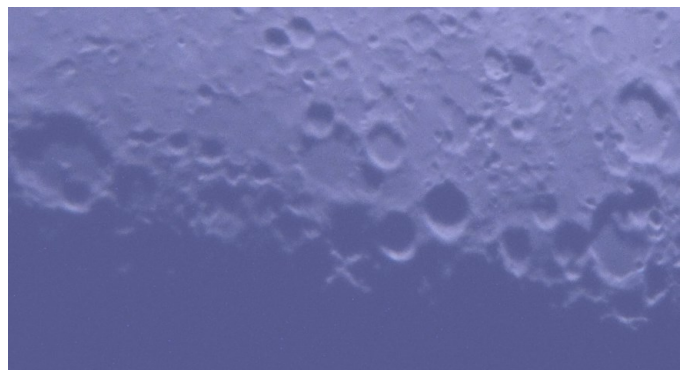
The first table shows just the predicted date and times. The second table shows the details which includes the Lunar and Solar Alt/Az for the given times.

The January, July and September apparitions occur when the Sun is above the horizon. Again, the "X" will still be visible but washed out. A red filter can be used to enhance the contrast.



Above: with red filter

Below: simulated daylight without filter



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Peak time for "Lunar X"

Date	Local Time
1/16	15:29 (Daylight – use red filter for best contrast)
3/15	20:39 (Dark DST) Note the circumstances are for 3/16 at 1am UT. Subtract 5 hours for timezone shift and DST.
5/13	21:24 (Dark)
7/11	19:35 (Daylight/twilight – use red filter for best contrast)
9/8	18:08 (Daylight/twilight – use red filter for best contrast)
11/6	18:48 (Dark)

Output from LTVT. Based on co-longitude of 358 degrees (from the Lunar X PDF information).

Notes:

- Altitudes and azimuths for each event verified with other tools mentioned above.
- Times of First Quarter verified with respect to these windows.

Data in green are prediction events where the Moon is well up in the sky at the specified time. Lines in grey are where the Moon is well below the horizon at the specified time of the event.

Date	Time UT	Terminators		Sub-Solar Point		Librations		Center of Moon		Center of Sun		
		Morning	Evening	Colong	Lat.	Long.	Lat.	Alt.	Azi.	Alt.	Azi.	
1/16/2016	21:29:21	2.000°E	178.000°W	358.000	1.302	1.223	4.128	43.656	124.026	14.512	227.119	+
2/15/2016	11:55:15	2.000°E	178.000°W	358.000	0.693	4.080	6.940	-36.775	355.140	-11.982	96.862	
3/16/2016	01:39:37	2.000°E	178.000°W	358.000	-0.117	6.433	7.096	63.711	222.476	-18.237	283.065	%
4/14/2016	14:28:58	2.000°E	178.000°W	358.000	-0.887	8.000	5.857	-29.891	31.433	34.396	106.716	
5/14/2016	02:24:40	2.000°E	178.000°W	358.000	-1.405	6.544	2.925	51.468	229.107	-13.863	308.427	%
6/12/2016	13:39:58	2.000°E	178.000°W	358.000	-1.547	5.151	-0.481	-44.993	29.332	32.943	85.317	
7/12/2016	00:35:54	2.000°E	178.000°W	358.000	-1.284	2.085	-3.280	44.749	193.155	8.319	291.505	
8/10/2016	11:37:20	2.000°E	178.000°W	358.000	-0.687	-0.875	-5.644	-63.584	358.025	3.882	73.396	
9/8/2016	23:08:52	2.000°E	178.000°W	358.000	0.096	-3.538	-6.119	33.470	174.323	13.110	266.182	
10/8/2016	11:29:49	2.000°E	178.000°W	358.000	0.860	-5.852	-5.800	-70.038	4.276	-7.657	91.755	
11/7/2016	00:48:27	2.000°E	178.000°W	358.000	1.392	-7.563	-3.103	31.004	203.834	-22.247	266.468	+%
12/6/2016	14:57:30	2.000°E	178.000°W	358.000	1.523	-6.752	0.487	-35.679	72.108	16.148	138.163	+

+ = Latitude of sub-solar point within 0.50° of target (= 1.552°)
% = Moon above horizon/Sun below horizon



Above left: Rich Heuermann at the Art Museum SLAM event

Below left: Christine Knobbe at the University City Library Star Party

Center: Cook Feldman setting up at University City Library Star Party

Above right: Don Ficken in Downtown Kirkwood

StLouis Astronomical Society

Executive Board Meeting Minutes for December 10, 2015.

1. Opening Activities: Read and approve minutes from November Attendees: Jim Small, Brent Buch, Tom Nickelson, Bradley R. Waller, Larry Campbell, Mark Jones Meeting opened at 7:02pm Review of November 2016 board meeting minutes. Corrections made and minutes were approved.

2. External Business Review of Memorandum of Agreement (MOU) between SLSC and SLAS. Cook has begun review and modification to the MOU. Board discussed proposed changes and will send the questions and comments to Cook Feldman. Cook's responses have been added to the minutes. It is Cook's recommendation that the board work on revising the draft that was provided and have the SLAS president, forward to Anna Green for their input and any potential discussion. The board can work in the changes Cook noted in the margin and incorporate any or all along with other ideas presented by the Board members and Committee chairs.

-Who pays for back ground checks? Response: There wouldn't be any background checks

-What is the financial obligation for SLAS? Response: \$0

-1-5 members may vary for month to month, so there needs to be a volunteer pool This would not be a requirement, this was based on the average number of SLAS members who show up

-Expand beyond first Friday events. Response: As was noted, this MOU would not limit activities to just First Friday

SLAS would establish Committee head for liaison Response: That is the board's prerogative

-Establish yearly calendar of events for predictable astronomical events Response: That is usually done by the beginning of December. I have set the First Friday and Astronomy Day on the calendar and forwarded the same to Bill Kelly asking for additional program dates

-For special events will be scheduled as far in advance as practical, for large special events more volunteers will be needed. Response: That was noted and discussed with Bill

-How will members of the Public who bring their telescopes to the Planetarium be handled? Response: That is the SLSC issue. As the park is a public venue, the public cannot be restricted from participating at their own risk.

-How will members of SLAS who come on their own be treated? Response: That is a non issue

-Are other organizations held to similar MOU? Response: That is for the board to address to the SLSC staff

-Define "cross volunteers", Response: Those individual who are official SLSC volunteers as well as SLAS members

Next board meeting: Dates for 2016 have been approved and on YMCA calendar: Jan 7, Feb 11, Mar 10, Apr 7, May 12, June 9, July 7, Aug 10 (Wed), Sep 8, Oct 6, Nov. 10, Dec 7.

3. Director Reports:

President: Goals for 2015 and beyond. The beginnings of a strategic plan

1. Attract new members – This has been successful primarily from our Library Telescope Program and First Friday events.

2. Retain members – Place higher emphasis on retention with membership initiatives headed by Brad Waller. A new member survey has been implemented and is sent to all new members. There is also a, "Welcome Aboard" meeting for new SLAS members. This meeting occurs before the Monthly SLAS Meeting.

3. Get members involved – Place higher emphasis on retention with membership recognition headed by Larry Campbell.

Vice President –Paul Baldwin: December - Rich Heuermann - Cassini Jan- Possibly Mike Malolepszy

Astro 101: December – Mark Jones - Michigan Dark Sky Park – The Headlands Dark Sky Reserve January - Bring your telescope or gadget February – Brad Waller "Worlds of Star Trek" Observations List

Secretary – Continuing to send out new member Welcome

Letters and surveys.

Treasurer/ALCor – Budget to be voted upon in Dec. Financial reports sent prior to meeting. We are \$1138 under budget for the years through end of November. Net income for year is \$3606. Bill mentioned that we have sized balance left in the Astronomy Award that must be spent by March 2016.

Hospitality – Larry Campbell. Larry will not be at the December meeting, Sharon will lead but she will need help.

Board member at large reports

Brad Waller: (2016) New members meeting report. Membership initiatives prizes received: 2 copies of Chap Percival's Eclipse book; 4 signed books and 2 signed CDs of music recorded on the ISS from Canadian Astronaut Chris Hadfield. 2 Lovell tickets for raffle. Attendance prizes will be given out March, June, Sept and Dec. A raffle for James Lovell tickets will start in December 2015 and go through March 2016 meeting. Another raffle for MSRAL2016 registration fee, will start in March and drawing in May. For Dec 2015 attendance prize, one Hi-Pointe movie voucher for the movie, Star Wars. A second Library Telescope has been checked out.

Tom Nickelson: (2017) All-ability scope is in Tom's possession to troubleshoot the camera issue. Tom also has one Library Telescopes to modify the faulty power switch.

Brent Buch (2018) Brent has volunteered to look into YouTube or Canon or some other video distribution method.

4. Committee Reports: If needed

Library Telescope Program:

Membership – Separate report sent out prior to meeting. Individual memberships up 6% and 20% for youth from last year. Membership total 162. Retention is 31%. Don and Bill have mailing out letters for membership renewal.

Recognition of members- Larry Campbell. Looking into possibility naming awards after well known past SLAS members. Prototype hanging name tags.

Merchandise – Jim will go to Johnny Macs before next Board meeting. There is budget in 2015 and 2016 for set up fees up to \$45

Telescope Making – no report submitted

Librarian – Calendars have arrived.

Newsletter – Deadline for articles. Brad we article raffle and movie prize.

Website – www.slasonline.org/joomla Don and I will try to get the new site up by the end of the year

Night Sky Network – Outreach pins for 2016 will be available in January. New toolkit coming for us to evaluate. Maven telecom Dec 14.

SLASdialogs – Jim cleaned out old moderator emails. Bill Breeden as our new Outreach Coordinator will post event in Dialogs.

Dark Site – Mark Jones will 2016 events and post in NSN.

Loaner – Camera was purchased Canon Vixia HF R60.

Publicity – No press release yet.

Observing Programs – No report

Star Parties: Bill Breeden has volunteered to be the SLAS star party coordinator!!!

MSRAL 2016 – No report, next meeting after first of year

5. Old Business

6. New Business From Brad Waller: I propose we reschedule the April 2016 Monthly Meeting of SLAS, from 15 April 2016 to 22 April 2016. The purpose for this is to allow SLAS Members to attend, Astronaut James Lovell's Lecture at SIU-E on the 15 April 2016. Board voted to recommend changing the date to April 22nd and post Dialogs posting message requesting member comments. It will be opened for final discussion with general membership at the December SLAS meeting and the Board will make final decision. Currently 15 members have purchased a total of 26 tickets. Currently 15 members have purchased tickets.

7. Closing Activities Motion by Brad Waller seconded by Larry Campbell. Meeting adjourned at 9:10pm

8:31 AM
01/07/16
Accrual Basis

**St. Louis Astronomical Society
Profit & Loss Budget vs. Actual
January through December 2015**

	Jan - Dec 15	Budget	\$ Over Budget
Ordinary Income/Expense			
Income			
Events Income****	231.00	0.00	231.00
Magazine Subscription	1,432.80	1,638.70	(205.90)
Membership Dues	3,845.00	3,390.00	455.00
Merchandise Sales			
General Merchandise***	239.48	0.00	239.48
Merchandise Sales - Other	150.00	0.00	150.00
Total Merchandise Sales	389.48	0.00	389.48
Total Income	5,898.28	5,028.70	869.58
Cost of Goods Sold			
Magazine Subscriptions	1,432.80	1,638.70	(205.90)
Merchandise	151.87	120.00	31.87
Total COGS	1,584.67	1,758.70	(174.03)
Gross Profit	4,313.61	3,270.00	1,043.61
Expense			
1-Programs & Events	1,971.30	2,710.14	(738.84)
2-Newsletter	113.72	180.00	(64.28)
3-Library expense	300.10	300.00	0.10
4-Astronomical League Dues	690.00	650.00	40.00
5-Loaner Scopes*	1,075.96	1,200.00	(124.04)
7-Insurance	380.00	380.00	
8-Website	131.88	135.00	(3.12)
9-Administrative Expenses	1,075.96	1,168.00	(92.04)
Total Expense	5,740.82	6,723.14	(982.22)
Net Ordinary Income	(1,427.31)	(3,453.14)	2,025.83
Other Income/Expense			
Other Income			
Donations			
SLAS Club Members	1,110.05	0.00	1,110.05
Donations - Other	1,005.00	0.00	1,005.00
Total Donations	2,115.05	0.00	2,115.05
Eclipse Escrow Receipts	2,830.94	0.00	2,830.94
Interest Income	42.80	100.00	(57.20)
LTP Receipts	12,928.21	0.00	12,928.21
Non-Operating Income**	2,900.00	0.00	2,900.00
Total Other Income	20,417.00	100.00	20,317.00
Other Expense			
Astro Mag Award Disbursements	2,034.28	0.00	2,034.28
Eclipse Escrow Disbursements	2,289.54	0.00	2,289.54
LTP Disbursements	14,093.78	0.00	14,093.78
Non-operating Expense	203.69	0.00	203.69
Total Other Expense	18,621.27	0.00	18,598.99
Net Other Income	1,795.73	100.00	1,695.73
Net Income	368.42	(3,353.14)	3,721.56

* Budget reflects membership vote to purchase 4 Orion Starblasts for the Loaner Program

** Non-operating Income includes a \$2,500 award from Astronomy Magazine. \$2,034.28 of the award proceeds have been spent to date, the remaining proceeds must be spent by April of 2016.

*** Tyson Raffle, net proceeds of \$104.13 available for Membership Initiative.

**** Events Income includes \$231 of SLAS telescope auction. The auction proceeds were used for the purchase of a video camera for recording General Meetings.

**St. Louis Astronomical Society
Balance Sheet
As of December 31, 2015**

	Dec 31, 14	Dec 31, 15
ASSETS		
Current Assets		
Checking/Savings		
Astronomy Magazine Award**	0.00	465.72
Checking - First Bank	5,161.12	2,940.49
Deposit, Certificate of	20,068.06	20,108.23
Library Telescope Escrow*	1,660.10	444.55
Merchandise Change Fund	20.00	20.00
PayPal	82.81	82.51
Savings - First Bank	3,359.27	5,361.90
SLAS Eclipse Conference Escrow***	0.00	539.12
YMCA Trout Lodge Escrow	542.87	542.87
Total Checking/Savings	30,894.23	30,505.39
Other Current Assets		
Inventory Asset	1,614.22	1,410.53
Investment in Mid-States 2016	0.00	1,000.00
Undeposited Funds	261.95	55.00
Total Other Current Assets	1,876.17	2,465.53
Total Current Assets	32,770.40	32,970.92
Total Fixed Assets	0.00	0.00
TOTAL ASSETS	32,770.40	32,970.92
LIABILITIES & EQUITY		
Liabilities		
Current Liabilities		
Accounts Payable	167.90	0.00
Total Current Liabilities	167.90	0.00
Total Liabilities	167.90	0.00
Equity		
Opening Bal Equity	8,137.66	8,137.66
Retained Earnings	22,221.50	24,464.84
Net Income	2,243.34	368.42
Total Equity	32,602.50	32,970.92
TOTAL LIABILITIES & EQUITY	32,770.40	32,970.92

* Funds restricted for the Library Telescope Program. \$1,660 was carried over from the end of 2014.

** Funds from Astronomy Magazine Award, available until 4/10/2016.

*** Registration fees and donations for SLAS sponsored eclipse seminars

Wanted: Newsletter Articles!

The Event Horizon needs articles from people like YOU!

Interviews, current astronomy topics, historical articles, you name it, we can use it! Send what you have to: newsletter@slasonline.org

Wanted: Volunteers!

Be sure to sign up on Night Sky Network for upcoming star parties. Lead volunteers need to know who will be there so they can tell where we are falling short. If you aren't sure how to RSVP, please ask anyone at the meeting and we can show you how on the computer after the meeting. Or contact any board or committee member to find out. See you at the next star party!

SLAS EVENTS

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 the Edward Jones YMCA* All meetings are on Thursdays unless noted.

Jan 7, Feb 11, Mar 10, Apr 7, May 12, June 9, July 7, **Wed, Aug 10**, Sep 8, Oct 6, Nov. 10, Dec 7

Dark Sky Observing Dates

See you in April!

Francis Park Events: These events are on Thursdays the week nearest the first quarter Moon

4/14/2016, 5/12/2016, 6/9/2016, 7/7/2016, 8/11/2016, 9/8/2016, 10/6/2016

SLSC Public Telescope Viewing Events: These events are held the first Friday of the month Planetarium shows start at 7pm

1/1/2016

YMCA Edward Jones Star Parties (generally third Mondays)

3/21/2016, 4/18/2016, 5/16/2016, 6/20/2016, 7/18/2016, 8/15/2016, 9/19/2016, 10/17/2016,

Pattonville Observatory Public Viewing Dates

1/22/2016, 2/5/2016, 2/12/2016, 3/4/2016
3/17/2016, 4/8/2016, 4/22/2016, 5/6/2016, 5/19/2016

Broemmelsiek Astronomy Park Public Viewing

Every Friday night with ASEM members

January

14 Thur
15 Fri
22 Fri

Brentwood Recreation Star Party
SLAS regular meeting
Pattonville Observatory

February

3 Wed
5 Fri
10 Wed
11 Thur
18 Thur
19 Fri
20 Sat
24 Wed
27 Sat

Conway Elementary
SLSC Public Telescope Viewing
Webelos Kennard CJA
SLAS board meeting
Machecek Library Star Party
SLAS regular meeting
Brentwood Recreation Star Party
Barr Library Star Party
HOMEMADE FEST! (Kirkwood Community Center)

March

2 Wed
3 Thur
3 Thur
4 Fri
7 Mon
10 Thur
12 Sat
14 Mon
15 Tues
18 Fri
21 Mon
22 Tue

Middle School Space Exploration
LaSalle Springs MS
Innovate at Wingate
SLSC Public Telescope Viewing
Grants View Library Star Party
SLAS Board Meeting
SLAS Dark Sky Viewing
Festus Library Star Party
Central Library Star Party
SLAS regular meeting
Edward Jones YMCA Star Party
Schlafley Branch Library Star Party

SLAS Merchandise:

Soon to be available at Johnny Mac's Sporting Goods!

Watch for notification through NSN and the website!!

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

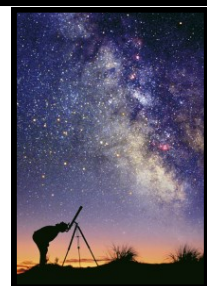
Telephone: 314.862.2695
galleria@headznthreadz.com

Delmar: 6662C Delmar Blvd St. Louis, MO 63130 Telephone: 314.863.2695 delmar@headznthreadz.com

[Delmar Map](#)

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 and Johnny Mac's



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 MEMBERSHIP APPLICATION



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

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 \$ _____

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

Check all that apply:
 Renewal
 Address Change Only
 Please send my newsletter by regular mail
 New Member!

SLAS OFFICERS

President <i>Jim Small</i>	314-307-0692	president at slasonline.org
Vice President <i>Paul Baldwin</i>	314-781-4080	vicepresident at slasonline.org
Secretary <i>Mark Jones</i>	636-394-2342	secretary at slasonline.org
Treasurer <i>Bill Winningham, (Don Ficken - membership)</i>	636-225-0269	treasurer at slasonline.org
Hospitality <i>Larry Campbell</i>	636-244-2867	hospitality at slasonline.org
Board Members at Large:		
<i>Brent Buch</i>	314-239-0329	Board18 at slasonline.org
<i>Tom Nickelson</i>	314-346-9565	board17 at slasonline.org
<i>Bradley Waller</i>	314-481-7250	board16 at slasonline.org
ALCOR <i>Bill Winningham</i> (Astronomical League Correspondent)	636-225-0269	treasurer at slasonline.org
MSRAL Rep. <i>Jim Small</i>	314-909-7211	msral_rep at astroleague.org

COMMITTEE CHAIRS

Dark Site Coordinator <i>Mark Jones</i>	636-394-2342	darksite at slasonline.org
Librarian <i>Jim Small</i>	314-909-7211	librarian at slasonline.org
Library Telescope Program <i>Don Ficken</i>	636-851-9630	librbrarytelescope at slasonline.org
Loaner Equipment <i>Greg Gaines</i>	314-277-3082	loaner at slasonline.org
Merchandise <i>Vacant</i>		merchandise at slasonline.org
Membership <i>Don Ficken</i>	636-225-0269	membership at slasonline.org
Newsletter Editor <i>Jim Small</i>	314-909-7211	newsletter at slasonline.org
Observing Programs <i>Jerry Loethen</i>	314-329-8008	observing at slasonline.org
Publicity <i>Rich Heuermann</i>	314-962-9231	publicity at slasonline.org
Recognition <i>Larry Campbell</i>	636-244-2867	recognition at slasonline.org
'SLASdialogs' Moderator <i>Mark Jones, Rhonda Whelan</i>		dialogsmoderator at yahoo.com
Star Party Coordinator <i>Bill Breeden</i>	314-276-3613	starparty at slasonline.org
Telescope Making <i>Bill Davis, Jim Melka</i>	314-469-3061	telescope at slasonline.org
Webmaster <i>Jim Small</i>	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>

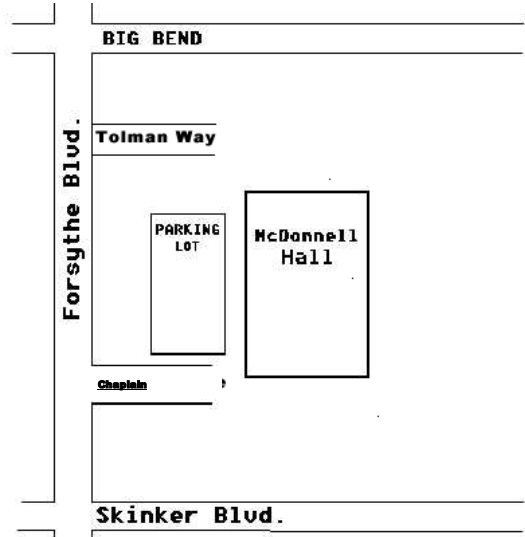


Who We Are and What We Do

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

