

## April Meeting @ Lynnville Observatory 7:30 pm - April 21<sup>st</sup>, 2017



Photo by Dave Kube

The EAS had a public event at the Vogel School in Evansville on April 4<sup>th</sup>, 2017. Telescopes were provided by Randy Chapmen, Glenn Bye, Ted Ubehlor and Dave Kube. Approximately 150 guests were able to view Moon, Jupiter and M42.

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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](mailto: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 2017 Officers and Contacts**

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

[www.evansvilleastro.org](http://www.evansvilleastro.org)



## Local Events and Information

### EAS Schedule Update:

Please Note that we have a Regular Meeting scheduled for Friday, April 21<sup>st</sup>, 2017 @ 7:30pm. Location is to be at the Observatory. Our guest speaker will be Tyler Linder, a professional Near Earth Asteroid Astronomer and member of the EAS. The title of his presentation is "Discovery, Orbit Refinement, and Characterization of Near Earth Asteroids."

### EAS Update:

Please Note that we have a Public Star Watch on Saturday, April 22<sup>nd</sup>, 2017 @ 7:30pm. The Lyrid meteor shower peaks on Saturday, April 22<sup>nd</sup>

### EAS Update:

Please Note that we have Sciencepalooza at the Museum beginning @ 11am on Saturday, April 29<sup>th</sup>. There will also be nighttime PSW across the river at the Audubon State Park.

### EAS Update:

Please Note Please Note that we have a Regular Meeting scheduled for Friday, May 19<sup>th</sup>, 2017 @ 7:30pm. Location is to be at the Observatory.

### EAS Update:

Please Note that we have a Public Star Watch on Saturday, May 20<sup>th</sup>, 2017 @ 7:30pm.

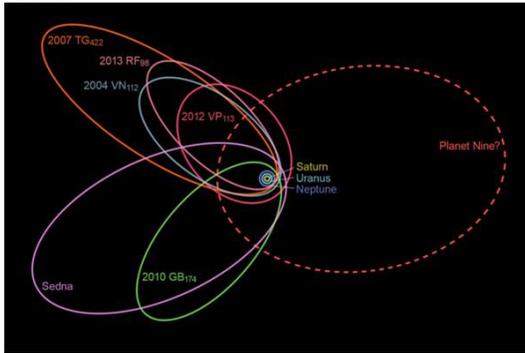
### EAS Update:

Please Note we have our annual EAS picnic on Saturday, June 17<sup>th</sup>, 2017. The will be held @ Wayne City, IL. Please bring your scopes and a dish to pass.

### 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>

**Citizen Scientists are Closing in on Planet Nine.**



nagualdesign via Wikimedia Commons

A team in Australia are a little bit closer to locating Planet Nine. A group of scientists from the Australian National University announced that they'd successfully located four objects while sorting through data from the SkyMapper Southern Sky Survey. Two are known minor planets Chiron and Comacina, as for the others, "one is most assuredly an asteroid. The other, I'm not sure," says ANU astrophysicist Brad Tucker.

The Australian team are working in tandem with the public to search for what could possibly be one of the biggest discoveries of the century: a new, very massive planet. In 2016, Caltech astronomer Mike Brown and theoretical astrophysicist Konstantin Batygin announced that they'd found evidence of a massive planet orbiting far off in the annex of the solar system with a predicted orbit of 20,000 years

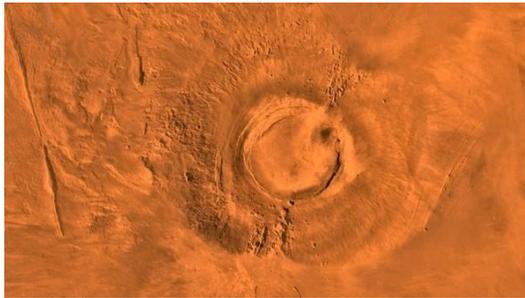
The rough estimate for the dinosaurs' extinction was about 50 million years ago, but NASA reveals that may not be the only thing that disappeared around that time.

New research from NASA shows that Arsia Mons, a large volcano just south of Mars' equator, has been inactive for about 50 million years.

The last time Arsia Mons erupted was in the bowl-shaped depression at the top of the volcano, called the caldera. The caldera is 68 miles (110 kilometers) across and has enough space to hold all of Lake Huron with some spare room.

Researchers discovered Arsia Mons has 29 vents, or openings in the crust where the lava pours out. During their peak, the vents spewed 0.25 to 2 cubic miles (1 to 8 cubic kilometers) of magma, which helped contribute to the volcano's size over time.

**New Study Finds Martian Volcano's Last Eruption.**



This image of Arsia Mons is a mosaic of images from Viking 1 Orbiter from its 1976-1980 study. NASA/JPL/USGS

**Dark Matter and Dwarf Galaxies Share the Space Around the Milky Way**

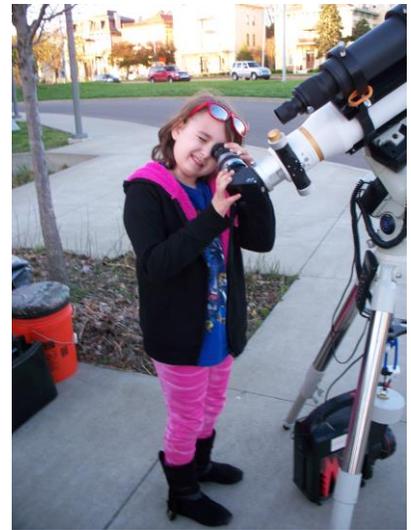


The Andromeda galaxy (M31), like the Milky Way, has several satellites, including M110 (to the upper right of the galaxy) and M32 (bright spot just below the central bulge). NASA, ESA, Digitized Sky Survey 2 (Acknowledgement: Davide De Martin)

The current "standard model" of cosmology, often called the Lambda-Cold Dark Matter model or  $\Lambda$ CDM for short, is the model astronomers use to understand the past, present, and future of the universe. In the  $\Lambda$ CDM model, which includes the Big Bang, baryonic or "normal" matter makes up only a small percentage of the universe, while dark matter makes up a much higher percentage of the cosmos. But because dark matter is difficult to detect by any other means than its gravitational influence on normal matter, its existence, abundance, and properties remain hotly debated.

In a new study accepted for publication in the Monthly Notices for the Royal Astronomical Society and funded by a grant from the National Science Foundation, authors Andrew Lipnicky and Sukanya Chakrabarti of the Rochester Institute of Technology explore whether the current orientation of satellite galaxies around the Milky Way upholds or challenges the accepted model of dark matter.

***Moon Festival April 7<sup>th</sup>, 2017***



*Photos Contributed by Dave Kube*

The EAS provided telescopes at this Evansville Museum Event  
We had a good turnout of members and there were many guests  
There were views of the Moon, Jupiter and M42

## ***National Astronomy Day is Saturday, April 29.***

This year we're taking a different approach and celebrating with a full day of SCIENCE at the Museum, which we are calling Sciencepalooza. It's still about Astronomy. That has not changed, except now we're broadening the field. If you would like to help out with our Science Day, we will meet in front of the Museum at 10:30 a.m. Volunteers are needed to perform demonstrations, help with solar observing and break down at the end of the event, which will conclude at 5 p.m. There will also be an Evening Star Watch at Audubon State Park that evening at dusk. We need scopes!

If you are coming, please let me know. At Noon volunteers will be served a pretty nice lunch, so let me know if you are interested in that too. We usually break for dinner as a group before returning for the evening Star Watch around 8:00 p.m. Suggestions to assure the success of this event are always welcome.

Highlights of the day will include two family-friendly science lectures, two stage demonstrations, storytelling, experiment stations and a special movie presentation in the Koch Immersive Theater. Returning again this year, Master Storyteller Susan Fowler will present a participatory story about the life of Madame Currie. Other activities for the day include a comet making, a robot obstacle course and a 3D printer demonstration.

### **Sciencepalooza Activities**

#### **Schroeder Plaza (Museum Entrance)**

11a.m. – 2 p.m. Solar Observing

11a.m. – 2 p.m. Robot Obstacle Course

#### **Old Gallery (Second Floor)**

12:30 p.m. Chemistry Demonstrations

1:15 - 2 p.m. Hands-On Science Tables Open

2:30 p.m. Lecture: Astronomy of Illumination and Shadows

#### **Koch Immersive Theater**

3 p.m. Special Movie: TBD

#### **Eykamp Pavilion (First Floor)**

11-1 p.m. 3D Printer Demonstration

11:30 a.m. Make a Comet

2 – 3 p.m. Hands-On Science Tables

1:30 p.m. Madame Currie Storytelling

2:45 p.m. Make a Comet

3:15 p.m. Madame Currie Storytelling

#### **Audubon State Park**

7:00 p.m. Lecture: The Long Address Where We Are In the Universe-Joe Caruso

8:00 p.m. Star Watch at Audubon State Park Golf Course

**Volunteers Needed for Museum's Science Day** By: Mitch Luman - [mluman@emuseum.org](mailto:mluman@emuseum.org)

May 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19 Reg. Mtg 7:30pm	20 PSW 7:30pm
21	22	23	24	25	26	27
28	29	30	31			

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**Up and Coming Events 2016**

Regular Meeting – Friday, April 21<sup>st</sup> – Observatory @ 7:30pm

Public Star Watch – Saturday, April 22<sup>nd</sup> – Observatory @ 7:30pm

Sciencepalooza – Saturday April 29<sup>th</sup> – Museum @ 11:00am, Audubon Park 8:00pm

Regular Meeting – Friday, May 19<sup>th</sup> – Observatory @ 7:30pm

Public Star Watch – Saturday, May 20<sup>th</sup> – Observatory @ 7:30pm

**Moon Phases**

New Moon	First Quarter	Full Moon	Third Quarter
May 25 <sup>th</sup> , 2017	May 2 <sup>nd</sup> , 2017	May 10 <sup>th</sup> , 2017	May 18 <sup>th</sup> , 2017

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

## ***EAS MEETING for March 17<sup>th</sup>, 2017***

The Meeting was called to order at 7:35pm by President Tony Bryan. There was a total of 16 people present. 3 of the attendees were guests.

There was a motion to accept the February Minutes as published in the March newsletter. That motion was seconded and the vote was unanimous in favor.

### **UPCOMING EAS EVENTS**

Vice President Scott Conner mentioned all of the following events.

<b>Members Observing Session</b>	<b>Saturday, March 25</b>	<b>7:30pm @ New Harmony</b>
<b>Vogel School Observation</b>	<b>Tuesday, April 4</b>	<b>8:00 @ Vogel School</b>
<b>Moon Watch</b>	<b>Friday, April 7</b>	<b>7:00pm @ Museum</b>
<b>Regular Meeting</b>	<b>Friday, April 21</b>	<b>7:30pm @ Observatory</b>
<b>PSW #2</b>	<b>Saturday, April 22</b>	<b>7:30pm @ Observatory</b>
<b>Science Day</b>	<b>Saturday, April 29</b>	<b>11:00 AM @ Museum</b>

### **VISITOR INTRODUCTION**

Our 3 visitors stood up and introduced themselves to the group. They were thanked for coming and taking part in our meeting.

### **TREASURER'S REPORT**

Our Treasurer Ted Ubelhor gave us the treasurers report. Some of the highlights were...

Our insurance has been paid. We have 48 active memberships. We still have 2 monthly calendars left over for this year. The monthly calendars will sell for \$5.

### **SPECIAL PROJECTS**

Astro-Tech AT8RC 8" f/8 Richey-Chretien astrograph reflector - Scott report no change since last update.

Storage Room Remodel – Tony's report on status – Unneeded (excess) electrical outlets and wiring were removed and the electrical circuits have been rewired. Leaks within the west wall had cause severe rusting of the metal boxes, to the point of being a hazard. The hazard is now corrected.

### **OLD BUSINESS**

**Winter Work Day** – The Winter Work Day was February 25<sup>th</sup>. We had a very light turn-out but still managed to accomplish a lot including cleaning the observatory, bathrooms, lounge, office, and lecture halls, and repair of the alarm system. Thanks to Ted Ubelhor, Bob Flater, Amy Barret, and Tony Bryan. Those not there missed out on the comradery and a great lunch.

**Public Star Watch #1** - Our first PSW was held on Saturday, March 4<sup>th</sup>. Scott Conner led the event. Scott reports that we had 22 guests – 7 members and no donations.

**Public Outreach** – We are still working details for a springtime educational opportunity for the 4-H Spark Clubs in Gibson County and an early More to follow as those dates get closer.

### **NEW BUSINESS**

**Members Observing Session** – Planned for March 25<sup>th</sup> at New Harmony. New moon is the 27<sup>th</sup>, so if the weather cooperates we should have dark skies. An email was sent that contained a flyer and map and the map is posted on the website. Mitch Luman is coordinator for the event. Mitch reports that there should be no park admission due to out of season.

**Vogel School Observation** – The Vogel School Observation date has been moved to Tuesday, April 4<sup>th</sup>. Scott Conner is coordinator for the event. Scott reports that we should be setup by dusk and park in the bus loading zone.

## EAS OBSERVER NEWSLETTER

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**Moon Watch** – One of our new additions to the EAS calendar this year, in collaboration with the museum, is a public event named “Moon Watch.” This year the event takes place on Friday April 7<sup>th</sup>. Mitch Luman is leading the event. Mitch reports that we will setup by dusk.

**Public Star Watch #2** - The Lyrid meteor shower peaks on Saturday, April 22<sup>nd</sup>. Our 2<sup>nd</sup> PSW is scheduled for that evening.

**Science Day** – Planned for April 29<sup>th</sup> at the museum. This is officially a museum event and the EAS is supporting. Mitch reports that those wishing to help to please let him know as he will provide lunch. Please meet by 10:30 and there will also be a night time event at the Audubon State Park.

**Smile.Amazon.com** – Scott Conner proposed to the board a method for the EAS to generate revenue. Scott or Ted reports that we still need an email to complete the setup but we are a go for shoppers to set the EAS as their charity of choice.

**Okie-Tex Star Party** – Registration has opened up for the 34<sup>th</sup> annual Okie-Tex Star Party that is being held September 16<sup>th</sup> through the 24<sup>th</sup>, 2017. The event is sponsored by the Oklahoma City Astronomy Club, and takes place at Camp Billie Joe, in Kenton, OK. A few of us plan on attending this year. I made an information sheet and posted it on our bulletin board in the hallway. Visit [www.okie-tex.com](http://www.okie-tex.com) if you want to learn more.

**April Meeting Speaker** – The speaker at our April meeting will be astronomer Tyler Linder. The title of his presentation is “Discovery, Orbit Refinement, and Characterization of Near Earth Asteroids.”

**Cub Scouts** – We have a request to host a Cub Scout pack at the observatory on either Friday May 12<sup>th</sup> or Saturday May 13<sup>th</sup>. We anticipate 20 to 40 scouts/parents there. This will not be a merit badge event. Request show of hands for assistance/leader.

**Stars on the Beach** – The LAS will be collaborating with us again this year. They have agreed to expand their role a bit and provide a daytime program at the Nature Center. I have not received a response from the Stonebelt Stargazers to date.

**Solar Eclipse Programs** – So far, we are providing two public programs directly related to the total solar eclipse. We will be at Beall Woods State Park on Saturday August 5<sup>th</sup> at 2 or 3PM CDT and the Dubois Public Library on Saturday August 12<sup>th</sup> at 1PM EDT.

**Total Solar Eclipse Excursions** – The total solar eclipse will take place about five months from now (on August 21st, 2017). Don’t pass this up. Last report from Mitch was an excursion with two options was planned. Mitch report new details.

**Bulletin Board** – The bulletin board in the hallway is undergoing a facelift. With some slight modification and refresh, it is hoped that it will once again be a useful instrument for the benefit of our visitors and members.

**Email Announcements** – At the beginning of the year a new EAS email account was established and contact lists were updated. Request a show of hands of those not receiving emails from EAS. Gather addresses for those not receiving. Ask for feedback from those receiving, 1 member stated they were not getting the email.

### **ANNOUNCEMENTS**

Our next regular meeting is scheduled for 7:30 PM on April 21<sup>st</sup> at the observatory in Lynnville. The program for tonight is “Active Galactic Nuclei” by Dr. Matthew Merlo.

The meeting adjourned at 8:26pm, and was followed by the program by Dr. Tom Steinman-Cameron.

Respectfully Submitted,

David Kube  
Secretary