Monthly Notices of the Everglades Astronomical Society

Naples, FL
June 2018

Officers: **President:** Denise Sabatini (dsabatinik2@embarqmail.com); VP/**Secretary:**
Treasurer: Victor Farris (vfarris01@gmail.com); **Newsletter Editor:** Jackie Richards (jmrichards2005@yahoo.com)
Mailing Address: P. O. Box 1451, Marco Island, FL 34146
Fak Coordinator & information on viewing: Mike Usher (usher34105@earthlink.net)
Home Page: http://naples.net/~nfn19284/eas/ **Webmaster:** Mike Usher (usher34105@earthlink.net)

President's Message

Dennis Albright gave a very informative presentation on theories of how life began. I know in my last newsletter I said he was going to give a talk on mass extinctions, but he surprised me. He is planning on giving that topic after the summer break.

If you were at the last meeting, you know that the directors approved an award, the Everglades Astronomical Society Award, for a very deserving student who typifies what amateur astronomy is all about. His name is Jamesly Malande. He is a 6th grade student at New Beginnings. On May 25th, I had the honor to bestow the award. It was an 8 inch Orion telescope. Bart Thomas and Jackie Richards were there to actually do the unveiling of the award. Jamesly was surprised and extremely pleased to receive the award.

Our next meeting presentation will be a video by Neil deGrasse Tyson. This is a video that was highly recommended by Ed Jaekle. I had the opportunity to see the video, and I agree. I'm hoping that after the video, we can have a discussion about some of the ideas presented.

As I wrote in last month's letter, "the schedule for next year's meetings is weighing heavily on my mind." Please let me know if you want to give a talk, or if there is a topic you would like to be presented, or if there is speaker you would like me to get, please let me know asap.

Denise.

Dates for the "Fak"

Usually the best times to go out to the Fakahatchee Strand viewing site are moonless nights. Below is a list of upcoming

Date	Moonrise	Moonset
June 9	2:27 a.m.	3:06 p.m.
June 16	8:34 a.m.	10:21 p.m.

Sky Events

June 6 - Last Quarter
June 13 - New Moon
June 20 - First Quarter
June 20 - Jupiter Transit (Europa)
June 22 - Jupiter Transit (Io)
June 27 - Full Moon

Next Meeting

June 12, 2018: Time 7:00 – 9:00 pm
Norris Center, Cambier Park, Naples

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Inauguration of the Everglades Astronomical Society Award

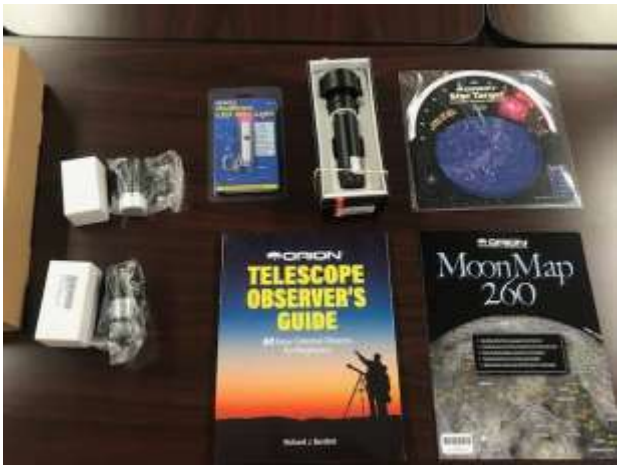
By Jackie Richards

EAS President, Denise Sabatini, presents the first Everglades Astronomical Society Award to Jamesly Malande on 5/25/18.

EAS member and school teacher, Bart Thomas, approached the club with a fantastic idea of presenting an award and telescope to a very deserving student (Jamesly Malande) at his school, New Beginnings. EAS board members voted in favor of presenting the Everglades Astronomical Society Award and purchasing a telescope and accessories for this student. The EAS is hoping to present this award every year to a deserving student but will first need to work on a formal policy/procedure to be put in place for any possible future awards.

Below are pictures of the telescope and accessories donated by the EAS.

Orion XT8 donated by the EAS to Jamesly Malande.



Accessories donated by the EAS to Jamesly Malande

Below is a message from Bart Thomas after he and Jamesly viewed the night sky through Jamesly's new scope:

The weather finally cleared. Jamesly and I looked at Jupiter, Venus, and some other stars at his house with the new XT8. We were able to see about 10 constellations clearly. The Barlow was fantastic. We were able to see the bands of Jupiter and all Galilean moons. The laser collimator that Todd donated, worked well. However, the EZ finder was not working properly and I will have to return it. I will contact Orion on Monday. I would like to get a Quick finder or Telrad but doubt if they will make the switch. I am including a picture of us together. Jamesly Malande was most definitely the right student for the award. While working with the telescope, you could tell he had confidence in his abilities and was willing to problem solve our difficulties. A fantastic evening of viewing even though it wasn't easy without the EZ finder! I am absolutely thrilled the EAS board voted to move forward with this award. If you were there at Jamesly's house last night, you would have been able to feel his excitement and enthusiasm for astronomy!

Bart


EAS Member, Bart Thomas, and student, Jamesly Malande on the first night of viewing the night sky with Jamesly's scope.

It was very exciting to witness the presenting of the first Everglades Astronomical Society Award and telescope to Jamesly.

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Measuring Stellar Distances for Stellar Nebulae

By Dennis C. Albright

Determining the distance to any star is quite difficult because they are so far away. Their distances are measured in light years (ly), the distance that light can travel in one year.

One of the methods used to obtain the distance to a star is to use standard candles. That is, if we know how bright the candle is at a standard distance, its absolute brightness, we can then determine its distance from how bright it appears to us.

The STARSDAW code is a computer code based on Wikipedia data that accurately models properties of the stars and nebulae. I used the STARSDAW code to calculate the distances to all of the nebulae whose properties were readily available from the Wikipedia.

Seven types of nebulae were modeled planetary nebulae, supernova remnants, emission nebulae, H II regions, reflection nebulae and dark and diffuse nebulae. Planetary nebulae are the remnants of novae. Emission nebulae are relatively hot clouds of ionized gas that emit light. H II regions are regions of ionized Hydrogen that emit light. Reflection nebulae shine by reflecting the light from a nearby star. Since dark nebulae and diffuse nebulae are relatively rare and often do not have enough data to accurately model them, they have been combined into a single group.

The accuracy of the STARSDAW code in determining the stellar distances, d_s, is amply demonstrated in Table 1 and Figures 1 through 3. In these figures the measured stellar distance, d_{SM}, is the x-axis and the calculated stellar distance, d_{SC}, is the y-axis. Several points lie directly on the agreement which indicates almost perfect agreement between the calculated results and the measured data. These figures show very good qualitative agreement between the stellar distances calculated for nebulae using the STARSDAW code because almost all of the points in these figures are on or near the agreement line.

The mean error for the stellar distances of all of the nebulae obtained using the STARSDAW code, e_{dTot}, is 17.97%, which is a good approximation for this type of determination and is comparable with the mean error calculated using Wikipedia data, e_{WdTot}, which is 16.64%. This mean error is also comparable to the accuracy of stellar distance measurements before the Hubble satellite.

If there is relatively little interstellar absorption or the interstellar absorption can be reasonably accurately quantified and the type of nebula is accurately determined the STARSDAW code can be used to accurately determine the distance to the nebula.

Table 1 Comparison of Results for the Stellar Distances

Type	N_{SN}	e_{dsj}(%)	N_{SWN}	e_{Wdsj}(%)
Planetary Nebulae	50	22.46	15	20.08
Supernova Remnants	9	11.28	1	12.03
Planetary Nebulae and Supernova Remnants	59	20.76	16	19.57
Emission Nebulae	12	14.24	4	12.47
HII Regions	9	37.34	4	12.84
Emission Nebulae and HII Regions	25	16.62	8	12.65
Reflection Nebulae	7	6.96	-	-
Dark/Diffuse Nebulae	3	0.15	1	1.49
All Nebulae	94	17.97	25	16.64

Figure 1. Comparison of Results for the Stellar Distance, d_s, for Planetary Nebulae and Supernova Remnants

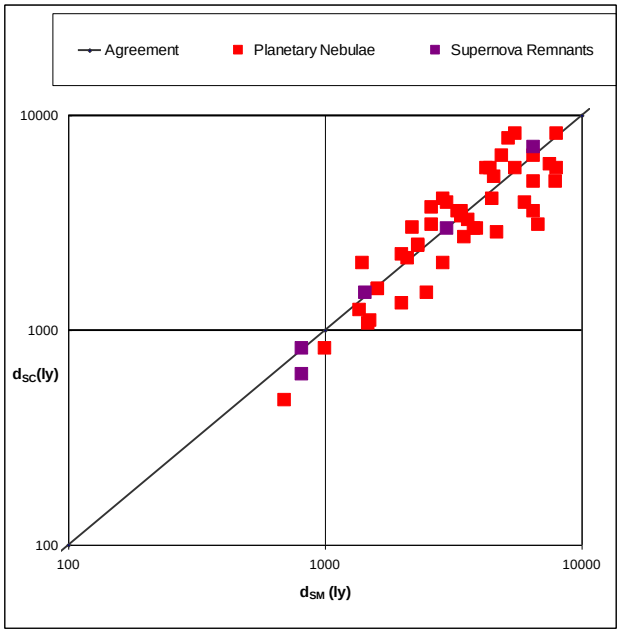


Figure 2. Comparison of Results for the Stellar Distance, d_s, for Emission Nebulae, HII Regions, Reflection Nebulae, and Dark/Diffuse Nebulae

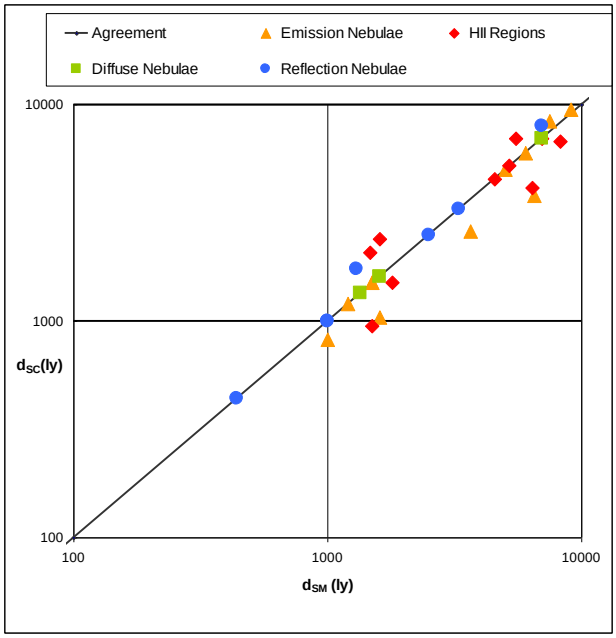
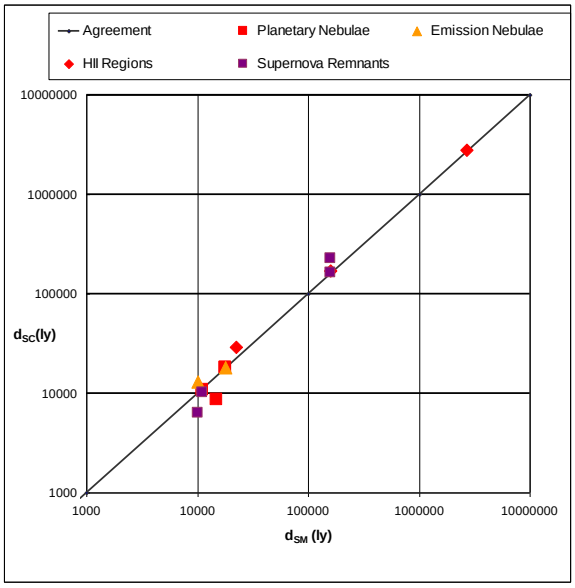


Figure 3. Comparison of Results for the Stellar Distance, d_s, for Distant Nebulae and Supernova Remnants



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Published Articles by EAS Members

Ted Wolfe's article in the Naples News/Collier Citizen on May May 25, 2018: Looking Up: A 'super bubble' grows in another galaxy.

https://www.naplesnews.com/story/news/local/communities/collier-citizen/2018/05/25/looking-up-super-bubble-grows-another-galaxy/632256002/

TO VIEW THE ABOVE ARTICLE, PRESS "CTRL" AND LEFT CLICK BUTTON.

The below link provides previous articles in the Collier Citizen by Ted Wolfe that appeared over past years.
http://www.naplesnews.com/search/Ted%20Wolfe/

To view all of Ted Wolfe's photos, visit his website @ www.tedwolfe.com .

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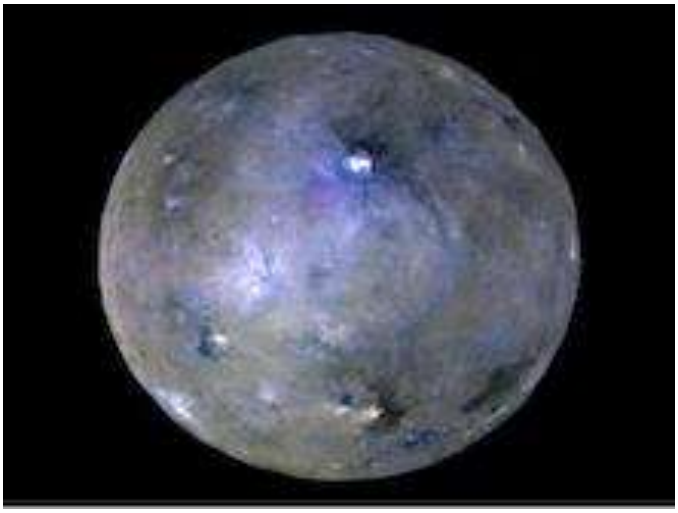
Photo by Chuck Pavlick of Jupiter and the Great Red Spot On June 4, 2018

This AstroMaster 130 EQ telescope is being offered as a donation. If you know of someone, perhaps a student, who would be interested in this scope, please contact Denise Sabatini.

What Is the Asteroid Belt?
By Linda Hermans-Killiam

What Is the Asteroid Belt? By Linda Hermans-Killiam There are millions of pieces of rocky material left over from the formation of our solar system. These rocky chunks are called asteroids, and they can be found orbiting our Sun. Most asteroids are found between the orbits of Mars and Jupiter. They orbit the Sun in a doughnut-shaped region of space called the asteroid belt. Asteroids come in many different sizes—from tiny rocks to giant boulders. Some can even be hundreds of miles across! Asteroids are mostly rocky, but some also have metals inside, such as iron and nickel. Almost all asteroids have irregular shapes. However, very large asteroids can have a rounder shape. The asteroid belt is about as wide as the distance between Earth and the Sun. It's a big space, so the objects in the asteroid belt aren't very close together. That means there is plenty of room for spacecraft to safely pass through the belt. In fact, NASA has already sent several spacecraft through the asteroid belt! The total mass of objects in the asteroid belt is only about 4 percent the mass of our Moon. Half of this mass is from the four largest objects in the belt. These objects are named Ceres, Vesta, Pallas and Hygiea. The dwarf planet Ceres is the largest object in the asteroid belt. However, Ceres is still pretty small. It is only about 587 miles across—only a quarter the diameter of Earth's moon. In 2015, NASA's Dawn mission mapped the surface of Ceres. From Dawn, we learned that the outermost layer of Ceres—called the crust—is made up of a mixture of rock and ice. The Dawn spacecraft also visited the asteroid Vesta. Vesta is the second largest object in the asteroid belt. It is 329 miles across, and it is the brightest asteroid in the sky. Vesta is covered with light and dark patches, and lava once flowed on its surface. The asteroid belt is filled with objects from the dawn of our solar system. Asteroids represent the building blocks of planets and moons, and studying them helps us learn about the early solar system.



Caption: This image captured by the Dawn spacecraft is an enhanced color view of Ceres, the largest object in the asteroid belt. Credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA

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EAS 2018 DUES

For the bargain price of only $20.00 per family, all this can be yours this year:

- Meet with your fellow astronomy enthusiasts at least 10 times a year;
- Learn about astronomy and telescopes. Check out our club scope;
- Many opportunities to view planets, nebulae and other celestial objects (even if you don't have your own telescope); and
- Enjoy the many astronomy programs at our regular monthly meetings.

Don't miss out! Fill out this form (please print clearly) and send it with your $20 check to the

Everglades Astronomical Society, P. O. Box 1451, Marco Island, Florida, 34146.

Name: _____

Address: _____

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Phone: _____

Email: _____