

THE EVENT HORIZON



ST. LOUIS ASTRONOMICAL SOCIETY

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

**VOLUME 24, Issue 7
July, 2014**

Mid States Region



A Tour of the Stellar Zoo

by

Rich Heuermann

Richard Heuermann of Washington University, will be featured at the July meeting of the St. Louis Astronomical Society. The meeting will begin at **7:30 PM Friday, July 18, in McDonnell Hall, Room 162, on the Washington University campus.**

“Seen one and you’ve seen them all” does not apply to stars. Although each looks like a single point of light, perhaps with a little bit of color for some, the stars come in a wide range of sizes, ages, and physical conditions. Richard Heuermann will talk about several of the many types of stars that populate the stellar zoo. He will examine some of their differences in terms of stellar life cycles, variances in environmental conditions, and stellar companions.

Rich Heuermann is the outreach program coordinator for the NASA Missouri Space Grant Consortium at Washington University. He is also a member of the Saint Louis Astronomical Society.

Upcoming Speakers:

August - Logan Brown - Exoplanets

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

ALCON 2014 a Success

ALCON 2014 was held in San Antonio last week and had an attendance of around 150 League members. It was held in conjunction with ALPO and featured many good talks.

The business meeting was held as usual on the day before the conference and went smoothly. Four new observing programs were introduced and ALCON locations through 2017 were approved. The observing programs are Radio Astronomy, Bright Nebula, Two in the View, and Adv. Binocular Double Star. ALCON 2015 will be held in Las Cruces, NM and will feature tours of sites in NM such as the VLA and other observatories. They have terrific dark skies, so if you plan to attend, bring your scope! ALCON 2016 will be held in the Washington, DC area. Be sure to plan some sight-seeing for that trip! And ALCON 2017 will be an eclipse special held on the centerline in Casper, WY. The meeting will end in time for you to get where you want to go to view the eclipse.

All in all, great talks, a nice get-together for a few hours at Riverwalk, a good Star-B-Q, a great talk by Don Pettit to end the conference. More details in next month’s issue.

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President's Corner *by Jim Small*

It was a great trip to San Antonio for the ALCON this year. I met lots of people I hadn't seen for a while, attended lots of good talks, had some terrific discussions over the four days I was there, and a very good trip back. Can you say, Franklin's BBQ in Austin? Voted best in the world by Texas Monthly, which is the Rolling Stone of BBQ. I can't argue.

For SLAS events, July is a thin month, but it will pick up again in August. The annual Star-B-Q will be held in September this year. Also in August will be a Solar Eclipse Conference to begin planning for the 2017 solar eclipse.

One of the best talks at ALCON dealt with Library Telescopes. It is a simple program to put telescopes in local libraries and have them checked out by the public. The astronomy group provides the telescope set up and the library does the rest! It has been so successful that ALL of the scopes that have been distributed are checked out continuously with a waiting list. We will have a proposal on the docket for this for next month's meeting.

Thanks again to all who made MSRAL 2014 successful. I heard about it many times at ALCON and was proud to be a part of it. According to Cook's final report, the conference profited over \$2100 which is split with the MSRAL region.

I was a little disappointed with the telescope viewing during the Fair St. Louis, but those who attended had a good time. All of the other action was across the park, so those near the Science Center were simply interested in getting on a bus to get to the fireworks and concerts. Perhaps we will have a different arrangement next year.

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"

Star Party Report: Stargazing at the Gateway Arch

Date: Friday, July 11, 2014

Setup Time: 7:45 pm

Time: 7:45 – 10:30 pm (2.75 hours)

SLAS Volunteers: Dan Duffy and spouse, Cathy Ellerbe, Rich Fefferman (park representative), Cook Feldman, Don Ficken (lead) and spouse, Donna Ficken, Andrew Kniffin, Grant Martin, Amy White, Bryan White

Guests: About 200 adults and kids

The evening turned out great but started with the challenges of I-44 downtown closed due to Arch-related construction, Memorial Drive closed due to flooding and clouds threatening to end the event even before it started. But the volunteers persevered with most deciding just to "walk" onto the park grounds. One even (rather cleverly) brought a telescope in a baby carriage. We setup directly under the Arch giving us a beautiful view of the river and arch grounds. The clouds cleared enough to give us decent views of the Moon, Saturn, Mars, Big Dipper and even a few single stars that were bright enough to pierce the cloud cover. The Moon often had just a trace of dark clouds across its face as if it was dressing up for the "SuperMoon" news it was receiving in the national press (http://science.nasa.gov/science-news/science-at-nasa/2014/10jul_supermoons/). Many guests started their evening with a presentation by Ryan Clegg, Washington University, who spoke at the Gateway Arch Odyssey Theater about "Astronaut-Explorers. Once outside, the 200 guests weathered temperatures in the low 80's with very little breeze and high humidity. The guests very much appreciated the event and asked many good questions about the night sky and telescope operations. A good portion of the guests were on vacation from outside the regional St. Louis area. Overall, a delightful evening with many thanks to the volunteers who literally weathered it all and particularly to Rich Fefferman who did most of the heavy lifting to keep the volunteers apprised of the construction and access issues.

Our next Gateway Arch Event is scheduled for Friday, August 8th.

Clear Skies

Don_Ficken
St. Louis Astronomical Society
Gateway Arch Stargazing Lead

STARFLEET COMMAND MISSION UPDATES FOR JULY 2014

EXTRA SOLAR PLANETS COUNT

The Extra Solar Planets Encyclopedia:	1810
www.exoplanet.eu	
Arecibo-The Exoplanets Catalog:	1807
www.phl.upr.edu/projects/habitable-exoplanets-catalog	
The NASA Exoplanet Archive:	1737
www.planetquest.jpl.nasa.gov	
Exoplanet Orbit Database:	1518
www.exoplanets.org	
Open Exoplanet Catalog:	1794
www.openexoplanetcatalogue.com	
As of: 10 July 2014	

SUPPLY FLIGHTS

<u>COMPANY</u>	<u>DESIGNATION</u>	<u>LAUNCH DATE</u>
	CRS-4	08-Aug-2014
Space-X Dragon		
	Orb CRS-2	10-July-2014
Cygnus		
	M-24M ISS-56-P	23 July 2014
Progress		
	ATV-005 Georges Lemaitre	09 Aug 2014
ESA		
	HTV-5 "Kounotori 5"	09 Aug 2014
JAXA		

INTERNATIONAL SPACE STATION CREWS EXPEDITION 40: MISSION STARTED: 13 May 2014

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

MISSION UPDATES

InSight

On 19 May 2014, NASA and its international partners now have the go-ahead to begin construction on a new Mars

lander, after it completed a successful Mission Critical Design Review on Friday. NASA's Interior Exploration Using Seismic Investigations, Geodesy and Heat Transport (InSight) mission will pierce beneath the Martian surface to study its interior. The mission will investigate how Earth-like planets formed and developed their layered inner structure of core, mantle and crust, and will collect information about those interior zones using instruments never before used on Mars. InSight will launch from Vandenberg Air Force Base, on the central California coast near Lompoc, in March 2016. This will be the first interplanetary mission ever to launch from California. NASA 'Go' to Start Building 2016 Mars Lander By Mike Wall, Senior Writer | May 21, 2014 07:01am ET

Kepler

On 19 May 2014, the planet-hunting Kepler spacecraft, unable to aim at the stars after two of its steering wheels broke down, is back on its celestial mission again, thanks to the power of sunshine. NASA officials in Washington have given it another two years on the hunt, with a third year likely before the spacecraft runs out of fuel. During its four years in orbit, Kepler has detected 3,845 objects in distant space. They have confirmed 966 are indeed true "exoplanets". Kepler had been steering itself to detect possible planets around stars within the constellations Cygnus and Lyra.

When two of the reaction wheels jammed - one in 2012 and the second only a year ago - and ground controllers couldn't budge them, the spacecraft lost stability and the telescope couldn't aim properly. Ground-based engineers, however, have figured out an ingenious answer to the stability problem, called "canoeing with the sun." Space scientists have long known that the violent sun constantly sends out bursts of high-energy, sub-nuclear particles known as the "solar wind." It speeds outward at millions of miles per hour, and, for decades, visionaries have dreamed of spacecraft sailing virtually forever on that energetic wind, tacking and steering throughout the solar system and beyond.

NASA, in fact, is supporting research into the "solar sailing" concept - an idea that astronomer Johannes Kepler first dreamed up more than 400 years ago. Now engineers have devised a system for the spacecraft that uses the delicate pressure of photons in sunlight alone - not the solar wind - to keep Kepler balanced as its two remaining reaction wheels keep its balance steady. Kepler is no longer focusing on stars in Cygnus and Lyra. The spacecraft's telescope will now be peering at stars in the ecliptic - the direction where all the familiar constellations of the zodiac lie. It will look for other targets too, like unseen star clusters, active galaxies and supernovas, when it returns to action on 30 May 2014.

NASA's Exoplanet-Hunting Kepler Space Telescope Gets New Mission By Mike Wall, Senior Writer, 16 May 2014

CST-100

Boeing expects to launch the first unmanned test flight of their commercial CST-100 manned 'space taxi' in "early 2017." The first unmanned orbital test flight is planned in Janu-

ary 2017 ... and may go to the station. Boeing has reserved a launch slot at Cape Canaveral with United Launch Alliance (ULA), but the details are not yet public. If all goes well, the maiden CST-100 orbital test flight with humans would follow around mid-2017 with a two person crew. Ken Kremer, 09 May 2014 Universe Today

Voyager 1 & 2

NASA's Voyager 1 and Voyager 2 spacecraft are still going strong after nearly 37 years in space. "Both spacecraft are still operating, still very healthy." Suzanne Dodd, the Voyager project manager at NASA's Jet Propulsion Laboratory (JPL). When the Voyagers were launched in 1977, NASA expected them to last four or five years, long enough for close encounters with Jupiter and Saturn. But, they just kept going and going. Voyager 2 went on to flybys of Uranus (1986) and Neptune (1989). It is now about 105 astronomical units from Earth. Voyager 1, which flew out of the plane of the solar system after its 1980 flyby of Saturn, is in interstellar space at 127 AUs. "Looking forward, we expect to get 10 more years of scientific data out of the Voyager spacecraft," Dodd said. "We basically turned off everything we can turn off to save power. Backup heaters are off, backup systems are off. We're having some serious discussions about how to move forward, because we're almost down to the scientific instruments now." After that, the spacecraft could continue on for another five to seven years sending engineering signals to Earth. Engineers are in discussions with the Deep Space Network about what experiments could be conducted with those signals before the spacecraft fall silent.

NASA's Voyager Probes Still Healthy After Nearly 4 Decades in Space by Douglas Messier, Space.com Contributor, 29 May 2014

SpaceX

SpaceX's manned Dragon V2 spacecraft is a crewed version of the unmanned Dragon cargo capsules, which have been launching to the ISS since 2012 to deliver supplies under a \$1.6 billion contract with NASA. Like the unmanned Dragon, the Dragon V2 will launch atop SpaceX's Falcon 9 rocket, and is powered by solar panels. It carries parachutes for a water landing. However, the crew capsules will be outfitted with launch abort engines, called SuperDraco thrusters. The Dragon V2 is expected to include a forward-mounted docking system to attach to the ISS. Cargo space will be available at the rear of the spacecraft, in an unpressurized section that can hold up to 490 cubic feet (14 cubic meters) of cargo.

NASA has providing some funding to SpaceX to develop the manned Dragon through the space agency's Commercial Crew Program, which aims to have at least one American astronaut taxi ready to go by 2017. Other funded companies competing to fly NASA astronauts include Sierra Nevada's Dream Chaser spacecraft, which is a shuttle-like vehicle that would use a runway to return to Earth, and The Boeing Co.'s CST-100 spacecraft that would launch on an Atlas 5 rocket

The Dragon V2, or Version 2 as the crewed Dragon capsule is called, is a gumdrop-shaped spacecraft designed to carry up to seven astronauts on trips to and from low-Earth orbit. Its maximum crew capacity matches that of NASA's space shuttles, and is more than twice the capacity of Russia's three-person Soyuz space capsules. Since the retirement of NASA's shuttle program in 2011, the Russian Soyuz has been the only vehicle available for space station trips.

SpaceX Unveils Dragon V2 Spaceship, a Manned Space Taxi for Astronauts By Miriam Kramer, Staff Writer 30 May 2014

EXTRASOLAR PLANETS

Astronomers have discovered what appears to be the oldest known alien world that could be capable of supporting life, and it's just a stone's throw away from Earth. The newfound exoplanet candidate Kapteyn b, which lies a mere 13 light-years away, is about 11.5 billion years old, scientists say. That makes it 2.5 times older than Earth, and just 2 billion years or so younger than the universe itself, which burst into existence with the Big Bang 13.8 billion. Kapteyn b lies in the star's habitable zone. The exoplanet completes one orbit every 48 days. The astronomers spotted both alien planets by noting the tiny wobbles their gravitational tugs induced in the motion of Kapteyn's Star. These tugs caused shifts in the star's light, which were first detected using the HARPS spectrometer at the European Southern Observatory's La Silla Observatory in Chile. Further observations by two other spectrometers, HIRES at the Keck Observatory in Hawaii and the PFS instrument at Chile's Magellan II Telescope have backed up the finds.

Found! Oldest Known Alien Planet That Might Support Life, By Mike Wall, Senior Writer, 03 June 2014

Do you want to help name an alien planet? Starting next year, space fans around the world will get the chance to vote on their favorite names for worlds beyond our solar system. In a first, the International Astronomical Union (IAU) in charge of naming heavenly bodies will open its exoplanet naming process to the world in 2015 in the form of a public vote. Representatives with the IAU announced the new naming project, called NameExoWorlds. The IAU has set some ground rules for organizations that plan to submit names for the competition before the public vote. According to the IAU, the rules are:

- Names should be 16 characters or less, preferably one word, non-offensive, pronounceable and not too similar to names already assigned to other celestial bodies
- Groups cannot propose names of pet animals, principally commercial names or names of living people. Additionally, groups cannot propose names of individuals, events or places mainly known for political, military or religious activities.
- Names cannot be protected by trademark or protected by intellectual property law.
- Winning names won't replace the scientific designation (the scientific name of the star followed by a letter, for example: Kepler-22b). However, the IAU will recognize the name as a legitimate, publicly used name. Scientists have discovered more than 1,700 exoplanets, according to some catalogs. The first exoplanet was found in 1992. The IAU is partnering with Zooniverse, an organization focused on citizen science, to make the NameExoWorlds contest a reality. To learn more about exoplanet naming and the IAU, visit: http://www.iau.org/public/themes/naming_exoplanets/. Name an Alien Planet: Voters Wanted to Christen Strange New Worlds, By Miriam Kramer, Staff Writer, 09 July 2014

SOFIA

*02 June 2014, NASA Declares Airborne Observatory Fully Operational. During the 224th meeting of the American Astronomical Society in Boston, Massachusetts, Paul Hertz, director of NASA's Astrophysics Division, announced that the Stratospheric Observatory for Infrared Astronomy (SOFIA) has passed its Key Decision Point E (KDP-E) and been transitioned into the operational phase. "We have now formally completed the development phase of SOFIA and declared the observatory operational. That's the equivalent of a launch for a space mission," said Hertz. SOFIA demonstrated an impressive rate of science operations in April/May by flying 14 flights, encompassing more than 100 successful science mission hours in 30 days.

Nicholas A. Veronico, Public Affairs SOFIA Science Center, NASA News, 2 June 2014

Cassini

*The Cassini spacecraft was launched on October 15, 1997 from Earth on a mission to the ringed planet Saturn. It entered orbit on July 1, 2004. NASA has chosen June 30, 2014 to mark the 10th Anniversary of the spacecraft's arrival at Saturn.

*NASA has chosen a name for the dramatic final phase of its Saturn-studying Cassini mission, with a little help from the public. Starting in late 2016, Cassini will zip between Saturn and its innermost ring a total of 22 times in a mission phase now known. The spacecraft's handlers had been calling this upcoming period "the proximal orbits" because Cassini will be so close to the planet, but they felt this appellation lacked pizzazz. So in April, they asked the public to vote for names provided by mission team members or suggest monikers of their own. More than 2,000 people took part, NASA officials said. The team took the public's input into account, then decided to go with the "Cassini Grand Finale." "We chose a name for this mission phase that would reflect the exciting journey ahead while acknowledging that it's a big finish for what has been a truly great show," Earl Maize, Cassini project manager at NASA's JPL in Pasadena, California, said in a statement.

NASA Saturn Probe Will End Mission in Epic 'Grand Finale'
By Mike Wall, Senior Writer, 01 July 2014

ISEE-3

An old NASA spacecraft under the control of a private team fired its thrusters yesterday (July 2) for the first time in a generation. NASA's International Sun-Earth Explorer 3 probe (ISEE-3), which the agency retired in 1997, performed the maneuver in preparation for a larger trajectory correction next week. The spacecraft hadn't fired its engines since 1987, ISEE-3 Reboot Project team members said. It took several attempts and days to perform the roll maneuver because ISEE-3 was not responding to test commands. But this time, controllers got in touch. They increased the roll rate from 19.16 revolutions per minute to 19.76 RPM, putting it within mission specifications for trajectory corrections.

NASA's International Sun-Earth Explorer 3 probe (ISEE-3)
Elizabeth Howell, Space.com Contributor, 03 July 2014

ROSETTA

Rosetta has been fine-tuning its approach to comet 67P/Churyumov-Gerasimenko since early May, using its rocket thrusters to bend the spacecraft's orbit to rendezvous with its target in the first week of August. Arrival at Churyumov-Gerasimenko is scheduled for 06 August 2014, when Rosetta will become the first spacecraft to ever enter orbit around a comet. On 06 July, Rosetta's distance to the comet was less than 22,000 miles. As the craft's range to Churyumov-Gerasimenko decreases, Rosetta's cameras are getting a better picture of the unexplored comet. More details about the comet's shape, rotation, and surface features will be resolved by Rosetta's narrow angle camera in the coming weeks. The data will help scientists plan observations and give controllers input on the conditions awaiting Rosetta, such as gas, dust and ice particles, when it passes inside 50 miles of the comet in early August. Stephen Clark Spaceflight Now, 06 July 2014

CURIOSITY

NASA's Mars Curiosity rover will complete a Martian year, 687 Earth days, on 24 June 2014. It has accomplished the mission's main goal of determining whether Mars once offered environmental conditions favorable for microbial life. 23 June 2014, JPL's Latest News Section.

The 1-ton robot has accumulated quite a bit of wheel damage since touching down inside Gale Crater in August 2012. But the damage has not imperiled the rover's mission, said Curiosity's handlers, who are employing a number of troubleshooting measures to keep the robot rolling along. They're confident Curiosity can still reach and explore its ultimate science destination: the foothills of the 3.4-mile-high (5.5 kilometers) Mount Sharp. Wheel punctures, cracks and the prospect of "grouser snapping" are being closely monitored. But as the rover chalks up more mileage, concern is that a wheel could split apart. If that happens, the wheel might flop back and forth. And with every turn, it could hit exposed cables that go from the rover through the axle to the motor. "That's sort of a worst-case expectation" that could lead to Curiosity having to drag the damaged wheel, Erickson said. "We can't risk having shorts in those cables." While the wheel woes are very real, teams back on Earth are engaged in a large test program, Erickson said. "We even had more wheels built to the exact same specifications as Curiosity wheels. The preliminary results back are promising," he said, adding that the assessments indicate that the rover can keep on trucking for many more miles. Furthermore, rover engineers have other tricks up their sleeves. In addition to picking less troublesome trails, engineers can upload software upgrades that enable greater control over the wheels. Driving backward can also help, as can minimizing turns. "We're sort of building a tool box. We'll pull out the right tools at the right time," Erickson said.

How Wheel Damage Affects Mars Rover Curiosity's Mission
By Leonard David, Space.com's Space Insider Columnist, 09 July 2014

MESSENGER

MESSENGER successfully completed the first orbit-correction maneuver of its Second Extended Mission this morning to raise its minimum altitude above Mercury from 70.8 miles to 96.4 miles. This maneuver is the first of four designed to modify the spacecraft's orbit around Mercury so as to delay the spacecraft's inevitable impact onto Mercury's surface and allow scientists to continue to gather novel information about the innermost planet. MESSENGER Mission News 17 June 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*

8/7/2014
9/11/2014
10/9/2014
11/6/2014
12/11/2014

Dark Sky Observing Dates

July 26
Aug 30
Sep 27
Oct 25

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

August 6 (9 day old Moon) (1st Wed.)
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

August 1

YMCA Edward Jones Star Parties

8/14/2014

July

18 Fri SLAS Regular Meeting
26 Sat SLAS Dark Sky Observing

August

1 Fri Public Telescope Viewing SLSC
6 Wed Francis Park
7 Thurs SLAS Board Meeting
7 Thurs Movie in the Park (Emmenegger)
8 Fri Stargazing at the Arch
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 \$ _____

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

Check all that apply:
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SLAS OFFICERS

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darksite at slasonline.org		
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observing at slasonline.org		
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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>

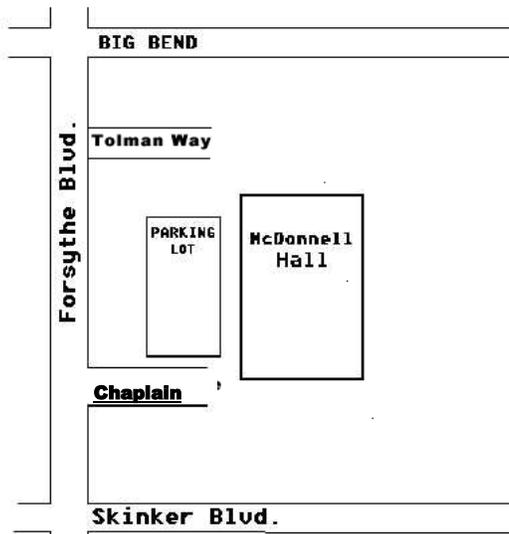


Who We Are and What We Do

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

Jim Small
13128 Cozyhill Drive
St. Louis, MO 63122

