



Monthly Notices of the Everglades Astronomical Society



Naples, FL
November 2018

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President's Message

It seems that the dry season is almost here. My evening walks are revealing clearer skies and less humidity. So, I hope that the very relevant and inspiring information that Mike provided to us at the October meeting on telescopes and observing will help you get out and enjoy your telescope or other members' telescopes.

If you have already bought your 2019 calendar, please note the next programs through February. This month, I will be presenting the program that was inspired by my trip to South America this summer. Although there is a lot more I could talk about, I am restricting this talk to Quito, Ecuador. The December meeting will be our annual astronomy trivia meeting hosted by Mike Usher. The January meeting will be a presentation by Scott Flaig. You may recall that a few years ago, he gave a presentation to us on his new book. Well, he has another book coming out, and he will be speaking to us on that. Our February meeting will be a celebration of Charles "Charlie" Paul's life and contribution to our society. If you have pictures or any stories about Charlie, please start putting them together to share with us.

Staying with the calendar theme, I received a notice from the Astronomical League that they have a 2019 astronomy calendar to help support ALCon Jr. 2020. This is a new endeavor to support youth interested in astronomy. Go to the AL web site for more information.

Almost every president's letter, I have asked for either someone to come forward to give a talk or at least, tell me what you would like to learn at our meetings. Funny thing, I've hardly heard from anyone.

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 1	1:25 a.m.	2:07 p.m.
December 8	8:05 a.m.	6:58 p.m.

Sky Events

- Nov. 7 - New Moon
- Nov. 9 - Jupiter Transit (Io)
- Nov. 15 - First Quarter
- Nov. 16 - Jupiter Transit (Io)
- Nov. 17/18 - Leonid Meteor Shower (15/hour @ peak)
- Nov. 20 - Jupiter Transit (Europa)
- Nov. 22 - Full Moon
- Nov. 27 - Jupiter Transit (Europa)
- Nov. 29 - Last Quarter

Next Meeting

November 13, 2018: Time 7:00 – 9:00 pm
Norris Center, Naples

GOOD STUFF COMING OUR WAY

By Jackie Richards



Comet 46P/Wirtanen (Path from 12/12/18-12/30/18)

Several good nighttime events coming our way during November and December.

First is the Geminid Meteor Shower which runs from November 6th through November 30th and peaks during the evening of November 17 through the morning of November 18. It is produced by dust grains left behind by Comet Tempel-Tuttle. Meteors will radiate from the constellation Leo. However, you do not need to be looking at Leo to see the meteors; they can be seen anywhere in the sky. We can expect to see about 15 meteors per hour during the peak.

Secondly, the Geminid Meteor Shower takes place from December 7th through 17th and peaks on the evening of Thursday, December 13, into Friday morning, December 14. 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. The first quarter moon will set shortly after midnight leaving dark skies for the rest of the night. Woo hoo! This should be AWESOME. We have been discussing the possibility of going out to the Fak (even though it's a Thursday night) for this event. I have already taken both Thursday and Friday off from work. I'm excited.

And if the Geminid Meteor Shower isn't enough to get us all excited, Comet 46P/Wirtanen (the brightest comet of the year) will make its closest approach to Earth (on December 12th) since its discovery in 1948. See the chart on page 1 which lists the dates where the comet can be seen in the night sky. It's still too soon to tell, but there is a possibility that this will be a naked-eye comet. You will not be able to see this comet with the naked eye in town. You will need to be at a dark location. I am letting everyone know about the Geminid Meteor Shower and Comet 46P/Wirtanen this month because the December newsletter will go out only a few days before these events and I'd like to give everyone enough time to plan accordingly in order to observe both.

Photographing a meteor is not as difficult as you may think. It's really all about luck. You will need a camera (I have a Canon T6i), a wide-field lens (18-55 mm or 55-250 mm) in order to capture as much of the sky as possible (and surroundings, like trees or a lake, which can enhance your photo), a tripod, and a cable release switch (a/k/a remote shutter release) which allows you to keep the shutter open without touching the camera. You will need to set a high ISO (perhaps around 1600 but you should take a few practice shots to test different ISOs). You simply hit the shutter release switch, hold for 10 seconds or so, and pray that a meteor goes through your photo. It's that simple but you need a lot of patience and luck.

We will keep you posted about whether we will be going to the Fak on Thursday, December 13th.

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Published Articles by EAS Members

Ted Wolfe's article in the Naples News/Collier Citizen on October 24 2018: Looking Up: The Wild Duck Cluster.

<https://www.naplesnews.com/story/news/local/communities/collier-citizen/2018/10/24/looking-up-wild-duck-cluster/1729284002/>

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



Photo of M11 (the Wild Duck Cluster) by Ted Wolfe

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.

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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.

PHOTOS BY EAS MEMBER



NGC 7380 (the Wizard Nebula) by Chuck Pavlick on 10/21/18.



Photo of M51 (the Whirlpool Galaxy) taken by Lou Tancredi in April 2018.

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Stellar Populations By Dennis C. Albright

Astronomers group stars into 3 distinct populations which depend directly upon their age, Population I, Population II and Population III. In this article, I will discuss each of these stellar populations.

Population I

Population I stars are the most recently formed stars. These stars are relatively rich in metals, which account for roughly 2% of their mass. To an astronomer metals are any element other than Hydrogen or Helium. Hydrogen and Helium are far and away the most common elements in the Universe. This is because when the initial elements were formed after the big bang, only Hydrogen and Helium with some trace amounts of Lithium and other light elements, were synthesized.

The sun is a Population I star. Population I stars are found in the spiral arms of galaxies.

A typical spiral galaxy is shown in Figure 1. This figure readily shows both the spiral arms and the galactic center. The spiral arms consist of both stars and clouds of dust and gas. The galactic center contains a giant black hole with a mass of millions to possibly billions of suns orbited by billions of stars surrounded by millions of stars.

Figure 1 – A Typical Spiral Galaxy



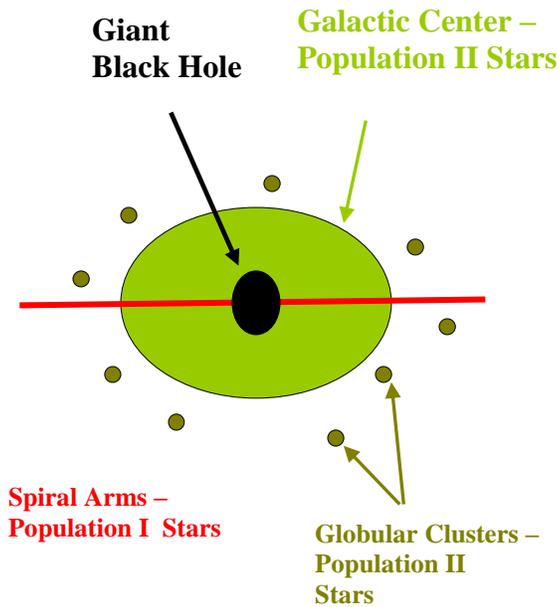
**Spiral
Arms**

**Galactic
Center**

Population II

Population II stars were formed soon after the formation of galaxies after the big bang. Population II stars have a far lower concentration of metals than Population I stars, with metals accounting for approximately .1% of their mass. In fact, the supernovae of massive population II stars have provided most of the metals that are in Population I stars. Population II stars are found in the galactic bulge outside of the giant black hole and in globular clusters shown in Figure 2.

Figure 2 – Edge on View of a Spiral Galaxy



Population II stars are far less likely to have life associated with them than Population I stars. This is because population II stars are less likely to have planets because of the low metal content of gas cloud from which they were formed. Also because Population II stars are far older than Population I stars, most the stars with masses near that of the sun have evolved off of the main sequence into either sub giants or giants.

The location of Population II stars also affects their ability to have life associated with them. Since stars are more closely spaced in globular clusters than they are in the spiral arms of galaxies, there is a very high probability of the gravitational disruption of the orbits of terrestrial planets orbiting these stars.

The accretion disk of a black hole readily emits X-rays. This is due to friction in the gas as it spirals into the black hole. The accretion disk of the giant black hole at the center of the galaxy also emits X-rays for a similar reason. The intensity of these X-rays would sterilize planets in the galactic center.

Population III

Population III stars are a hypothetical population of super massive and hot stars with stellar masses far exceeding that of the most massive stars today. Many may have had stellar masses exceeding 500 solar masses. Presently, stars are limited to a mass of less than roughly 150 suns. These stars were formed almost immediately after the formation of the gas clouds that formed the galaxies roughly 155 million years after the big bang. Due to their immense masses, Population III stars were very short-lived and soon exploded in supernovae and hyper novae and in doing so provided the metals found in Population II stars.

It is thought that Population III stars have been detected in distant galaxies near the edge of the visible universe by gravitational lensing as well in some very distant small blue galaxies. The presence of heavy elements in the spectra of quasars also infers their existence in the early universe. These heavy elements could not be produced in the initial period of nucleo-synthesis following the big bang but must have been created by Population III stars.

References

1. Web Page: Spiral Galaxies, Wikipedia the free Encyclopedia.
2. Web Page: Stellar Population, Wikipedia the free Encyclopedia.
3. Web Page: Globular Cluster, Wikipedia the free Encyclopedia.

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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: _____

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