



Monthly Notices of the Everglades Astronomical Society



Naples, FL
December 2018

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President's Message

It wasn't an easy decision to change the date of the December meeting. From past experience, it was the best alternative to competing with the Naples Santa Parade. We tried to make sure that everyone was notified. As I had prior plans for the new date, I will not be at the meeting. So, I would like to wish everyone a Merry Christmas and Happy Holidays.

The December meeting will be our annual Trivia program. Mike Usher does a great job to make the game both educational and entertaining. Mike is always looking for volunteers to be on the panel. Please make it easy on him this year and volunteer. Whether or not you are on the panel, you will certainly learn some interesting facts.

Scott Flaig is our January speaker. You may recall that he spoke to us a few years back. He is an MIT graduate and ties together how science and theology can work in harmony. He is a good speaker and I'm sure you will enjoy the program.

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 Saturday nights that you will often find fellow club members out there enjoying the skies with you (weather permitting).

Date	Moonrise	Moonset
December 8	8:05 a.m.	6:58 p.m.
December 29	12:19 a.m.	12:47 p.m.

Sky Events

- Dec. 7 - New Moon
- Dec. 15 - First Quarter
- Dec. 13/14 - Geminid Meteor Shower (100/hour @ peak)
- Dec. 22 - Full Moon
- Dec. 22 - Jupiter Transit (Io)
- Dec. 26 - Jupiter Transit (Europa)
- Dec. 29 - Last Quarter

Next Meeting (Note Change in Date)

December 18, 2018: Time 7:00 – 9:00 pm
Norris Center, Naples

Geminid Meteor Shower and Comet 46/P Wirtanen By Jackie Richards



Path of Comet 46P/Wirtanen 12/11/18 - 12/21/18. Astronomy Mag.

As you know, the Geminid Meteor Shower peaks on the evening of Thursday, 12/13, into Friday morning, 12/14. If anyone is interested in going to the Fak on that night, we are planning to be there. I will send an email on 12/13 letting everyone know for sure. This is one of the best meteor showers of the year and is produced by debris left behind by an asteroid, 3200 Phaethon. This year, we can expect to see up to 100 meteors per hour during the peak. Many of these meteors will be slow-moving, colorful meteors. The first quarter moon will set around 11:00 p.m. leaving dark skies for the rest of the night.

Comet 46P/Wirtanen (the brightest comet of the year) will make its closest approach to Earth on December 16th but can be seen throughout December. An ephemeris of the comet's path from December 11th through December 21st is shown on page 1. You will need to be at a dark location to see the comet.

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Published Articles by EAS Members

Ted Wolfe's article in the Naples News/Collier Citizen on November 24, 2018: Looking Up: The Doomsday Star.

The link to this article in the Naples News is not yet available.

The below link provides previous articles in the Naples News/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.

The Doomsday Star By Ted Wolfe



The Eta Carina Nebula by Ted Wolfe

Only 7500 light years away from us a star nestled in a bright nebula is approaching its doomsday. It will die in an incredible explosion that will see it flare up in the night sky as one of the brightest stars visible to man.

Eta Carinae is monitored constantly by patrol telescopes on earth and in space. Like a ticking bomb ready to go off at any moment, this giant star has reached the precarious end of its life, and faces a violent death as a supernova explosion.

It can be seen as the very large star with diffraction spikes in the center of our picture here. It was born out of the surrounding cloud of gas and dust known as the Eta Carina Nebula.

The bright, star like object shown in this picture only hints at its true nature, which to this day, is cloaked in mystery. Let's start with what it has looked like to man over the years we have been observing it.

The constellation of Carina, the ship's keel, lies in the southern hemispheric skies, and was not observed in any real detail for centuries, although the Dutch navigator Pieter Keyser described seeing a 4th magnitude star at about the correct location around 1595. This got copied onto the early globes and star maps. However, the first reliable record of the star was made by Edmond Halley in 1677.

Halley recorded the star at approximately 4th magnitude. In 1751 Lacaille saw that it had increased in brightness to 2nd magnitude. Then in 1827 William Burchell found it had gone up to 1st magnitude. He was the first to accurately speculate that the star was displaying a variation in its brightness.

John Herschel began to observe it in the 1830's, and found it to be consistently around 1.4 in magnitude. Then came what astronomers call the "Great Eruption." Suddenly, on the night of December 1, 1837, Herschel saw it jump to become one of the brightest stars in all the sky at about 0 magnitude, slightly outshining Rigil.

It continued to brighten in rapid fluctuations until its peak in 1845 at -1.0 magnitude. Then it began a long period of dimming well below naked eye visibility until 1886 when it became barely visible again at 6.2 magnitude. It then settled in for a long time again below naked eye visibility.

Then surprisingly, it doubled in its brightness in 1998, and by 2014 it was up to around 4.5 magnitude, which is about what we see in the picture here. So we are witnessing a star at the end of its career cartwheeling through crisis after crisis as its internal energy supply is diminishing. It is in the throes of the end of its life cycle, and will collapse on its core when its internal nuclear combustion process runs out of fuel. Then it will explode outwardly as a supernova.

When will this happen?

Complicating the picture are two things, both discovered in the last years. High resolution images show that Eta Carinae is really 2 stars – not 1. A somewhat smaller companion is closely orbiting the primary star, which is the one about to go supernova. Complicating things even further, it now appears that the extreme brightening of the star in the middle of the 19th century was caused by a 3rd star in the system, which collided with the primary one. The Hubble has shown the presence of a large cloud of material, called the "Homunculus," which consists of gas and dust which was discharged from the primary star at that time.

The Homunculus cloud makes it difficult to more closely examine the primary star directly in either visible light or through a spectrograph. We can't see its rotation speed for instance, which would help us better understand its situation.

So the answer to the "when" question is anywhere from tonight to less than 0.5% of the age of our own star, the sun (about 1 million years). In fact, it could already have exploded, and its light is now on the way to us with the news.

Since it's relatively close to us at 7500 light years away, there may well be some effects on the earth from the explosion. They should be relatively mild, with the most severe occurring in the upper atmosphere. This would include some depletion of the ozone layer, and disruption of satellite operations.

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PHOTOS BY EAS MEMBER



Photo of the moon taken by Chuck Pavlick on 10/15/18.

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WINTER STAR PARTY ("WSP") TICKETS

Registration is now open. The WSP will be back at Camp Weesumkee in the Florida Keys from February 4 – 10, 2019. If you wish to register, please go to Southern Cross Astronomical Society website at: www.scas.org For information about the WSP, call (386) 362-5995.

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EAS 2019 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: _____

Phone: _____

Email: _____