

THE EVENT HORIZON



ST. LOUIS ASTRONOMICAL SOCIETY

Devoted to the Interest and Advancement of the Science of Astronomy

**VOLUME 26, Issue 2
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Night Sky Photography

William Neubert will be featured at the February meeting of the St. Louis Astronomical Society. The meeting will begin at 7:30 PM Friday, February 19, in McDonnell Hall, Room 162, on the Washington University campus, Saint Louis, MO 63130.

Astrophotography – taking pictures of objects in the night sky – is difficult. The objects, except for the Moon, are small and faint. Exposure times of minutes to hours are needed to construct a single image. Moreover, the Earth’s turning will blur the image, unless the telescope “tracks” the object - moves to keep the object centered in the telescope’s field of view. Digital images need to be combined and manipulated to bring out color and faint details. William Neubert will explain the basics of astrophotography. His presentation will be

a non-technical review of his recent progress in digital astro- imaging. It will include some of the lunar, planetary, and deep sky images he has taken over the last three years. He will also discuss what the images show and how to interpret them, as well as demonstrate some strange artifacts he has encountered.

Bill Neubert is an amateur astronomer and accomplished astrophotographer. Some of his images have appeared in Sky and Telescope magazine, a nationally circulated monthly periodical.

Upcoming SLAS Meeting topics:

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

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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

Please come to the meeting this Friday to recognize the volunteers from 2015. See the article on page 3 for a list of names of people who will be receiving awards! It would be great to have everyone getting an award to be in the photo!

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 will be continuing to build Library Telescopes and the next build will be about 30 scopes this time. The build will take place on March 5th. St. Louis County is expanding because of long waiting lists. In addition, other regions around the area are interested in obtaining scopes.. Be sure to sign up for training staff and for Library Star parties once the scopes are delivered!

There are a ton of star parties coming up now that it is getting warmer. Please RSVP as far in advance as convenient for you and don't hesitate to volunteer as a lead for an event!

March 2nd will be McDonnell Distinguished Lecture. The topic is A Habitable Environment in the Gale Crater on Mars with Professor John Grotzinger from Cal Tech

Dr. Erica Gibb is organizing an Astrobiology conference at UMSL. It is a GREAT program on April 8-9 and early registration is only \$20! Includes food and parking and free planetarium programs! Speaking of UMSL planetarium, we can set up appointments for SLAS to visit the planetarium for a program. Limit 36 seated per show.

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 will have new banners and other advertising ready by early March. A new vertical banner and table cover and other display items will be purchased

Please see me if you are interested in volunteering for any aspect of MSRAL 2016 to be held June 3-5 in Columbia, MO!

Sincerely,
Jim Small

Astrobiology and Life Beyond Earth mini-conference

Date: Friday, April 8 and Saturday, April 9, 2016

Time: 8:30 am - 4:30 pm each day

Location: JC Penney Conference Center, University of Missouri - St. Louis campus

Host: Department of Physics & Astronomy and College of Arts and Sciences at UMSL

Registration: \$25.00 for regular participants and \$10.00 for students. Registration includes a parking pass (if needed), continental breakfast, lunch, coffee breaks, and a free planetarium show.

Description: A mini-conference on "Astrobiology and Life Beyond Earth" that aims to bring together world-class researchers in the field of astrobiology to discuss exciting topics like early life on Earth, the possibility for life elsewhere in our solar system, and the search for planets elsewhere in our galaxy. There will also be free planetarium shows at the UMSL planetarium. Click below to register or for more information, including a list of speakers. <http://www.umsl.edu/~physics/astrobiology.html> or by contacting Dr. Erika Gibb at gibbe@umsl.edu or 314-516-5081
Editors Note: Registration looks like a course when you create your account. If you register now, there is a \$5 discount for early bird registrations, so \$20 for adults!

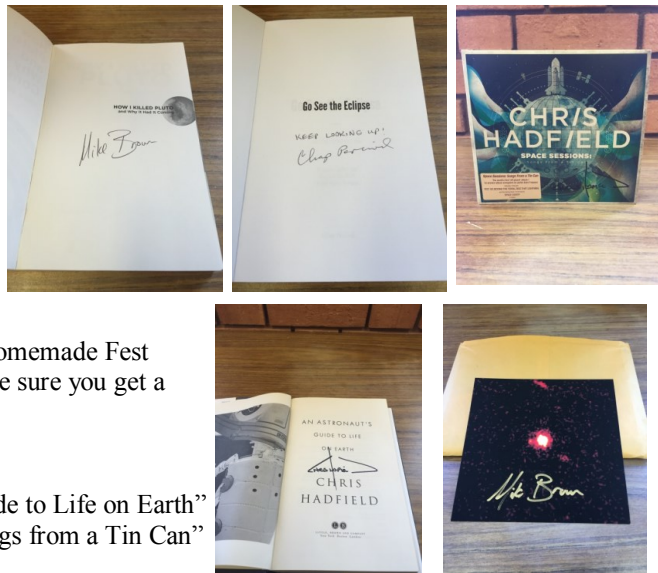


**Greetings from Brad Waller!
(AKA The Borg Collective)**

Homemade Fest 2016 is just around the corner, Saturday, 27 Feb, 2016 at the Kirkwood Community Center, same as last year!. If you are wondering, YES, there will be door prizes!!! Instead of the Borg telling you what you have won, you will have the choice of several items to choose from. There will be four or five door prizes awarded.

Also, there are still plenty of spaces available for presentations at Homemade Fest 2016. Just drop the Borg a note and we will "Assimilate it." So, make sure you get a ticket for the drawings!!!

- A signed book from: Mike Brown "How I Killed Pluto"
- A signed book from: Chap Percival "Go See the Eclipse"
- A signed book from: Astronaut Chris Hadfield "An Astronaut's Guide to Life on Earth"
- A signed CD from: Astronaut Chris Hadfield "Space Sessions: Songs from a Tin Can"
- A signed picture of the Dwarf Planet Eris from: Mike Brown



2015 SLAS Volunteer Recognition at the February Meeting!

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 hours for NSN events

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

The Library Telescope Program also has recognition at the meeting this month. There are 38 Certificates to be distributed for this program! The list to the right is all of the people that will receive an award for one program or the other. It would be terrific if we could get a large number of these volunteers to attend the meeting and be recognized with a photograph!

1. Eddie	Agha	22. Richard	Jennings
2. John	Beaury	23. Angie	Johnson
3. Sharon	Bertram	24. Mark	Jones
4. Bill	Biermann	25. Nichola	Kirschman
5. Doug	Blum	26. Eric	Kovach
6. John	Boncek	27. Frank	Mack
7. Bill	Breeden	28. Rick	Menendez
8. Rita	Breeden	29. Renee	Mettle
9. Larry	Campbell	30. Brian	Mills
10. Dale	Engelbrecht	31. Willia	Neubert
11. Gaylene	Engelbrecht	32. Chris	Nobbe
12. Mark	Fedde	33. Colleen	O'Toole
13. Lynn	Fee	34. Gregory	Rigelman
14. Richard	Fefferman	35. Steve	Sands
15. Cook	Feldman	36. James	Small
16. Donald	Ficken	37. Ann	Trull
17. Edward	Frey	38. Jim	Trull
18. Randy	Gettman	39. James	Twelman
19. Jeremy	Gibson	40. Bradley	Waller
20. Lee	Halbeck	41. Ben	Winningham
21. Rich	Heuermann	42. Bill	Winningham

List of Volunteers

Above is the list of volunteers who should attend the February meeting to receive their award certificates and/or pins!! Please attend the meeting if you can!

Magazine Renewals

by Bill Winningham

It has come to our attention that in order to ensure that your Astronomy Magazine subscription is not interrupted, it should be renewed at least 3 months before it expires. The label on your magazine should indicate your subscription end date. Please note that your magazine is not necessarily synchronized with your SLAS membership. If you typically renew your subscription when you renew your SLAS

membership, you can always renew your SLAS membership a couple of months early, by using the renewal form at the end of the newsletter or by using the PayPal link on the SLAS website. Another alternative is to log on to the Night Sky Network and use the renew through ASP option (see link below). Sky and Telescope does not seem to require as much lead time, however it is recommended that you renew your S&T subscription a couple of months early as well. If you have any question regarding magazine subscriptions, feel free to contact Bill Winningham at treasurer@slasonline.org.

Welcome New Members!

Robert Drzymala
01/15/16 I 1
32 Donald Snyder
01/23/16 I 1

Please welcome new members Robert and Donald to SLAS!

Join the Fun March 5th!

Come help with the next Library Telescope Build Saturday, March 5th from 9

-5 at the Florissant Valley Branch of St. Louis County Library! For more information, consult Night Sky Network and RSVP there!

Astronomy Magazine Award Library Telescopes Delivered by Don Ficken

In January 2016, SLAS donated two library telescopes to St. Louis County Library. Funding for the library telescopes came from SLAS winning Astronomy Magazine's coveted "2014 Out-of-this-world" award honoring astronomy outreach programs.

In this photo, Eric Button, Assistant Director of Branch Services for St. Louis County Library, happily accepts the telescopes which are destined for the Grant View and Thornhill Branches of St. Louis County Library. Eric shared statistics for the library branches receiving the telescopes: 93 library patrons were on the waiting list for Grant View's library telescope and 62 patrons were on the waiting list for the Thornhill branch's telescope.

Overall, St. Louis County Library had 526 holds for their 12 library telescopes with the telescopes having been checked out 379 times. With each telescope available for a seven day checkout period and a typical one or two day delay between checkouts, public patrons could be waiting nearly two years to checkout a library telescope. The new telescopes will help reduce the waiting times for library patrons.

The smile on Eric's face says it all.



Library Telescope Program Expands by 29 Telescopes by Don Ficken

The SLAS Library Telescope Program continues to expand rapidly in the St. Louis regional area. In March 2016, another twenty nine (29) telescopes are being added to the program. Once deployed, the St. Louis area will have 88 telescopes in public libraries making our program one of the largest and fastest growing library telescope programs in the nation.

The details of this expansion are even more amazing. In a major commitment to the program, St. Louis County Library decided to expand the program to all of their remaining branches requiring 10 more telescopes. Two additional telescopes are being added to reduce the large backlogs of patrons waiting to checkout the library telescopes. In total, St. Louis County is adding twelve more telescopes to the program bringing their total library telescope count to 29 telescopes.

Jefferson County will more than double their commitment to the program. Jefferson County Library, which serves north of "M" highway, will add three telescopes to the program. New libraries joining the program that serve south of "M" highway in Jefferson County are De Soto Public Library with three telescopes and Festus Public Library with one telescope. Collectively, Jefferson County will have ten library telescopes in the program.

St. Charles City-County will add four more telescopes to the program bringing their total count thirteen telescopes. The Astronomical Society of Eastern Missouri (ASEM) is coordinating the program in St. Charles City-County Library, handling all staff training, star parties and telescope maintenance for the library. This has been a great chance for SLAS and ASEM members to work together.

er.

Other additions to existing programs include St. Louis Public Library with two more telescopes (bringing their count to seven telescopes) and University City Library with one telescope (bringing their count to three telescopes).

On the Illinois side of our area, the Glen Carbon Centennial Library will join the program with three telescopes. SLAS is working in partnership with Professor Tom Foster, SIU Edwardsville, to help support the library telescope programs in Collinsville, Edwardsville and Glen Carbon with telescope maintenance, star parties and library staff training. The support of SIU Edwardsville is much appreciated and offers another great chance for SLAS to build relationships in the St. Louis area.

Collectively, twenty nine (29) more telescopes are being added to the program for this expansion. Twenty five (25) of the twenty nine (29) telescopes being added to the program are being purchased directly by the libraries. The remaining four telescopes were purchased from the \$1,000 that SLAS members graciously approved in their 2016 budget.

In deciding where to place these telescopes, SLAS decided to focus on libraries that had a high waiting list. After reviewing the waiting list statistics, the telescopes were donated to St. Louis Public Library (two telescopes), University City Library (one telescope) and St. Louis County Library (one telescope).

SLAS members have made the success of the library telescope program possible not only with the budget funding but through generous donations of their time and expertise. In 2015, more than 50 members of SLAS donated their time to helping with library telescope upgrades, staff training and star parties. Thank you!



In this photo, 27 of the library telescopes just delivered by UPS were stacked into an arch, just for fun. Donna Ficken posed with "Chase", a yellow lab, to give a perspective of

SLAS Sky Orienteering

by Mark Jones, SLAS Observing Chair

Do you want to improve your observing skills by improving your knowledge of the night sky? Several SLAS members have volunteered to lead monthly "Sky Orienteering" sessions at Babler State Park. One Sunday night each month, SLAS members will meet at the monument area in Babler State Park. Bring a chair and a pair of binoculars. We will explore the night sky together, identifying stars, constellations, clusters, nebula and galaxies. Each session will start as darkness falls and last no more than 2 hours. See the Night Sky Network calendar for more details. Dates for each month will be close to last Quarter Moon.

The name of your orienteering guide is in parenthesis
 March 6 (Bill Biermann.)
 April 3 (Bill Neubert.)
 May 1 (Mark Jones.)
 June 26 (Mark Jones.)
 July 24 (Bill Neubert)
 August 28 (Bill Biermann)
 September 25 (TBA)
 October 23 (Bill Neubert.)
 November 20 (TBA)

Go to the link below for a easy-to-use star map for each month <http://www.skymaps.com/downloads.html>

If you have a computer and want to download sky charts or planetarium programs, try the following

Program - Stellarium
<http://stellarium.org/>

Program - Cartes du Ciel
<http://www.ap-i.net/skychart/en/start>

Charts- 7th Magnitude Star Atlas
<http://www.cloudynights.com/page/articles/cat/articles/observing-skills/free-mag-7-star-charts-r1021>

Charts - 8.5 Magnitude Star Atlas
http://www.geocities.jp/toshimi_taki/atlas_85/atlas_85.htm

Charts - Star Hopping Guide to the Messier Marathon
<http://www.robhawley.net/mm/SHG-MM-charts-v6.pdf>

Charts - Your Sky
<http://www.fourmilab.ch/yoursky/>

Selecting Binoculars for Astronomy

by Bill Neubert, SLAS

When people ask me what type of telescope to buy when starting out in astronomy, I usually answer that the best beginner telescope is a pair of binoculars. Not only do they give a pleasant view of the night sky, but they are relatively inexpensive, easy to use, very portable, useful during the day and at night, require almost no maintenance (if protected from dust and shock), need no batteries nor software. What I sometimes fail to do, however, is explain what makes a truly good pair of binoculars and why they come in such a wide range of prices.

Binocular design is a fascinating subject, and several books are written on the subject (some small amount of which I pretend to understand). The most important factors are the easiest to understand: objective diameter, magnification, eye relief and alignment. It's easy to know the objective diameter and magnification. That's usually give right in the description. I pair of binoculars listed as "7x35" means 7 times magnification and a 35 mm objective lens diameter. A pair listed as 10x50 means 10 times magnification and 50 mm objective lens diameter. So, what's best? It depends on your tastes, but I am biased toward anything in the range of 7x35 to 10x50. If you get less than a 35 mm lens diameter, the resolution suffers a bit. If you go larger than 50 mm, the weight can make them hard to hold. Also, magnification above 10x makes it hard to hold the binoculars steady. The 7x35 binoculars are much less expensive, but the 10x50 binoculars will give you a brighter view of stars and larger image of nebula. You can consider larger or smaller versions, but be sure the ration of the objective diameter to the magnification is smaller than 7. So, for a 7x35 version, the ratio is $35/7 = 5$. This ratio is also called the "exit pupil" and you want that a bit smaller than that of your eye.

The eye relief is an important factor for those of us wearing glasses and having astigmatism. Eye relief is simply how far back you can hold the binoculars away from your face and still see the full field of view. If you have great vision and no glasses, this distance really isn't important. But, if you are like me, and need your glasses, and don't want to keep taking them on and off, pay a bit more and get an eye relief of 15 mm or more. How do you know the eye relief? You will need to check the specifications carefully, or search for the information on the internet.

The last factor is perhaps the most difficult to evaluate: alignment. Or, more accurately, collimation. The two halves of the binocular much parallel to each other. If not, the eye strain can literally give you a headache! There are many ways to test collimation, but that might be an extended topic for another day. I would just say that if your binoculars are not comfortable, return them and try again. Don't settle for poorly aligned optics.

There are many, many other factors, such as prism design or ruggedized Nitrogen purged waterproof versions. Those might be important, but I just stay with the standard Porro prism variety for low cost and simple design. Plus, I tend not to do much sky watching in the rain anymore.

I hope to see you, with your binoculars, at one of the up-coming sky orientation evenings!

Lunar X Part II **by Grant Martin**

Last month, as you'll recall, our intrepid Robinson family eagerly awaited...no wait, sorry about that, wrong SciFi program. What was eagerly awaited last month was an apparition of the Lunar-X (not to be confused with "The X-Files" which WAS eagerly awaited by MANY astronomers and non-astronomers alike – but that's another story).

This month's installment of the Lunar-X files includes a report of last month's observations as well as a revised prediction list (the old list id off by about two hours).

The prediction for January was for about 3:30PM on the 16th for a peak "X". The weathercast during the week kept saying it would be cloudy that day. OK, great, I had a prior commitment to take a friend to the airport at that time so it looked like I was going to miss it either way. I sent out notices on several social media outlets asking for help on verifying the timing.

3:30 came and, as usual, the weather report was wrong - it was mostly clear! There were some thick clouds but the sucker holes were large and plentiful. Unfortunately, I was at the airport helping my friend get to their flight. While waiting, I got a text message from Mark Jones saying that he was looking at nothing but Moon – no X was evident. I thanked him for the update and we discussed timings for a bit.

I got home twenty minutes later and immediately setup Lois Fitters' little six inch dob. Sure enough, the apparition was in progress. Two of the legs could be made out. Long story short, the X was fully formed by about 5:30PM, two hours later than predicted. Not the best we've ever seen but close enough – more on this "quality" aspect later.

So what happened here? Why were we off by so much? Or so little, all things considered. Mark commented that I may have printed the START time of the event instead of the peak. I went back and looked over the work but it was set-up for the peak times.

Mark, being the ever so capable astro-physicist, commented that perhaps the equations didn't take into account such lighting effects as solar altitude AND libration. These are just two of the many variables that cause the local lighting to change from lunar month to lunar month – providing an ever changing view of what most people think is a never changing view...

Some other parameters influencing lighting conditions are Perigee/Apogee, eccentricity, obliquity, inclination, "recession of line of apsides" and "precession of nodes" – just to name a few. I suppose if I wanted to annoy y'all or just put ya to sleep, I'd go into explanations of these effects but I'm told I need to be kinder so I won't. They ARE covered in many other tutorials like Wikipedia if you're REALLY interested.

So the difference between predictions CAN be accounted for in the equations but the effort to do this is rigorous so no one has done it yet. An important thing to note here is that WHEN these effects are taken into account, more accurate predictions can be made AND a new parameter called "Quality" can fall out of the event predictions.

As I noted earlier, this Lunar-X was neither as clean nor as bright as others we've seen in the past. After considering Marks comment about libration, it dawned on me: "Yes, of course, if the sun is illuminating the terrain lower and from the south, the appearance is GOING to be different than when the Sun is illuminating the terrain higher and from the north!" Think about it, if the suns rays are blocked by a high crater rim, a hole in the leg of the X will be apparent (see image) causing the leg to appear jagged if not broken.

However, when illuminated from the north, not only is this crater fully illuminated, but the crater rim casts a shadow that not only ENHANCES the sharpness of that leg, but causes it to shine brighter. Brilliant! (Note, We're not really sure yet what the best lighting angles really are, the description above just used North and South as examples to illustrate how the actual angles can cause various lighting QUALITIES)

Considering the terrain that forms the Lunar-X, there's going to be one set of conditions that cause the X to be as impressive as possible. And you know what? That lighting condition will occur only one time every 18.5996 years - if that frequently (I leave it to the reader to do the math – it's fun... really). Every time other than that, the effect will not be as good – but the majority will be pretty cool looking nonetheless.

So here are the new predictions. They are two hours later than the first set but that's a good thing as they appear during darkness AND at a reasonable observing hour. If you are going to try to see this next time, I might advise that you start looking two hours early just to be on the safe side (use the time in the column labeled "original prediction"). Let us know what you see and when – we'll make your observations famous and they will be invaluable in refining ongoing predictions!

And my request to social media? Crickets. Nada. Nothing. Silence. The BIG quiet.

Revised Lunar-X predictions:

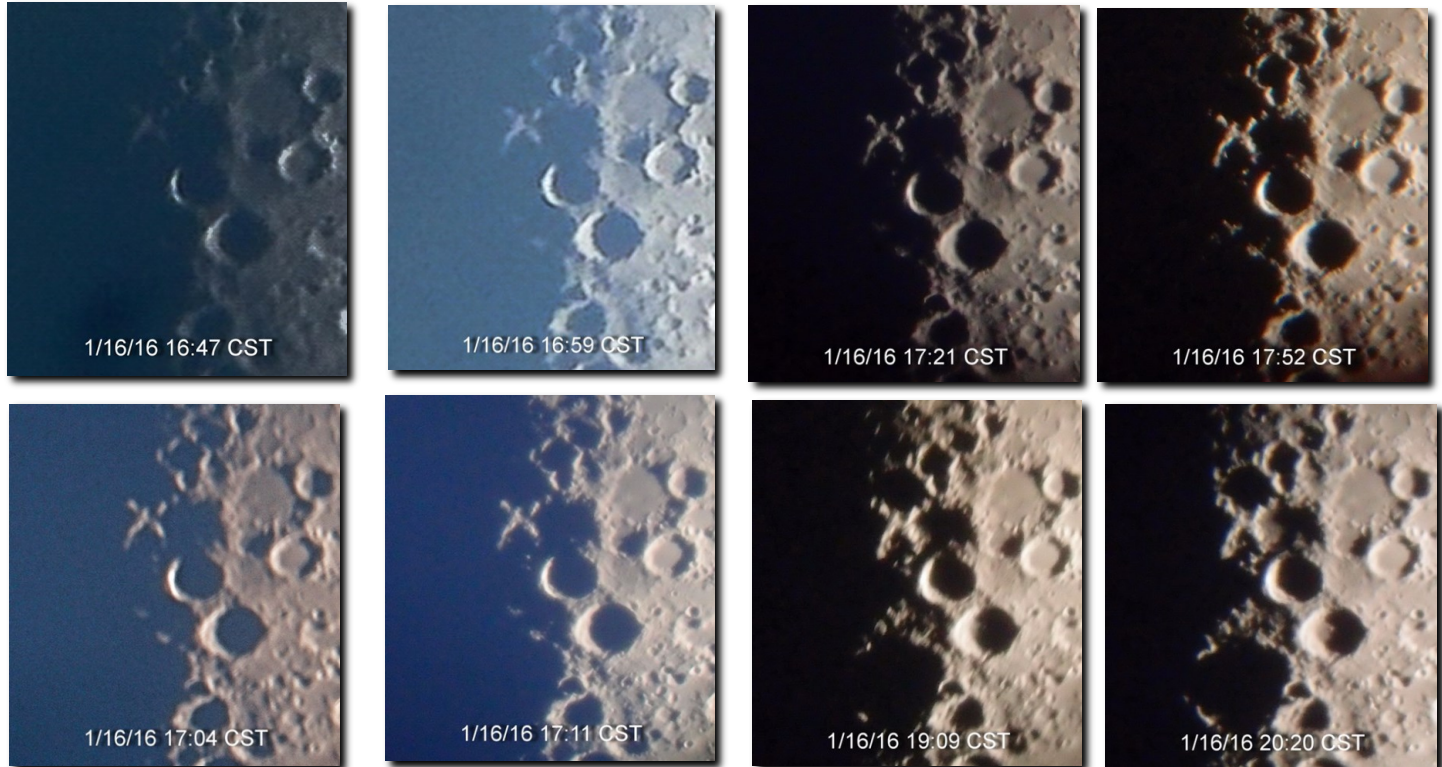
New prediction date/time (UT).	Corrected for time-zone and CDST/CST	Original prediction
1/16 23:30	1/16 17:30 CST	15:29 CST
3/16 03:40	3/15 22:40 DST	20:39 DST
5/14 04:24	5/13 23:24 DST	21:24 DST
7/12 02:35	7/11 21:35 DST	19:35 DST
9/9 01:09	9/8 20:09 DST	18:08 DST
11/7 02:48	11/6 20:48 CST	18:48 CST

(Continued on page 7)

(Continued from page 6)

Lunar X II (con't)

For reference, here are a set of images taken during the 16 January observation cycle showing the development of the Lunar-X. Each one is time stamped.



And lastly, here are the numbers for the year:

Searching for Colongitude = 359.019 with Solar Lat = 1.301
 Librations and Moon/Sun positions calculated for observer at 90.500°W 38.750°N 100 m

Date	Time UT	Terminators		Sub-Solar Colong	Point Lat.	Librations		Center of Moon		Center of Sun		
		Morning	Evening			Long.	Lat.	Alt.	Azi.	Alt.	Azi.	
1/16/2016	11:30:03 PM	0.981°E	179.019°W	359.019	1.301	0.973	4.085	57.553	165.731	-5.247	247.323	+%
2/15/2016	1:55:52 PM	0.981°E	179.019°W	359.019	0.691	4.518	7.062	-31.914	28.396	10.520	115.897	
3/16/2016	3:40:05 AM	0.981°E	179.019°W	359.019	-0.120	6.142	7.144	43.733	256.956	-39.409	307.823	%
4/14/2016	4:29:16 PM	0.981°E	179.019°W	359.019	-0.889	8.228	5.643	-14.351	56.369	54.314	138.243	
5/14/2016	4:24:50 AM	0.981°E	179.019°W	359.019	-1.407	6.247	2.954	30.812	256.659	-28.498	334.688	%
6/12/2016	3:40:03 PM	0.981°E	179.019°W	359.019	-1.547	5.313	-0.728	-29.298	60.081	56.126	106.820	
7/12/2016	2:35:57 AM	0.981°E	179.019°W	359.019	-1.283	1.668	-3.255	32.640	227.774	-11.690	310.903	%
8/10/2016	1:37:25 PM	0.981°E	179.019°W	359.019	-0.685	-0.652	-5.783	-54.030	50.977	26.985	91.625	
9/9/2016	1:09:04 AM	0.981°E	179.019°W	359.019	0.097	-3.993	-6.091	29.060	206.873	-10.134	285.176	%
10/8/2016	1:30:10 PM	0.981°E	179.019°W	359.019	0.862	-5.588	-5.689	-57.100	61.440	15.231	111.195	+
11/7/2016	2:48:58 AM	0.981°E	179.019°W	359.019	1.392	-7.884	-3.144	17.197	230.887	-45.484	287.505	+%
12/6/2016	4:58:08 PM	0.981°E	179.019°W	359.019	1.522	-6.645	0.730	-13.201	91.743	27.309	165.660	+

+ = Latitude of sub-solar point within 0.50° of target (= 1.301°)
 % = Moon above horizon/Sun below horizon

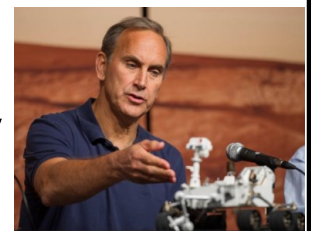
A Habitable Environment In the Gale Crater On Mars

The McDonnell Distinguished Lecture Series 2016

Wednesday, March 2 - 7:00 pm Whitaker Hall, Room 100, Washington University

Professor John Grotzinger - California Institute of Technology

Washington University's McDonnell Center for the Space Sciences cordially invites the St. Louis Community to the McDonnell Distinguished Lecture



**For full description, see the flyer at the link below:
<http://mcss.wustl.edu/events/grotzingerlecture>**

Print the above flyer at the link for your parking pass. Yellow zones only

StLouis Astronomical Society
Executive Board Meeting Minutes for January 7, 2016

1. Opening Activities: Attendees: Bill Winningham, Paul Baldwin, Brent Buch, Bradley Waller, Mark Jones, Jim Small, Tom Nickelson, Larry Campbell Meeting opened at 1920 Dec 2015 minutes approved with corrections by Brad Waller.

2. External Business Review of the revised Memo of Understanding for SLSC to be forwarded to SLSC. Board agreed with changes and authorizes draft be sent to Don Ficken and Cook Feldman for review before sending to the SLSC.

Next board meeting: Feb 11, Mar 10, Apr 7, May 12, June 9, July 7, Aug 10 (Wed), Sep 8, Oct 6, Nov. 10, Dec 7(Wed)

3. Director Reports:

President: Jim Small: Goals for 2016 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. SLAS has 171 members compared to 147 one year ago.

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. A "Welcome Aboard" meeting for new SLAS members has been started. This meeting occurs before the Monthly SLAS Meeting. Retention for one year is up to 52%.

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

New ideas for bringing back former members Have an 80th anniversary dinner and invite all current and former members. (Paul will work on plan) Recognition dinner could be part of the meeting or separate meeting.

MSRAL 2016 Report on latest progress on MSRAL 2016 convention to be held June 3-5, 2016 in Columbia, MO Call for committee members (food, vendors, registration, one-site registration, speakers, etc.) Working on caterers and banquet location. Initial information added to MSRAL.org website. Brad has talked to Mike Clement and has passed on his contact information to Jim Small. Mike is very excited about talking at this event. It looks like he will have to SKYPE this event. He will have just returned from an Astronomy event and is still saving up for his trailer for his 70" scope. Budget planning based on 60 attendees for a breakeven point. Registration will open by end of February. Next meeting January 17, Columbia MO. Brent and Larry volunteered to help with planning. Co-chairman Jim Small and Carol Iorg.

Vice President –Paul Baldwin Speakers

January, Mark Jones – Preview of Astronomical Events for 2016
 February, Bill Neubert – Explorations in Astro Imaging
 March, Don Snyder - North American Sundial Society
 April: May: Dr Heather Knutson, "Extrasolar Planets", Caltech (Skype)
 June: Mike Roberts from KSDK Channel 5 (Weather)

Astro 101: January – Dale Engelbrech

Feb: Brad Waller: "Observing the Worlds of Star Trek"

Mar- TBD (John Newcomer) April- TBD May-TBD

Secretary – Mark Jones We are kicking off a new program called "Sky Orienteering" where we will meet once a month to help members learn the night sky. Star-B-Q is now set for Aug 20th at Babler State Park at the Walnut Grove Picnic Area. Babler did not charge for the shelter Homemade Fest 2016 is planned for 27 February 2016, Brad is Emcee, Rich H will borrow laptop, screen and projector from Wash U. 1700 is setup time Report on Boeing lens/glass donation status. We have an offer from a company in California to sell the camera lenses that Boeing donated to SLAS back in 2004.

Treasurer/ALCOR – Bill Winningham Treasurer reports emailed before the meeting. Balance sheet assets increased by \$200 since Dec 2014. Total assets almost \$33,000 Profit and loss for 2015 net income +\$358 **Escrow accounts** Library Telescope escrow balance \$444 Trout Lodge escrow balance \$542 Astronomy Mag account \$465 needs to be spent by April 10th Eclipse \$539 escrow balance 2016 will add additional funds to Eclipse (\$800) and Library (\$1200) escrow accounts will be impact January Need to get ALCOR information fixed on msral.org. Bill to ask AL to change ALCOR to Bill from Rhonda

Hospitality – Larry Campbell

Board member at large reports

Bradley R Waller: 2016 New members meeting report: Received 2

signed CDs from Astronaut Chris Hadfield Received 8 signed books from Mike Brown: "How I Killed Pluto" Received 5 signed pictures of the Dwarf Planet Eris from Mike Brown Attendance prizes still on each Equinox and Solstice Movie event at The Hi-Pointe for the new Star Trek movie, Star Trek: Beyond, is planned for July 2016. If the Hi-Pointe does not have the movie, another movie theater will be chosen. Mailed out the final Lovell tickets

Tom Nickelson: (2017) Ordered cables to repair All-ability Telescope Camera

Brent Buch (2018) Site for viewing videos from SLAS meetings. SLAS video camera given to Brent. Create a YouTube channel called "slasonline". Currently everything in Private mode. (Public and Unlisted are alternatives). Video for Dec uploaded as test case. Can be viewed by email address invitation only. So far testing has been done with Mark, Brent, and Rich. Each video can be marked as Public, unlisted or private. No max storage space limit.

4. Committee Reports:

Library Telescope Program – Don Ficken Planning on LTP builds in the Spring and Fall of each year. Will solicit libraries to see who is interested in the Spring build.

Membership – Larry Campbell Membership recognition report

Merchandise – no report submitted

Telescope Making – no report submitted

Librarian – no report submitted

Newsletter – Need articles for January newsletter

Website – www.slasonline.org/joomla Still working on website

Night Sky Network – Jim Small need to fix astronomy magazine discount link. Price not correct.

SLASdialogs – Mark Jones need to get events on calendar in dialogs with reminders

Dark Site – Mark Jones, Dark Sky Events are scheduled for February 2016 and are on NSN calendar

Loaner – Jim Small Canon Vixia HF R60 video camera was purchased with funds approved in 2015. The camera will then be turned over to Brent for establishing site for videos, etc.

Publicity – Rich Heuermann, Press Release needs to be issued for January SLAS meeting

Observing Programs – no report submitted

Star Parties: star party list submitted by Bill Breeden. If the April SLAS meeting is moved to April 22, then we need to get three volunteers for the Kirkwood event, which can't be scheduled on any other close date due to facilities being used. This event had 58 people last year.

5. Old Business In December the Board agreed to solicit the general membership about moving the April 15th SLAS meeting to April 22nd. The general membership agreed with the Board's recommendation.

Motion by Jim Small – Recommend we *officially move the April SLAS meeting to the 22nd*. Motion seconded by Bill Winningham. Motion was approved by Board. Meeting changed to April 22nd

6. New Business

Motion by Mark Jones – *Request the Board approve recommendation that we sell the lenses donated to SLAS from Boeing in 2003 through Stone Cinema Engineering as a 50/50 share on sales price. Authorize Mark Jones to work out agreement on 50/50 sales agreement for lenses then handle at his discretion.* Seconded by Larry Board approved motion

Motion by Rich Heuermann and Don Ficken. *The Eclipse Committee proposes that a grant application up to approximately \$10,000 be made to the Employees Community Fund of Boeing by SLAS for the purpose of procuring eclipse-related materials, such as eclipse glasses and maps, and supporting other expenses incurred in publicizing and coordinating eclipse activities. These funds would be used exclusively for the Eclipse 2017 project. No SLAS funds would be obligated, other than funds already approved. The Board would have the opportunity to review the application before it is submitted to the Boeing Fund. Eclipse Committee members would be authorized to submit the application, once reviewed and approved by the Board, on behalf of SLAS. The Committee would fulfill whatever reporting requirements are imposed by the Fund as a condition of the grant award. The Board would have the opportunity to review reports before they are submitted. It should be noted that time is of the essence with respect to producing and submitting the funding request to Boeing. The Boeing application deadline is February 1. Seconded by Tom N. Discussed and approved by Board.*

7. Closing Activities Meeting adjourned at 2140

5:29 PM
02/11/16
Accrual Basis

St. Louis Astronomical Society
Profit & Loss Budget vs. Actual
January 2016

	Jan 16	Budget	\$ Over Budget
Ordinary Income/Expense			
Income			
Magazine Subscription	167.90	267.80	(99.90)
Membership Dues	455.00	520.00	(65.00)
Merchandise Sales	4.00	0.00	4.00
Total Income	626.90	787.80	(160.90)
Cost of Goods Sold			
Magazine Subscriptions	167.90	267.80	(99.90)
Merchandise	2.51	0.00	2.51
Total COGS	170.41	267.80	(97.39)
Gross Profit	456.49	520.00	(63.51)
Expense			
1-Programs & Events	173.00	288.34	(115.34)
2-Newsletter	14.70	16.67	(1.97)
3-Library expense		8.33	(8.33)
9-Administrative Expenses	2.03	117.50	(115.47)
Total Expense	189.73	430.84	(241.11)
Net Ordinary Income	266.76	89.16	177.60
Other Income/Expense			
Other Income			
Donations	0.05	0.00	0.05
Eclipse Escrow Receipts	800.00	0.00	800.00
Interest Income	0.23	8.00	(7.77)
LTP Receipts	1,020.00	0.00	1,020.00
Total Other Income	1,820.28	8.00	1,812.28
Other Expense			
Eclipse Escrow Funding	800.00	800.00	0.00
LTP Escrow Funding	1,000.00	1,000.00	0.00
Total Other Expense	1,800.00	1,800.00	0.00
Net Other Income	20.28	(1,792.00)	1,812.28
Net Income	287.04	(1,702.84)	1,989.88

St. Louis Astronomical Society
Balance Sheet
As of January 31, 2016

	Dec 31, 15	Jan 31, 16
ASSETS		
Current Assets		
Checking/Savings		
Astronomy Magazine Award**	465.72	465.72
Checking - First Bank	2,940.49	1,421.35
Deposit, Certificate of	20,108.23	20,108.23
Library Telescope Escrow*	444.55	1,444.55
Merchandise Change Fund	20.00	20.00
PayPal	82.51	62.97
Savings - First Bank	5,361.90	5,362.13
SLAS Eclipse Conference Escrow***	539.12	1,339.12
YMCA Trout Lodge Escrow	542.87	542.87
Total Checking/Savings	30,505.39	30,766.94
Other Current Assets		
Inventory Asset	1,410.53	1,408.02
Investment in Mid-States 2016	1,000.00	1,000.00
Undeposited Funds	55.00	83.00
Total Other Current Assets	2,465.53	2,491.02
Total Current Assets	32,970.92	33,257.96
Fixed Assets		
Accum Depr - Office Equip	(216.65)	(216.65)
Office Equipment	216.65	216.65
Total Fixed Assets	0.00	0.00
TOTAL ASSETS	32,970.92	33,257.96
LIABILITIES & EQUITY		
Equity		
Opening Bal Equity	8,137.66	8,137.66
Retained Earnings	24,464.84	24,833.26
Net Income	368.42	287.04
Total Equity	32,970.92	33,257.96
TOTAL LIABILITIES & EQUITY	32,970.92	33,257.96

* Funds restricted for the Library Telescope Program. \$444.55 was carried over from the end of 2015. Reflects \$1,000 from the 2016 budget.
** Funds from Astronomy Magazine Award, available until 4/10/2016.
*** Registration fees and donations for SLAS sponsored eclipse seminars. Also includes \$800 from the 2016 budget.

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!

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.

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

4/13/2016, 5/11/2016, 6/8/2016, 7/6/2016, 8/10/2016, 9/7/2016, 10/5/2016

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

3/4/2016

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

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

UMSL Observatory

For directions and map

<http://www.umsu.edu/~physics/astro/directions.html>

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

Skywatch Hotline: 314-516-5706

Saturdays: 3/19, 4/16, 5/14, 6/11, 7/9, 8/13, 9/10, 10/8, 11/5

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

February

18 Thur

Machecek Library Star Party

18 Thur

Incarnate Word Star Party

19 Fri

Festus Library Staff Training

19 Fri

SLAS regular meeting

20 Sat

Brentwood Recreation Star Party

22 Mon

Jamestown Bluffs Library

Staff Training

23 Tues

Star Party DeSoto Public Library

24 Wed

Meramec Valley Library Staff Training

24 Wed

Barr Library Star Party

25 Thur

Eureka Hills Library Staff Training

26 Fri

Indian Trails Library Staff Training

27 Sat

HOMEMADE FEST! (Kirkwood Community Center)

March

1 Tues

DeSoto Library Staff Training

2 Wed

Middle School Space Exploration

3 Thur

LaSalle Springs MS

3 Thur

Innovate at Wingate

4 Fri

SLSC Public Telescope Viewing

6 Sun

SLAS Sky Orienteering Event

7 Mon

Grants View Library Star Party

9 Wed

Kennard Webelos

10 Thur

SLAS Board Meeting

11 Fri

Webster Groves Library Star Party

12 Sat

SLAS Dark Sky Viewing

14 Mon

Festus Library Star Party

15 Tues

Central Library Star Party

15 Tues

Bellville Library Star Party

18 Fri

SLAS regular meeting

21 Mon

Edward Jones YMCA Star Party

22 Tue

Schlafley Branch Library Star Party

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

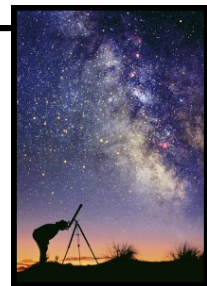
galleria@headznthreadz.com

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**



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	Jim Small	314-307-0692
president at slasonline.org		
Vice President	Paul Baldwin	314-781-4080
vicepresident at slasonline.org		
Secretary	Mark Jones	636-394-2342
secretary at slasonline.org		
Treasurer	Bill Winningham, (Don Ficken - membership)	636-225-0269
treasurer at slasonline.org		
Hospitality	Larry Campbell	636-244-2867
hospitality at slasonline.org		
Board Members at Large:		
	Brent Buch	314-239-0329
Board18 at slasonline.org		
	Tom Nickelson	314-346-9565
board17 at slasonline.org		
	Bradley Waller	314-481-7250
board16 at slasonline.org		
ALCOR	Bill Winningham	636-225-0269
(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
lirbrarytelescope 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	Jerry Loethen	314-329-8008
observing at slasonline.org		
Publicity	Rich Heuermann	314-962-9231
publicity at slasonline.org		
Recognition	Larry Campbell	636-244-2867
recognition at slasonline.org		
'SLASdialogs' Moderator	Mark Jones, Rhonda Whelan	
dialogsmoderator at yahoo.com		
Star Party Coordinator	Bill Breeden	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>

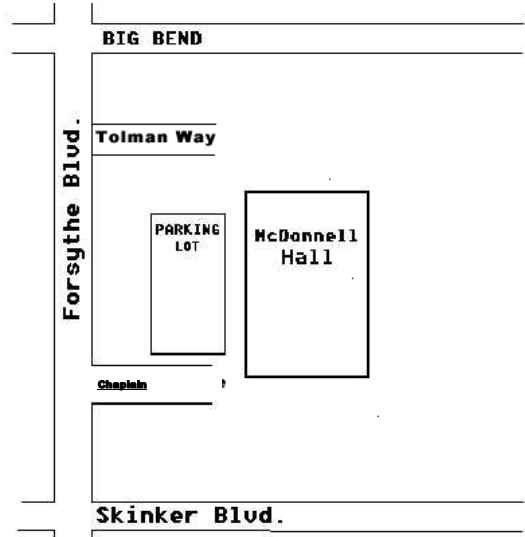


Who We Are and What We Do

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

