

Astronomy Day at the Museum – May 7th, 2022



On May 7th, 2022 the EAS took part in the Evansville Museums Astronomy Day. There were fun filled activities for all guests. The EAS provided support to the museum staff and participated in activities and provided some solar observing and later evening night time observing. See Page 5 for a few additional photos.

Photo Courtesy: Dave Kube

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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 2022 Officers and Contacts

President – Tony Bryan
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Vice President – Scott Conner

Secretary – Dave Kube
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Treasurer – Mitch Luman

Counselors
Mitch Luman (2020)
Michael Borman (2021)
Ken Harris (2022)

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 Zoom Meeting scheduled for 7:30pm CDT on Friday, May 20th, 2022.

EAS Update

We have our Annual Picnic scheduled for Saturday, June 25th, 2022 @6:00pm CDT. Location will be at Ken Harris's Home this year.

EAS Update

Please Note: We have a Moon Watch scheduled for Wednesday, July 6th, 2022 at the Museum beginning @ 8:30pm CDT.

EAS Update

Please Note: We have a Regular Meeting scheduled for 7:30pm CDT on Friday, July 15th, 2022.

EAS Update

Please Note: We have our Annual Stars on the Beach at Potaka Lake scheduled for 6:30pm EDT on Saturday, July 30th, 2022. Daytime activities still have not been confirmed.

EAS Update

EAS Update:

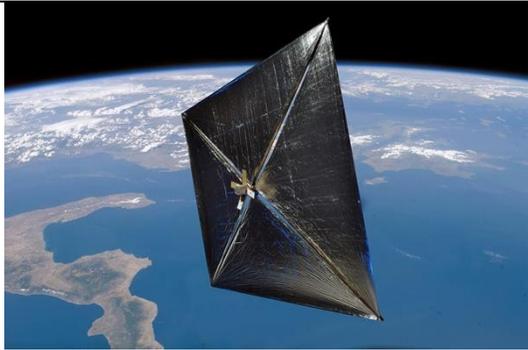
Please visit our website <http://www.evansvilleastro.org> and our Facebook Group page to keep yourself up to date for any changes.

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>

How Drag Sails could help Solve our Space Junk Problem.



The technology to deorbit satellites could lower the risk of catastrophic collisions in low Earth orbit. NASA's Nanosail-D2 probe was one of the first orbital demonstrations of a drag sail, as shown in this artist's concept.

Credit: NASA

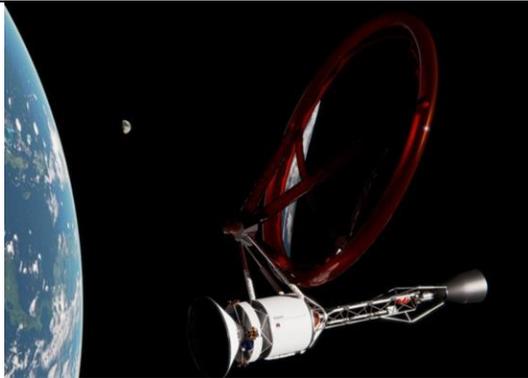
Compared with environmental concerns like our rapidly warming climate and the proliferation of microplastics, the accumulation of debris in low Earth orbit may seem like a distant issue.

But the current boom in satellite launches could potentially convert the space around Earth into a low-gravity junkyard. If left unchecked, this growth in defunct spacecraft and debris from collisions could eliminate the use of satellite constellations, sending society back to landlines and paper maps.

As the space industry grapples with this impending threat, drag sails have emerged as a technology that could help slow the growth of cascading collision fields by using atmospheric friction to quickly deorbit new spacecraft after missions end. Since 2011, when the concept was demonstrated by a NASA test nanosatellite, more teams from the U.S., Japan, Canada, Europe, and the U.K. have all deployed and operated experimental drag sails.

Despite the setbacks, drag sail proponents say the technology is scalable and cost-effective, and could at least buy enough time to develop spacecraft that can actively sweep debris out of orbit.

Laser Propulsion can Slash Journey Time to Mars, say Rocket Engineers.



The faster, laser-powered spacecraft would dramatically reduce astronauts' exposure to radiation during the journey.

This artist's concept shows a laser-thermal propelled spacecraft ready to depart from Earth orbit.

Credit: McGill University (CC BY 4.0)

When NASA's Perseverance Rover landed on Mars in February last year, it had travelled for more than six months in the harsh environment of interplanetary space. In that time, it experienced huge radiation levels and the constant threat of even more extreme radiation from coronal mass ejections from the Sun.

Laser propulsion has long been studied as a way to accelerate spacecraft. Its big advantage is that the spacecraft are powered from Earth, rather than having to carry their own propulsion systems and fuel. One current plan is to use the photon pressure from a laser to accelerate a gramme-sized spacecraft with a light sail to a significant fraction of the speed of light, perhaps enabling it to reach a nearby star in a few decades.

But this approach would not work for bigger spacecraft because the size of the laser limits the change in momentum that is possible. Instead, a better approach is to use the laser power to accelerate an onboard mass in one direction, so that the spacecraft is thrust in the other direction.

Indeed, this idea was extensively studied in the 1970s and 80s but was eventually abandoned due to lack of funding. Nevertheless, this approach turns out to be remarkably efficient, largely because there is no need for an oxidizer and all the power comes from Earth.

A laser array with an output of around 100 MW would do the trick. The beam from this array would need to be corrected for the distortions the Earth's atmosphere introduces, a technique that is well established in astronomy. Although lasers of this size and utility do not exist, they are within the ambition of current technology.

June 2022

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	20	21	22	23	24	25 EAS Picnic 6:00pm
26	27	28	29	30		

Generated by FreeHTMLCalendar.com Copyright © 2011 John Dalbey.

Up and Coming Events 2021

Please Note we Zoom Meeting scheduled on Friday May 20th, 2022 @ 7:30pm.

Please Note our Annual Picnic is scheduled for 6:00pm on Saturday, June 25th, 2022.

Please Note we have a Moon Watch scheduled for 8:30pm on Wednesday July 6th, 2022 at the Museum beginning at 8:30pm.

Please Note we have a Regular Meeting scheduled for 7:30pm on Friday July 15th, 2022.

Please Note we have our Patoka Lake event scheduled for 6:30pm EDT on Saturday July 30th, 2022.

Please visit our Web Page <http://www.evansvilleastro.org> or our Facebook Group Page for updates
Events may be cancelled due to Covid at time of event

Moon Phases

New Moon	First Quarter	Full Moon	Third Quarter
June 28 th , 2022	June 7 th , 2022	June 14 th , 2022	June 20 th , 2022

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

Astronomy Day Photos May 7th, 2022



Photos Courtesy: *Dave Kube*

EAS Meeting Notes for April – 2022

On April 8th, 2022 the EAS held a hybrid meeting, both in-person and zoom, at the Evansville Museum for members and invited those from our Facebook Group to participate as well. The meeting called to order by President Tony Bryan @ 7:35 pm. There were 22 attendees to this meeting. 15 people were present and 8 online via zoom. There were a couple of new members present and a couple of guests as well.

Minutes from the previous meeting were vote and accepted as printed in the April 2022 Newsletter.

The following upcoming events were read by Vice President Scott Conner.

Astronomy Day	Saturday , May 7	11AM - 9:30 PM @ Museum
Zoom Meeting	Friday, May 20	7:30 PM
EAS Picnic & Observing Session	Saturday, June 25	6:00 PM Ken Harris's

Mitch Luman our Treasurer informed us that we still have funds in our accounts. He is still in the learning curve after taking over from Amy and thanked her for her help and guidance.

OLD BUSINESS

Planning Session – The Executive Committee and Board Members met via Zoom on February 6th, and laid out our 2022 calendar of events. The calendar is posted to the EAS website.

Treasurer Resignation – At the planning session, the Board accepted the resignation of Treasurer Amy Barrett. The resignation was under good terms. Per the EAS bylaws, the Board appointed a new treasurer to fulfill the remaining term. Please welcome Mitch Luman as interim treasurer of the EAS.

Spring Work Day – On Saturday, March 12th, several members met and cleaned the observatory. Thanks go out to Ken Harris, Dave Kube, Scott Conner for doing some of the less glorious tasks associated with maintaining our facilities.

NEW BUSINESS

Scope Donation – Dr. Richard H. Rhodes of Evansville is donating a 7" (178 mm) Meade ED/APO refractor with 2.7 inch Fearthertouch focuser, a Larsen Equatorial Mount, and several other pieces to the EAS. Tony will travel to Indianapolis to pick up the telescope and other gear later this month. This is a significant donation.

Security Issue at Observatory – There was a security issue at the observatory the first week of March. Locks were cut off one gate, the storage shed, and observatory door. The alarm system went off and it was investigated by the park, but nobody was found on the premises. Nothing appeared to be damaged or stolen, but a gas can was removed from the shed and placed at the edge of our property. Locks were replaced and the Board authorized the purchase of a security camera system. \$300 was budgeted. The system will be installed by Tony within two weeks.

Public Events – As all will notice, we are beginning to move towards doing public events. Our schedule is currently not as full as years prior to the pandemic, but we are hopeful everyone can remain healthy and more events can be added as time progresses.

ANNOUNCEMENTS

Thanks to Museum – We want to thank the museum and their staff for allowing us to meet at this facility without charge. Please consider signing up to become a member of the Museum family.

Next Monthly Meeting - Our next regular meeting is scheduled for 7:30 PM on May 20th. The meeting will be a Zoom meeting. Watch your email and the EAS website for specifics.

Meeting was adjourned @ 8:25pm

EAS member Chuck Allen presented us with an informative and entertaining discussion on ringed worlds and moons around the universe.

Respectfully Submitted – Dave Kube – Secretary