

THE EVENT HORIZON



ST. LOUIS ASTRONOMICAL SOCIETY

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

**VOLUME 24, Issue 8
August, 2014**

How Planets Are Built by Logan Brown

McDonnell Hall is accessible from Forsyth Boulevard via Tolman Way. The event, cosponsored by NASA's Missouri Space Grant Consortium, is open to the public free of charge.

Scientists interested in the origin of Earth and the other planets study regions where new solar systems are forming. The planet-building process is occurring throughout the Milky Way galaxy in much the same way as it did about 4.6 billion years ago, when our sun and its planets formed. Logan Brown will explain how astronomers observe young stars, still surrounded by the remnants of the huge clouds of dust and gas from which they condensed. They search within the disk-shaped structures of proto-stars for traces of water and other chemicals necessary for life. Of particular interest to Mr. Brown is the problem of how planets such as the Earth obtained their water and other volatiles.

Logan Brown is a Doctoral candidate in the Department of Physics and Astronomy of UMSL. A native of southeastern Wisconsin, he has come to UMSL to study planetary system formation and early evolution. His research is focused on the chemistry of protoplanetary disks of dust and gas.

Upcoming meetings

September - Dr. Jack Fishman (SLU) and Dr. William Smith (WU) - Solar impact on earth's weather-two opposing viewpoints

Proposal to the Membership: Library Telescope Program and Solar Eclipse Conference

There will be two proposals for the membership to consider at this month's meeting.

The first involves allocation of funds for the initiation of the Library Telescope Program. Here is the board-approved proposal: :

"We (SLAS) purchase three set-ups (Orion StarBlast 4.5 for \$200, Celestron 8-24 zoom eyepiece for \$60, and \$40 for miscellaneous) for Library Telescopes per the Library Telescope Program set up in New Hampshire to be placed in St. Louis County Library, one in St. Louis City Library, and a 3rd library to be determined. Total purchase will be approximately \$900."

The second involves the Solar Eclipse Conference next week. Because the AAS has been so generous in providing free registration for our members, it was proposed that SLAS pay for one person's registration for the conference and have that person report back to SLAS about the conference. Mark Jones will be the member responsible to report back to the group.

An article about the organization for the Library Telescope Program with more details is on page 2.

Mid States Region



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President's Corner

by Jim Small

We will have a proposal on the docket for the Library Telescope Program for this month's meeting. Don Ficken is heading up the committee to put together the proposal and implement the program. He has put together a committee and is well on the way to putting together contacts for the libraries proposed. If you are interested in helping with the program, see Don Ficken.

Several SLAS members will be participating in the Solar Eclipse Conference to be held in Columbia on August 21-22. It is sponsored by the AAS and will bring many professionals to the area. There is a proposal to the membership to pay for the registration for one member, Mark Jones, to attend the conference and report back to SLAS.

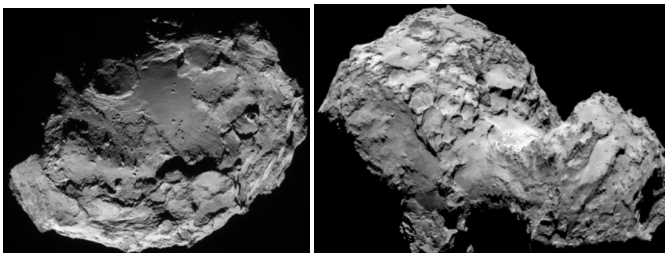
The date for the Star-B-Q has been set at September 20. The shelter has changed for this year and is indicated on the map on page 4. We hope to see you there!

Once again for Night Sky Network, here is the best way to enter information about your RSVP or Logging your hours.

If you are having trouble with the calendar not coming up in a timely fashion on NSN, try this:

1. Log in.
2. Under the SLAS logo, look for the tab that says "My Profile" and mouse over it.
3. Click on "My RSVPs"
4. Carry out the usual actions, either getting details or submitting an RSVP.
5. To log hours served, click instead on "My Volunteer Hours"

Rosetta Arrives!



Two images of Comet 67P/Churyumov-Gerasimenko taken by Rosetta this month - courtesy of ESA

Library Telescope Program

*"The best thing that we're put here for's to see;
The strongest thing that's given us to see with's
a telescope. Someone in every town
seems to me owes it to the town to keep one.
In Littleton it may as well be me."*

- Robert Frost
from the collection New Hampshire, 1923

It was this passage from Robert Frost which first inspired Marc Stowbridge and the New Hampshire Astronomical Society to invent the Library Telescope program. Basically, it is a program where libraries provide a telescope system and manual to be available for checkout to patrons just like a book. It has been an overwhelming success in New Hampshire where it was introduced and you can read more about the program, where it is in use now, and the equipment that is used for the telescope system. A link for the program may be found here: <http://nhastro.com/ltp.php>

The telescope of choice is an Orion StarBlast 4.5" tabletop reflector along with a Celestron 8-24mm Zoom eyepiece. The manual is modified and laminated and goes with the telescope as a guide with an introduction to the telescope and star maps and other guides for what to look at. It is a rugged system and easy to carry in one piece. Two significant modifications are performed on the telescope, screwing the eyepiece into the focuser, and placing a cover over the collimation screws at the bottom of the telescope so it can't be easily modified.

In preparation for this program and its introduction to St. Louis, a steering committee has been formed with Don Ficken as the head. Committee members include Jim Small, Bill Winningham, Rich Heuermann and John Newcomer. This is the group that will make the decisions about implementing the program in the area. Don wanted to emphasize that the committee will strive to implement the program in the correct manner, putting together a quality presentation before the libraries are approached about starting the program.

Don also emphasized that the wish for the committee is that money will be allocated (\$900) for the program through 2015 to get these three scopes placed and in service. It is also the case that no SLAS money will be spent until the library concerned indicates that it is on board with implementing the program. Libraries under consideration are St. Louis County, St. Louis City and one independent library. If one of those systems won't begin the program, other libraries will be sought.

Super Moon

by

Mark Jones

The 2014 RASC Observer's Handbook mentioned that the Jan 16th Full Moon would be the smallest of 2014. That Full Moon would occur less than 3 hours after apogee. That means the Moon was still near the furthest point in its orbit from the Earth, approximately 406,000 km. The Handbook also mentioned that the Full Moons of July, August and September 2014 would occur near perigee. With the August Full Moon occurring less than 9 minutes before perigee! At that time the Moon would be less than 357,000 km from the Earth. This led the media to declare a "Super Moon" for August 10th. Would this size of the Super Moon be apparent? Could the difference in size between an apogee Moon and a perigee Moon be photographed using a standard camera?

To find out, I photographed the Full Moon on Jan 15th at 9:26PM CST. I used a Canon EOS T3 camera with 300mm FL lens. I then photographed the Moon again on August 10th at 9:25PM CDT. Meta data from the camera was used to verify the focal length of the exposures were both 300mm. The combined images below show the perigee moon is larger in size.

You can repeat this process your self on September 8 when the Full Moon occur less than 21 hours after perigee. You will then have to wait to early 2015 for the next apogee Full Moon to complete the cycle.



STARFLEET COMMAND MISSION UPDATES FOR AUGUST 2014 EXTRA SOLAR PLANETS COUNT

The Extra Solar Planets Encyclopedia:	1812	www.exoplanet.net
Arecibo-The Exoplanets Catalog:	1816	www.phl.upr.edu/projects/habitable-exoplanets-catalog
The NASA Exoplanet Archive:	1741	www.planetquest.jpl.nasa.gov
Exoplanet Orbit Database:	1516	www.exoplanets.org
Open Exoplanet Catalog:	1783	www.openexoplanetcatalogue.com

As of: 06 August 2014

SUPPLY FLIGHTS

DESIGNATION	LAUNCH DATE	COMPANY
CRS-4	08-Aug-2014	Space-X Dragon
Orb CRS-2 SS Janice E Voss	13-July-2014	Cygnus
M-24M ISS-56-P	23 July 2014	Progress
ATV-005 Georges Lemaitre	24 July 2014	ESA
HTV-5 Kounotori 5	01 Feb 2015	JAXA

INTERNATIONAL SPACE STATION CREWS

EXPEDITION 40: MISSION STARTED: 13 May 2014

CREW MEMBERS	COUNTRY	UP/DOWN	STARTED
-12M Steven R Swanson (CDR)	USA		Soyuz: TMA
-12M Soyuz: TMA-12M			
-12M Aleksandr Skvortsov	Russia		Soyuz: TMA
-12M Soyuz: TMA-12M			
-12M Oleg Artemyev	Russia		Soyuz: TMA
-12M Soyuz: TMA-12M			
-13M Gregory R Wiseman	USA		Soyuz: TMA
-13M Soyuz: TMA-13M			
-13M Maksim Surayev	Russia		Soyuz: TMA
-13M Soyuz: TMA-13M			
-13M Alexander Gerst (Germany)	ESA		Soyuz: TMA
-13M Soyuz: TMA-13M			



12th Annual SLAS Star-B-Q

Saturday, September 20, 2014

Come join fellow members of the SLAS at Babler State Park for a day of food, games, and observing. SLAS will once again provide the hamburgers and hotdogs. We ask for you to bring your favorite drinks and side dish or dessert.

Activities will include: **games, prizes, solar viewing and plenty of socializing!** Then we pack up and move to the Babler Monument area where we will observe from 8-Midnight. Don't have a telescope? Don't worry this is a great chance to see other member's equipment.

3pm – Picnic begins

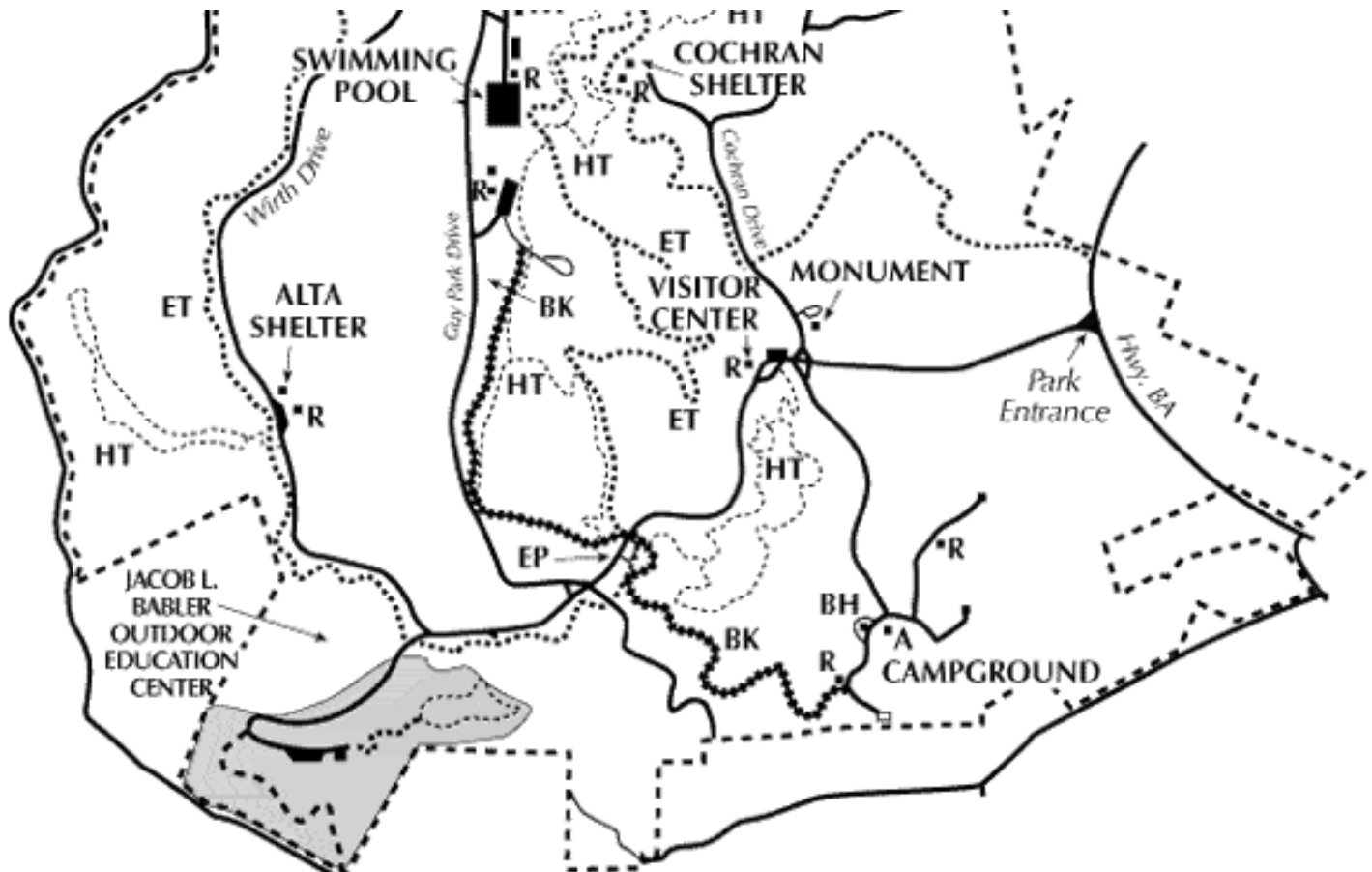
4pm-6pm Food line open

6pm-7pm Trivia Contest (with prizes)

7pm-8pm- cleanup shelter

8pm-midnight- Observing at Monument Area

Special Note: There will be solar viewing during the day



St. Louis Astronomical Society
Balance Sheet
As of July 31, 2014

10:19 AM
08/02/14
Accrual Basis

St. Louis Astronomical Society
Profit & Loss Budget vs. Actual
January through July 2014

	Dec 31, 13	Jul 31, 14
ASSETS		
Current Assets		
Checking/Savings		
Checking - First Bank	3,263.28	3,382.86
Deposit, Certificate of	20,027.97	20,055.43
Merchandise Change Fund	20.00	20.00
PayPal	24.15	0.00
Savings - First Bank	3,357.60	3,358.57
YMCA Trout Lodge Escrow	877.87	877.87
Total Checking/Savings	27,570.87	27,694.73
Accounts Receivable		
Accounts Receivable	0.00	5.00
Total Accounts Receivable	0.00	5.00
Other Current Assets		
Inventory Asset	1,707.15	1,614.22
Investment in Mid-States 2014	2,000.00	2,000.00
Total Other Current Assets	3,707.15	3,614.22
Total Current Assets	31,278.02	31,313.95
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	31,278.02	31,313.95
LIABILITIES & EQUITY		
Liabilities		
Current Liabilities		
Accounts Payable		
Accounts Payable	40.99	0.00
Total Accounts Payable	40.99	0.00
Total Current Liabilities	40.99	0.00
Total Liabilities	40.99	0.00
Equity		
Opening Bal Equity	8,137.66	8,137.66
Retained Earnings	19,214.15	23,099.37
Net Income	3,885.22	76.92
Total Equity	31,237.03	31,313.95
TOTAL LIABILITIES & EQUITY	31,278.02	31,313.95

	Jan - Jul 14	Budget	\$ Over Budget
Ordinary Income/Expense			
Income			
Magazine Subscription	633.40	2,605.80	(1,972.40)
Membership Dues	2,085.00	1,995.00	90.00
Total Income	2,718.40	4,600.80	(1,882.40)
Cost of Goods Sold			
Magazine Subscriptions	533.50	2,605.80	(2,072.30)
Total COGS	533.50	2,605.80	(2,072.30)
Gross Profit	2,184.90	1,995.00	189.90
Expense			
1-Programs & Events	326.72	1,014.58	(687.86)
2-Newsletter	289.06	166.25	122.81
3-Library expense	88.62	150.00	(61.38)
4-Astronomical League Dues	650.00	660.00	(10.00)
5-Loaner Scopes	155.25	150.00	5.25
6-Brochures	43.69	145.83	(102.14)
7-Insurance	380.00	380.00	
8-Website	113.88	108.00	5.88
9-Administrative Expenses	227.59	267.50	(39.91)
Total Expense	2,274.81	3,042.16	(767.35)
Net Ordinary Income	(89.91)	(1,047.16)	957.25
Other Income/Expense			
Other Income			
Donations	231.33		231.33
Interest Income	28.43	58.00	(29.57)
Total Other Income	259.76	58.00	201.76
Other Expense			
Non-operating Expense	92.93		92.93
Total Other Expense	92.93		92.93
Net Other Income	166.83	58.00	108.83
Net Income	76.92	(989.16)	1,066.08

MISSION UPDATES

Mars: Opportunity

01 AUGUST 2014

The Mars Rover, Opportunity, has broken the 41 year old driving distance set in 1973 by the USSR's, Lunokhod 2. That rover set down on the Moon on, 15 Jan 1973, and covered a distance of 24.2 miles in five months of operation (11 May 1973). The rover has been in operation since, 23 Jan 2004, when it landed on the plains of Mars. If Opportunity can cover 1.2 more miles, it will reach the destination of, Marathon Valley. This Valley is named for the distance the Rover has covered, 26.2 miles...A Marathon. News Source: LA Times Article: "Mars Rover breaks record for off-world driving"

ISS

In September 2014, Yelena Serova will be the fourth Soviet/Russian woman to journey into Space. She will be launched on the Soyuz TMA-14M and will be a member of Expedition 41. She follows: Valentina Tereshkova (Vostok 6 16 June 1963), Svetlana Savitskaya (Soyuz T-7 19 Aug 1982 Salyut 7 SS) and Yelena Kondakova TM-2004 Oct 1994 and spent 5 months on Mir and STS-84, Atlantis, 15 May 1997).

Supply Flights: ESA

On 29 July 2014, ESA launched the last of its Automated Transfer Vehicles. The Vehicle will take a leisurely trip to the ISS. She will arrive at the ISS on 12 Aug 2014. The vehicle is named for, Monseigneur Georges Henri Joseph Lemaître, a **BELGIAN ROMAN CATHOLIC PRIEST**, an Astronomer and professor of physics at the French section of the Catholic University of Louvain. He was the first known academic to propose the theory of the expansion of the universe, widely misattributed to Edwin Hubble. He was also the first to derive what is now known as Hubble's Law and made the first estimation of what is now called the Hubble Constant, which he published in 1927, two years before Hubble's article. Lemaître also proposed what became known as the Big Bang Theory of the origin of the Universe, which he called his "hypothesis of the primeval atom" or the "Cosmic Egg".

Supply Flights: Space-X Dragon

The next flight, CRS-4, was delayed from 08 Aug 2014 to 14 Sept 2014.

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*

9/11/2014
10/9/2014
11/6/2014
12/11/2014

Dark Sky Observing Dates

Aug 30
Sep 27
Oct 25

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

September 3 (8 day old Moon) (1st Wed.)
October 1 (7 day old Moon) (1st Wed.)
October 29 (6 day old Moon) (5th Wed.)

SLSC Public Telescope Viewing Events: These events are held the first Friday of the month-

Planetarium shows start at 7pm

September 5 (Theme: Dr. Who)

YMCA Edward Jones Star Parties

8/14/2014

August

14 Thurs	Edward Jones Family YMCA
15 Fri	SLAS Regular Meeting
21-22 W-Th	Solar Eclipse Conf - Columbia, MO
23 Sat	SLAS Dark Sky Observing

September

3 Wed	Francis Park
4 Thurs	Webster Nature Society
5 Fri	Public Telescope Viewing SLSC
6 Sat	Stargazing at Crestwood Park
11 Thurs	SLAS Board Meeting
19 Fri	SLAS Regular Meeting
26 Fri	Halls Ferry Elementary
27 Sat	SLAS Dark Sky Observing

October

1 Wed	Francis Park
2 Thurs	Manchester Park
3 Fri	Public Telescope Viewing SLSC
9 Thurs	SLAS Board Meeting
17 Fri	SLAS Regular Meeting
25 Sat	SLAS Dark Sky Observing
29 Wed	Francis Park

November

6 Thurs	SLAS Board Meeting
7 Fri	Public Telescope Viewing SLSC
21 Fri	SLAS Regular Meeting

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. For more information about events, such as Moon phase, clear sky clock, weather report or a map of what's up, see the calendar online.



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* 314-596-6738
vicepresident at slasonline.org**Secretary** *Mark Jones* 636-394-2342
secretary at slasonline.org**Treasurer** *Bill Winningham, (Don Ficken - membership)*
treasurer at slasonline.org 636-225-0269**Hospitality** *Grant Martin*
hospitality at slasonline.org**Board Members at Large:***Tom Nickelson*
board17 at slasonline.org*Larry Campbell* 636-244-2867
board15 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****Membership** *Don Ficken* 636-225-0269
membership at slasonline.org**Publicity** *Rich Heuermann* 314-962-9231
publicity at slasonline.org**'SLASdialogs' Moderator** *Mark Jones, Rhonda Whelan*
dialogsmoderator at yahoo.com**Webmaster** *Jim Small* 314-909-7211
webmaster at slasonline.org**Newsletter Ed.** *Jim Small* 314-909-7211
newsletter at slasonline.org**Loaner Equip.** *Greg Gaines* 314-277-3082
loaner at slasonline.org**Merchandise** *Grant Martin*
merchandise at slasonline.org**Librarian** *Jim Small* 314-909-7211
librarian at slasonline.org**Star Party Coord** *Mike Malolepszy* 314-781-4701
starparty at slasonline.org**Dark Site Coord.** *Mark Jones* 636-394-2342
darksite at slasonline.org**Observing Programs** *Mark Jones* 636-394-2342
observing at slasonline.org**Telescope Making** *Bill Davis, Jim Melka* 314-469-3061
telescope 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>

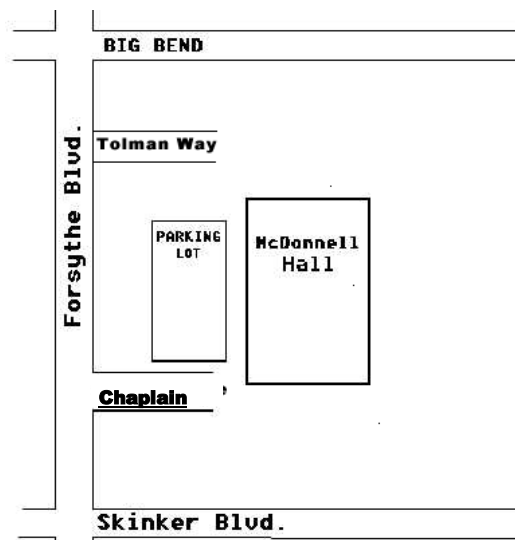


Who We Are and What We Do

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

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