

## *Hubble Reveals Possible Water-Vapor World*



GJ 9827d, pictured in this artist's concept as the blue world up top, is a candidate "waterworld" 100 light-years from Earth. It's close enough to its star that the "water" in this case is steam rather than oceans.

*Photo Courtesy NASA/ Hubblesite/ ESA/ Leah Hustak (STScI)/ Ralf Crawford (STScI)*

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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 2024 Officers and Contacts

President – Tony Bryan  
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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 Update

Please Note. : We have a Regular meeting scheduled for Friday, February 16<sup>th</sup>, 2024 at 7:30pm. This meeting will be held at the Museum. Please see our Facebook Group and Webpages for Updates.

### EAS Update

Please Note. : We have a Regular meeting scheduled for Friday, March 15<sup>th</sup>, 2024 at 7:30pm. This meeting will be held at the Observatory. Please see our Facebook Group and Webpages for Updates.

### EAS Update

Please Note. : We have our 1<sup>st</sup> PSW scheduled for Saturday, March 16<sup>th</sup>, 2024 at 7:30pm. This event will be held at the Observatory. Please see our Facebook Group and Webpages for Updates.

### EAS Update

We have an Observe the Sun event scheduled for Saturday, April 6<sup>th</sup>, 2024. This is a museum daytime event and will be open to the public. Please see our Facebook Group and Webpages for Updates.

### EAS Update

Please Note: There is a Solar Eclipse on Monday, April 8<sup>th</sup>, 2024. Please enjoy and use the proper eye protection.  
**BE SAFE!!!!**

### EAS Update:

Please Note: Please see our Facebook Group and Webpages for Updates..

### EAS Update:

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

### 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>

## Mystery Objects Uncovered in Globular Clusters.



Photo Credit: NASA / ESA / and G. Piotto (Università degli Studi di Padova); Processing: Gladys Kober (NASA / Catholic University of America)

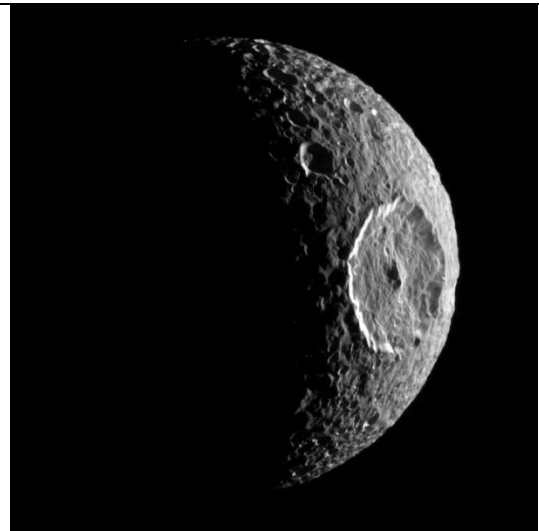
The dense globular cluster Caldwell 73, or NGC 1851, lies roughly 40,000 light-years from Earth in the southern constellation Columba and has an apparent magnitude of 7.3. You can spot it through a pair of binoculars as a fuzzy patch of light; small telescopes will resolve some of the cluster's outlying stars. Astronomers have found a mystery object in the cluster that could be an overly massive neutron star or a very small black hole.

Globular clusters are ancient, dense balls of stars that festoon the outskirts of our galaxy. Inside them is a stellar melee, with objects catching and releasing each other or colliding and building something bigger.

This raucous environment is a fertile spot for the creation of interesting objects — things like pulsars spinning thousands of times per second, or neutron stars and small black holes slurping gas off companion stars and skirting themselves in hot, glowing disks.

The discovery has “fascinating implications,” writes Maya Fishbach (University of Toronto) in an accompanying Perspective piece. “If a neutron star, it is probably the heaviest one known to date, with lessons for the uncertain physics of extremely dense nuclear matter. If a black hole, it may be the lightest known, which could affect the understanding of supernova explosions or dynamical interactions . . . inside globular clusters.”

## Does Saturn's "Death Star" Moon Harbor an Ocean?



New evidence, based off of NASA's Cassini measurements of Mimas's orbit, suggests the icy “Death Star” moon might have a subsurface ocean.

Photo Credit: NASA / JPL-Caltech / Space Science Institute

Herschel Crater, which is 81 miles (130 kilometers) wide gives Saturn's innermost midsize moon the appearance of the Death Star from the Star Wars. The cratered surface belies any oceanic activity within the moon.

Mimas, the moon that orbits just clear of Saturn's rings, is one of the more notable moons of the solar system — if only because it looks suspiciously like the “Death Star” from Star Wars. Fittingly, this Death Star moon also appears geologically dead. Unlike Saturn's other icy moons, whose surfaces are slashed with cracks and fissures that spew evidence of subsurface oceans, Mimas is covered in craters.

Now, in the February 8th Nature, Valery Lainey (Paris Observatory) and colleagues report evidence that Mimas does have a subsurface ocean after all. It's just that it's so new, having formed only between 2 and 25 million years ago, that it hasn't had time yet to impact the surface.

However, not everyone's convinced by measurements, which were challenging to make. “While the authors present an interesting new piece of evidence in support of the ocean hypothesis, I don't think it's a slam dunk,” says Luke Dones (Southwest Research Institute).

## March 2024

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

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### Up and Coming Events 2023

**Please Note we have a Reg. Mtg. scheduled for 7:30pm on Friday February 16<sup>th</sup>, 2024 @ Museum.**

**Please Note we have a Reg. Mtg. scheduled for 7:30pm on Friday March 15<sup>th</sup>, 2024 @ Observatory.**

**Please Note we have a PSW scheduled for 7:30pm on Saturday, March 16<sup>th</sup>, 2024 @ Observatory.**

**Please Note there is an Observe the Sun event on Saturday, April 6<sup>th</sup>, 2024 @ Museum.**

**Please Note there is a Solar Eclipse on Monday, April 8<sup>th</sup>, 2024**

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

### Moon Phases

| New Moon  | First Quarter                 | Full Moon                     | Third Quarter                |
|---|-------------------------------|-------------------------------|------------------------------|
| March 10 <sup>th</sup> , 2024                             | March 17 <sup>th</sup> , 2024 | March 25 <sup>th</sup> , 2024 | March 3 <sup>rd</sup> , 2024 |
| <a href="#">Moon Phases courtesy of Time and Date.com</a> |                               |                               |                              |

## ***EAS Meeting for January – 2024***

The meeting was called to order by President Tony Bryan @ 7:30pm. There were 15 members present. We had 2 visitors present. Board members Tony Bryan, Scott Conner, Ben Cruse and Dave Kube were present. A motion to wave the reading of the minutes and accept the minutes from the January 2024 Newsletter was passed unanomously.

Vice President Scott Conner read the following upcoming events.

|                        |                            |                              |
|------------------------|----------------------------|------------------------------|
| <b>Regular Meeting</b> | <b>Friday, February 16</b> | <b>7:30 PM @ Museum</b>      |
| <b>Regular Meeting</b> | <b>Friday, March 15</b>    | <b>7:30 PM @ Observatory</b> |

**Treasurer Report** – Treasurer Mitch Luman reports that the transitioning to Ben Cruse is proceeding and ongoing. Still need to transfer the bank info over. Mitch reported we have a little less money than the previous month as we had our PO Box Fee due in December.

### **Old Business**

**Constellation Quiz Winners** – Our annual Constellation Quiz took place at the December meeting. Scott Connor was our Quizmaster. The winners in the Expert Category were Chuck Allen (1<sup>st</sup>), Mitch Luman (2<sup>nd</sup>), and Mike Borman (3<sup>rd</sup>). Open Category winners were Bob Flater (1<sup>st</sup>), Lorraine Luman (2<sup>nd</sup>), and Randy Chapman (3<sup>rd</sup>). Ribbons and certificates were awarded to winners. The first place Expert Category winner was also awarded the honor of being Quizmaster for the next Constellation Quiz.

### **New Business**

**Eclipse Presentations** – We are receiving request for presentations ahead of the upcoming April 8th Total Solar Eclipse. If anyone hears of a request, or would like to give or assist with a talk, please let us know.

**Presentation Next Month** – Ron McNaughton of the RASC will be speaking to us about how ancients predicted eclipses. This live presentation will take place via Zoom. Thanks go to Chuck Allen for arranging this speaker.

**2024 Planning Session** – Each year, Officers and Councilors of the EAS meet early in the year to establish our calendar of events, and take care of other planning and business functions. This year the meeting will occur on Sunday, January 21<sup>st</sup>. You will find an updated EAS calendar posted to our website prior to the end of next week.

**Other New Business** – Mitch Luman reports that long time member Birk Fisher is in nursing care. Our best wishes go out to Birk. Matt Merlow invited any members to the Solar Eclipse event at the U of E for the upcoming Solar Eclipse on April 8<sup>th</sup>, 2024.

### **ANNOUNCEMENTS**

**Next Monthly Meeting** - Our next regular meeting is scheduled for 7:30 PM on January 19<sup>th</sup> at the Evansville Museum. Please consider supporting this fine venue by becoming a member at the Student, Basic, Patron or Donor Level Membership.

### **ADJOURN MEETING**

Meeting was adjourned @7:38pm by president Tony Bryan and handed over to our presenter for the evening Carlisle Wishard. Her presentation is about using impact craters to help determine the age of a planet in particular discussion – Mars.

Respectfully Submitted – Dave Kube – Secretary