



Monthly Notices of the Everglades Astronomical Society



Naples, FL
June 2017

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President's Message

The May meeting was a good reminder about how our planet Earth is a wonder. Patrick Higgins gave an amazing and humorous presentation about how our observing site, the Fakahatchee Strand, is a vibrant place. Below is an e-mail I received from Francine Stevens after the presentation:

"It was great fun to meet your group Tuesday, they had a lot of questions at the end and we were short on time, would you be so kind to forward your group our website address www.orchidswamp.org

Since so many expressed genuine interest in the Fakahatchee we would be happy to have your group on any of our tours, tram rides, tram & introduction to swamp walk, swamp walk only, Guided walk on the big Bend Cypress Boardwalk. Our tours schedule for next season won't be posted until September but for groups we can set a date outside of the tour schedule. Our volunteer naturalists will guide tours from October thru March; a little later in the season is possible depending on the weather and of course you can request Patrick as your guide!"

Charlie Paul will be the presenter at the June meeting. This will be an opportunity to see the information that is given at the events for the public. I'm hoping that this will make those of you who are shy more confident to get out into the community and promote our society. With the upcoming eclipse, we have received several requests to speak about our

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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 |
|---------|------------|------------|
| June 17 | 12:33 a.m. | 12:41 p.m. |
| June 24 | 6:12 a.m. | 8:04 p.m. |

Sky Events

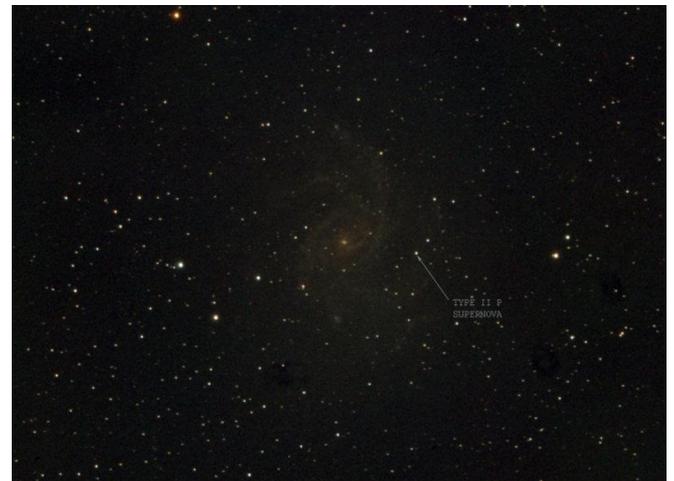
- June 1 - First Quarter
- June 9 - Full Moon
- June 17 - Last Quarter
- June 23 - New Moon
- June 26 - Jupiter Transit (Europa)
- June 30 - First Quarter
- June Comet Info on Page 4

Next Meeting

June 13, 2017: Time 7:00 – 9:00 pm
Norris Center, Cambier Park

Supernova in NGC 6946 By Jackie Richards

On May 13th a type II P supernova (SN 2017 eaw) was discovered in NGC 6946 (the Firecracker Galaxy) by Patrick Higgins. Below you will find images of the galaxy before and after the supernova occurred. In the past 100 years, 10 supernovae have been observed in the arms of this galaxy.



Supernova 2017 eaw in NGC 6946 (the Firecracker Galaxy) by Chuck Pavlick on 5/17/17 taken in light-polluted Cape Coral.



NGC 6946 (w/o supernova) by Ted Wolfe on 10/17/11; 12 1/2" Ritchey-Chretien telescope with an ST8E/CFW8.F/6LRGB (47/7 min BW, 11 5 min 2x2RGB. Scaled on Maxim DL at 1.0 R, 1.0 G, 1.6 B).

While the galaxy NGC 6946 is very faint, the actual supernova should be viewable in our telescopes.

May has provided us with good viewing skies. Objects viewed this month at the Fak included M81 & M82, M104 (see Chuck Pavlick's photo below), Jupiter, Saturn, Comet Johnson, and Omega Centauri (see Bob Francis' image below).



M104 (Sombrero Galaxy) taken by Chuck Pavlick at the Fak on 5/20/17. Scope: Celestron Edge 9.25 f/10; Camera: Starlight Xpress SX 25c; 11@420 seconds.



Omega Centauri taken by Bob Francis at the Fak on 5/20/17. Canon t5i.



Jupiter transit taken by Chuck Pavlick on 5/18/17. Europa on right with its shadow on Jupiter. Io is on left.

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SPECIAL THANKS TO RICK AND LORI PIPER

A BIG thank you to Rick and Lori Piper for mowing and cleaning our Fak viewing area. It looked beautiful and this helped to reduce the mosquitoes quite a bit. You guys are the greatest!!!

Observe the Eclipse Safely By Denise Sabatini

This article is for those of you who do not own a solar telescope but would like to observe the eclipse safely. There are methods where you do not look directly at the eclipse. For me, this is like going to the opera and watching it on a television screen in the lobby. Below is an alternative to looking at the eclipse.

If you have ever been at one of our solar events, you have probably seen my goggles and welding mask. I have been asked several times, "Where can I get one?" While there is not a "store" where you can buy goggles ready-made for the eclipse, you will have to assemble goggles or a mask for about \$10.00 to \$15.00 by doing the following:

1. Go to a WELDER'S SUPPLY STORE. There is one in North Naples. I think it is on J & C Blvd. If you are in the Fort Myers area, there is one on Metro Parkway.
2. Buy ARC WELDER'S GLASS # 14. I can't stress enough that it must be NO LESS than # 14. The glass usually comes in two sizes. I buy the smaller one because it fits into goggles OR a welder's mask. If they have enough, I usually buy at least 2 pieces of glass. If I even think a piece is broken or scratched, I throw it out.
3. Buy a pair of goggles or a welder's mask. You can get them in the supply store, a hardware store, Lowes, Home Depot, Wal-Mart, etc. These goggles have glass in them, but they are NOT arc welder's glass # 14.
4. Remove the glass that is in the goggles or mask and replace it with the # 14 glass.

Because the eclipse from first contact to fourth contact is very long, you will never be able to hold just the glass in front of your eyes for that length of time. The solar glasses work, but for me they are cumbersome and can be risky if they rip or fall off your eyes. The goggles and mask are sturdy and have straps where you can secure them to your head. Then, get a comfortable lawn chair and enjoy the show. One last tip, be sure to take the goggles off about 1 or 2 seconds **AFTER** totality, AND put them back on 1 or 2 seconds **BEFORE** totality ends.

Good luck and happy observing.

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CARPOOLING TO THE ECLIPSE

If anyone is thinking about carpooling to the Eclipse, please contact Denise Sabatini. During our last meeting someone asked that question, so if you are thinking about driving and have room in your vehicle or you wanted to carpool with someone else who is driving, hopefully we can work on getting people together and sharing expenses for this wonderful event.

President's Message (Continued from Page 1)

club and the eclipse. Help from those of you who are staying down here this summer will be greatly appreciated.

In last month's newsletter, I asked for any requests for speakers for the upcoming year. I didn't receive one suggestion. Providing programming for the members is my highest priority. Please, if there is a topic you would like to hear about, let me know and I will do my best to schedule a talk on that subject.

For those of you staying here for the summer, I hope to see you at the July and August coffee meetings. I always love these "meetings" because it gives us a chance to talk to each other. Turns out, most of us have other interests. We don't know where we are meeting yet, but we will let you know.

Clear skies, Denise Sabatini

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Club member, Rick Piper and Palmetto Ridge High School Astronomy Club President, Laura Garcia (a junior) at the PRHS Star Party on Friday, May 12, 2017. Other club members that attended this event were Victor Farris, Charlie Paul, Bob Francis, Mike Usher and Jackie Richards.

Published Articles by EAS Members

Ted Wolfe's article in the Naples News/Collier Citizen on May 23, 2017: Looking Up: "The Jewel Box" is eye candy.

<http://www.naplesnews.com/story/news/local/communities/collier-citizen/2017/05/23/looking-up-the-jewel-box-space-eye-candy/339808001/>

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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The Milky Way taken by Marianne Simmons at the Fak on 5/27/17.
Camera: Canon t4i; ISO: 3200; 20 seconds

Interactive Site for best solar eclipse locations Contributed by Bart Thomas

http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2017_GoogleMapFull.html?Lat=33.6647&Lng=-80.7789&Zoom=9&Map='ROADMAP'&OMap=0

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Viewing of Comets During June 2017

Comet C/2015 V2 (Johnson) - visible all night; in Bootes and Virgo; 6th mag. (at brightest in June)

Comet C/2015ER61 (PANSTARRS) - visible before dawn in Pisces; 7th mag.

Comet 41P/Tuttle-Giacobini-Kresak – visible after midnight; in Ophiuchus; 9th mag.

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The Fizzy Seas of Titan By Marcus Woo

With clouds, rain, seas, lakes and a nitrogen-filled atmosphere, Saturn's moon Titan appears to be one of the worlds most similar to Earth in the solar system. But it's still alien; its seas and lakes are full not of water but liquid methane and ethane.

At the temperatures and pressures found on Titan's surface, methane can evaporate and fall back down as rain, just like water on Earth. The methane rain flows into rivers and channels, filling lakes and seas.

Nitrogen makes up a larger portion of the atmosphere on Titan than on Earth. The gas also dissolves in methane, just like carbon dioxide in soda. And similar to when you shake an open soda bottle, disturbing a Titan lake can make the nitrogen bubble out.

But now it turns out the seas and lakes might be fizzier than previously thought. Researchers at NASA's Jet Propulsion Laboratory recently experimented with dissolved nitrogen in mixtures of liquid methane and ethane under a variety of temperatures and pressures that would exist on Titan. They measured how different conditions would trigger nitrogen bubbles. A fizzy lake, they found, would be a common sight.

On Titan, the liquid methane always contains dissolved nitrogen. So when it rains, a methane-nitrogen solution pours into the seas and lakes, either directly from rain or via stream runoff. But if the lake also contains some ethane—which doesn't dissolve nitrogen as well as methane does—mixing the liquids will force some of the nitrogen out of solution, and the lake will effervesce.

"It will be a big frothy mess," says Michael Malaska of JPL. "It's neat because it makes Earth look really boring by comparison."

Bubbles could also arise from a lake that contains more ethane than methane. The two will normally mix, but a less-dense layer of methane with dissolved nitrogen—from a gentle rain, for example—could settle on top of an ethane layer.

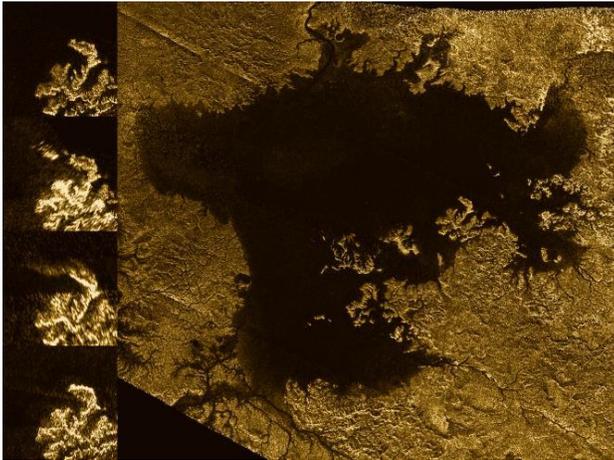
In this case, any disturbance—even a breeze—could mix the methane with dissolved nitrogen and the ethane below. The nitrogen would become less soluble and bubbles of gas would fizz out.

Heat, the researchers found, can also cause nitrogen to bubble out of solution while cold will coax more nitrogen to dissolve. As the seasons and climate change on Titan, the seas and lakes will inhale and exhale nitrogen.

But such warmth-induced bubbles could pose a challenge for future sea-faring spacecraft, which will have an energy source, and thus heat. "You may have this spacecraft sitting there, and it's just going to be fizzing the whole time," Malaska says. "That may actually be a problem for stability control or sampling."

Bubbles might also explain the so-called magic islands discovered by NASA's Cassini spacecraft in the last few years. Radar images revealed island-like features that appear and disappear over time. Scientists still aren't sure what the islands are, but nitrogen bubbles seem increasingly likely.

To know for sure, though, there will have to be a new mission. Cassini is entering its final phase, having finished its last flyby of Titan on April 21. Scientists are already sketching out potential spacecraft—maybe a buoy or even a submarine—to explore Titan's seas, bubbles and all.



Caption: Radar images from Cassini showed a strange island-like feature in one of Titan's hydrocarbon seas that appeared to change over time. One possible explanation for this "magic island" is bubbles. Image credits: NASA/JPL-Caltech/ASI/Cornell

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EAS 2017 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: _____