

EAS Meeting @ Museum January 17th, 2019 Full Dome Movie "Loosing the Dark"



Our Host from December's Meeting @ the Museum
Photo Courtesy of Mitch Luman
More Photos on Page 5

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The EAS newsletter, Observer, is published monthly. Anyone wishing to contribute articles or photos may mail them to the club's PO Box: EAS, PO Box 3474, Evansville, IN 47733, or e-mail them to the editor at:

dasiceman@yahoo.com

The **Evansville Astronomical Society (EAS)** is a non-profit organization fully incorporated in the state of Indiana. It has, as its primary goal, the advancement of amateur astronomy. Founded in 1952, the society seeks to:

- 1... maintain adequate facilities for its members and the public in order to extensively study the skies and
- 2... promote an educational program for those who wish to learn more about the science of Astronomy.

Meetings are held the third Friday of each month, except June, when the annual EAS picnic is held. The society also sponsors monthly Open House events during the warmer seasons that afford the public an opportunity to tour the observatory.

EAS 2020 Officers and Contacts

President – Tony Bryan
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evansvilleastro@gmail.com

Vice President – Scott Conner

Secretary – David M Kube
740.223.6854

Treasurer – Amy Barrett

Counselors
Michael Borman (2018)
Ken Harris (2019)
Mitch Luman (2020)

Webmaster – Michael Borman

Program Director
Chuck Allen

Newsletter editor – Dave Kube
dasiceman@yahoo.com

For more information about the EAS or directions to the Observatory, please visit the club's web page:

www.evansvilleastro.org



Local Events and Information

EAS Update:

Please Note we have a Regular Meeting scheduled at the **Evansville Museum** on Friday, January 17th, 2020 @ 7:30pm. Please arrive between 7:00pm and 7:30pm as the doors may be locked at other times. Full Dome Movie "Loosing the Dark"

EAS Update:

Please Note that the board will meet on Sunday, January 26th, 2020 in Jasper at Tony's residence about 2:30pm EST(1:30pm CST). Any interested members please let Tony know you wish to attend.

EAS Update:

Please Note that we have a Scout Pack meeting at the Observatory on Saturday, February 15th, 2020. They are wishing to gain the knowledge required for their Nova Award Program – Out of this World. Please contact Dave Kube if you wish to help with this presentation.

EAS Update:

Please Note we have a Regular Meeting scheduled at the **Evansville Museum** on Friday, February 21st, 2020 @ 7:30pm. Please arrive between 7:00pm and 7:30pm as the doors may be locked at other times.

EAS Update:

EAS Update:

EAS Update:

Please Note the 2020 Schedule has not been set yet. Please keep appraised of our upcoming events here or on our website www.evansvilleastro.org and our Facebook page.

FOR SALE:

Telescopes and accessories for sale...

As mentioned in last month's issue, Mike Borman still has some excellent telescope equipment and imaging accessories for sale. Some of the gear has already been sold. If interested, go to Mike's web page. Here is the link: <http://www.mborman.org/forsale.htm>

Milky Way May Have Two Supermassive Black Holes.



An artist's conception of two black holes entwined in a gravitational tango.

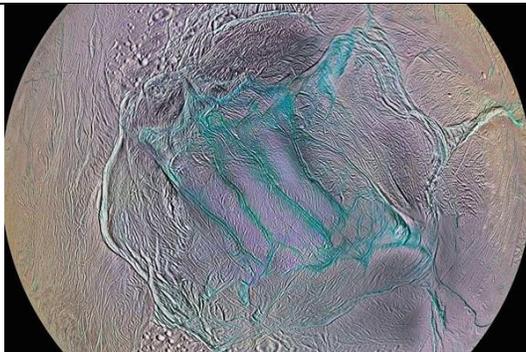
NASA/JPL-Caltech/SwRI/MSSS/Christopher Go

Do supermassive black holes have friends? The nature of galaxy formation suggests that the answer is yes, and in fact, pairs of supermassive black holes should be common in the universe.

Black holes are intriguing systems, and supermassive black holes and the dense stellar environments that surround them represent one of the most extreme places in our universe.

The supermassive black hole that lurks at the center of our galaxy, called Sgr A*, has a mass of about 4 million times that of our Sun. A black hole is a place in space where gravity is so strong that neither particles or light can escape from it. Surrounding Sgr A* is a dense cluster of stars. Precise measurements of the orbits of these stars allowed astronomers to confirm the existence of this supermassive black hole and to measure its mass. For more than 20 years, scientists have been monitoring the orbits of these stars around the supermassive black hole. Based on what we've seen, we can show that if there is a friend there, that might be a second black hole nearby that is at least 100,000 times the mass of the Sun.

Enigma of Enceladus.



Researchers created this enhanced view of Enceladus' south polar region by combining Cassini images taken through infrared, green, and ultraviolet filters. The tiger stripe fractures, the source of the plumes venting gas and dust into space, are prominently visible at center.

NASA/JPL-Caltech/SSI/Lunar and Planetary Institute/Paul Schenk (LPI, Houston)

Saturn's sixth-largest moon, Enceladus has a diameter of only 310 miles (500 kilometers), and a mass less than 1/50,000 that of Earth. When it comes to places to look for life, however, Enceladus is at the top of the list.

Prior to Cassini, Enceladus was a bit ignored. We didn't know liquid water could exist that far out in the solar system, so why would anyone be that interested in another boring, dead ball of ice?

That all changed one year later, when Cassini's magnetometer (think: fancy compass) detected something strange in Saturn's magnetic field near Enceladus. This suggested the moon was active. Subsequent passes by Enceladus revealed four massive fissures — dubbed "Tiger Stripes" in a hot spot centered on the south pole. And emanating from those cracks was a massive plume of water vapor and ice grains. Enceladus lost its label of being a dead relic of a bygone era and leaped to center stage as a dynamic world with a subsurface ocean.

But was it really an underground ocean, or more of a local southern sea? Thankfully, Cassini could answer this question, too. By verifying excess wobble over Enceladus' orbital period, the imaging cameras confirmed that the icy crust is not connected to the world's rocky core. This could only be possible if the crust is floating on a global liquid-water ocean.

Cassini didn't stop there. Mass spectrometers aboard the spacecraft analyzed the gas and grains during multiple flythroughs of the plume. These instruments found the plume contains mostly water, but also salts, ammonia, carbon dioxide, and small and large organic molecules.

February 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15 Cub Scouts Observatory
16	17	18	19	20	21 Reg.Mtg 7:30pm Museum	22
23	24	25	26	27	28	29

Generated by FreeHTMLCalendar.com Copyright © 2011 John Dalbey.

Up and Coming Events 2019 and 2020

Regular Meeting – Friday, January 17th @ Museum @ 7:30 pm

Board Meeting – Sunday, January 26th @ Tony’s Home @ 2:30 pm EST (1:30 pm CST)

Cub Scouts – Saturday, February 15th @ Observatory

Regular Meeting – Friday, February 21st @ Museum @ 7:30 pm

The schedule for 2020 has not been set.

Moon Phases

New Moon	First Quarter	Full Moon	Third Quarter
February 23 rd , 2020	February 1 st , 2020	February 9 th , 2020	February 15 th , 2020

[Moon Phases courtesy of Time and Date.com](http://TimeandDate.com)

EAS Astronomy Quiz and Pot Luck December – 2019



***Various Photos for December 2019 Meeting, Pot Luck and Holiday Quiz
Photos Courtesy of Mitch Luman***

EAS Meeting Minutes for December – 2019

The December 18, 2019 meeting was called to order at 7:52 pm by President Tony Bryan. There were 22 members and 1 visitor present. The officers present were Tony Bryan, Scott Conner, Ted Ubelhor and Dave Kube. Ken Harris made the motion that the minutes from the November meeting, be accepted as published in the December Newsletter. That motion was seconded, and passed unanimously.

V. President Scott Conner announced the following upcoming events.

Regular Meeting	Friday, January 17	7:30 PM @ Museum
Regular Meeting	Friday, February 21	7:30 PM @ Museum

TREASURER'S REPORT

Treasurer Ted Ubelhor reported that our finances are Doing well and have money in our accounts. He stated that Amy and him have met to change over to our new treasurer and still have to switchover the bank accounts. Currently we have 40 paid members with 18 Non Paid from last year.

SPECIAL PROJECTS

Tony reports no significant change in status of any of our special projects. He expects to have a day or two to work on the bathroom the week after Christmas.

OLD BUSINESS

Introduction of Officers for 2020 – The officers for 2020 are as follows: President-Tony Bryan, Vice President – Scott Conner, Treasurer – Amy Barret, Secretary – Dave Kube, Counselors - Mitch Luman (1st year), Mike Borman (2nd year), and Ken Harris (3rd year). We look forward to leading and serving our membership, and a great year of 2020.

PSW #7 – Our final PSW took place on November 26. Dave Kube reported that we had 6 guests and although the weather was not great a presentation was given and the guest were very appreciative of the event.

NEW BUSINESS

Questar Telescope – We received a letter from the museum to convey ownership of the 12 Questar telescope and accessories to the EAS. The funding and construction kickoff for the ancillary observatory have obviously moved up in priority for projects in the 2020 year.

Planning Session – The officers will soon be setting a date for our 2020 Planning Session. Most likely it will be in late January or early February. Until then, the only events sure to take place are monthly meetings.

Cub Scout Pack – Pack 383 has requested February 15th as a night for the group to fulfill requirement for a NOVA Science Award. They are K through 5th Grade (the majority are 3rd-4th grade). We expect about 25 scouts and five adults. So far we have Dave Kube and possibly Scott Conner serving as our ambassadors for the evening.

ANNOUNCEMENTS

Next Monthly Meeting - Our next regular meeting is scheduled for 7:30 PM on January 17, at the museum in Evansville. If you arrive late and find yourself locked out, please send a text message to an EAS officer. As a reminder, do not go to the observatory the next two meeting nights unless you wish solitude.

Program Tonight – Annual Astronomy Quiz, presented by Mike Borman

ADJOURN MEETING

The meeting was adjourned at 8.01 pm by President Tony Bryan

Results of the Astronomy Quiz

This year's quiz was presented by Mike Borman – Last year's winner. We have 3 categories – Junior(Age 15 and Under), Open(Age 16 and older with limited or moderate experience in astronomy) and Expert(Age 16 and Older with extensive experience in astronomy).

Junior winner is Joeseph Wilmes

Open winners are

1st place Simon Filbert

2nd place is Belth Wilmes

3rd place is Ryan Wilmes

Expert winners are

1st place is Mitch Luman

2nd place are Ken Harris, Scott Conner and Chuck Allen

3rd place is Bob Flater

Thank You Mike for a well created Quiz

Respectfully Submitted – Dave Kube – Secretary