

# Southwest Florida Astronomical Society SWFAS



## The Eyepiece April 2017

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### A MESSAGE FROM THE PRESIDENT

Spring is here, or is it summer! Speaking of the seasons and weather here in Florida, we have an interesting presentation on weather by Jim Farrell, Wink News Chief Meteorologist this month. All we do is weather dependent, so learning about the weather and forecasting is key to our enjoyment of our hobby.

We had a great turnout at the Rotary Park Star Party by both the club and the general public! We had lines at all the scopes and the Moon/Venus/Mars were the main attractions, along with Orion Nebula in multiple scopes including Chuck Pavlick's dob.

The weather was fickle for the star party scheduled for CRP. It looked like it was going to be bad, but it actually turned out that it was clear at 8:30 at the park. No one else showed up, so I didn't hang around after looking at the comet leaving the bowl of the dipper.

Brian

## Program this Month

Fellow Amateur Astronomers:

As amateur astronomers in Florida know all too well the success or failure of observing sessions and Star Parties depend largely on the weather. A rainy evening or just a cloudy sky can cancel the best laid plans or send us all home early before we get the chance to view our favorite celestial objects. Because of the significant role that weather plays upon our hobby we have invited a very special guest speaker to our April meeting. On Thursday, April 6, 2017 the South West Florida Astronomical Society will be pleased to introduce Jim Farrell, Chief Meteorologist for WINK TV. Jim will be presenting basic meteorological concepts along with typical Florida weather patterns to our club. Jim's presentation will begin at 7:30pm at the Calusa Nature Center and Planetarium and will be followed by our regular monthly business meeting. If you would like to know more about the scourge of amateur astronomers this is one presentation you will not want to miss. The SWFAS hopes to see you at the CNCP Thursday evening.

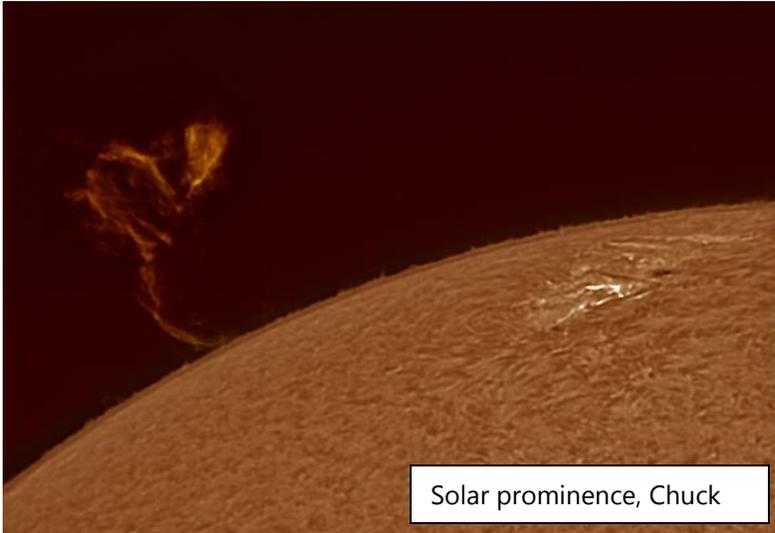
Michael J. McCauley  
Program Coordinator  
SWFAS

## Rotary Park Star Party Pictures – Phil Jansen

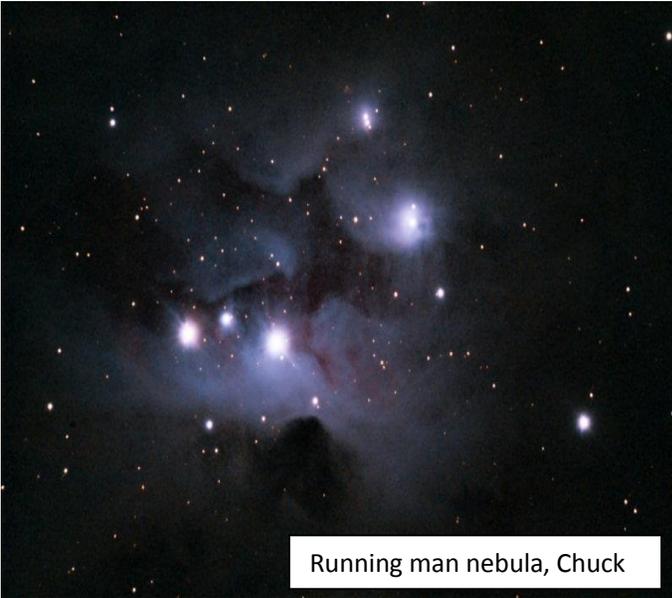


The Star Party was a great success. The above pics were early in the setup with Gary McFall, John MacLean and the clubs equipment. More people arrived with a lot more scopes later. The sign was posted the week before at the entrance to the Burrowing Owl Festival, so we had a lot of publicity for the event and the crowd was large. It was interesting, some had asked me if we really needed them to setup seeing the initial number of scopes setup, and I said yes. Later on, I got the remark that they realized that I was right!

Photos by Chuck Pavlick and Matthew Knight and Joe Senich



Solar prominence, Chuck



Running man nebula, Chuck



M97 Owl Nebula, Chuck



Saturn  
Telescope: Celestron NextStar 5SE  
Webcam: Celestron NexImage5  
Taken by: Matthew Knight  
March 30th 2017



Jupiter from last years opposition - Joseph Senich

## In the Sky this Month

### **Moon:**

April – 1<sup>st</sup> Quarter - 3<sup>th</sup>; Full – 11<sup>th</sup>; Last Quarter – 19<sup>th</sup>; New – 26<sup>th</sup>.

### **The Planets:**

**Venus** (magnitude -4.2) is very low above the east horizon as dawn brightens. Having just passed through inferior conjunction (on March 25<sup>th</sup>) it's still a thin crescent in a telescope, but now it's thickening daily instead of thinning.

**Mercury** on April 1 Mercury is at its highest sunset altitude of the year for sky watchers around 40° north latitude. Look for it moderately low in the west about 45 to 60 minutes after sunset. Fainter Mars is 15° above it.

**Uranus and Neptune** are hidden in the glow of dusk and dawn, respectively.

**Mars** (magnitude +1.5, in Aries) is the orange "star" moderately low due west in late twilight, about 15° upper left of Mercury. Don't confuse it with Aldebaran far to Mars's upper left.

**Jupiter** is at opposition, in the opposite direction from the Sun as seen from Earth. It climbs into grand view in the southeast through the evening, with slightly bluer Spica below it.

This is, however, Jupiter's most distant opposition since 2005; it's magnitude -2.5 and in a telescope, appears 44.2 arcseconds across its equator. Jupiter reaches almost 50" wide at the maxima of its opposition cycle. This last occurred in 2010 and will again in 2022.

**Saturn** (magnitude +0.4, in Virgo) comes to opposition on the night of April 3<sup>rd</sup>. It glows low in the east-southeast as twilight fades, rises higher in the southeast during evening, and shines highest in the south after midnight. During the evening, look for twinkly Spica 11° below it and brighter Arcturus nearly 30° to its left.

With Saturn so close to opposition, its rings are now displaying the [Seeliger effect](#), whereby they brighten for a few days around opposition due to backscattering of sunlight back toward the Sun and Earth. The solid icy ring particles backscatter, but Saturn's cloud tops do not (or not as much). The rings are 9° from edge on. Also in a telescope, Saturn's months-old white spot has spread into a light band far around the planet, as seen here. See how many of Saturn's satellites you can identify in your scope using our [Saturn's Moons tracker](#).

**International Space Station:** The ISS is visible in the evening skies over Ft Myers

Thu Apr 13, 9:45 PM 1 min 17° 10° above NNW 17° above NNW.

Fri Apr 14, 8:53 PM 3 min 17° 10° above N 17° above NE

**Hubble Space Telescope** appears in the evenings, from April 2-10 with brightest magnitude of +3.7 visible when it passes directly overhead on April 3<sup>rd</sup>. See this link for [specific times and routes for both](#).

**Comet C/2017 E4 Lovejoy.** [Comet Lovejoy](#) has brightened up +7<sup>th</sup> magnitude over the last few weeks. It is visible in the [pre-dawn through April](#) in North America. See it before the next full moon (11<sup>th</sup>) as it may not last.

## Southwest Florida Astronomical Society, Inc. Event Schedule 2017

<b>Date</b>	<b>Event</b>	<b>Location</b>	<b>Time/Note</b>
April 6 <sup>th</sup> , 2017	Monthly Meeting	Calusa Nature Center & Planetarium	7:30pm
April 7 <sup>th</sup> , 2017	Public Observing	Moore Observatory FSW, Punta Gorda	Dusk
April 15 <sup>th</sup> , 2017	Solar Observing	Ponce DeLeon Park Punta Gorda	9am-12noon
April 22 <sup>nd</sup> , 2017	Monthly Star Party	Seahawk Park Cape Coral	Dusk
May 4 <sup>th</sup> , 2017	Monthly Meeting	Calusa Nature Center & Planetarium	7:30pm
May 5 <sup>th</sup> , 2017	Public Observing	Moore Observatory FSW, Punta Gorda	Dusk
May 20 <sup>th</sup> , 2017	Solar Observing	Harbour Heights Park Port Charlotte	9am-12noon
May 27 <sup>th</sup> , 2017	Monthly Star Party	Caloosahatchee Regional Park	Dusk (Arrive before gate closes, park fee)
June 1st, 2017	Monthly Meeting	Calusa Nature Center & Planetarium	7:30pm
June 2 <sup>nd</sup> , 2017	Public Observing	Moore Observatory FSW, Punta Gorda	Dusk
June 24 <sup>th</sup> , 2017	Monthly Star Party	Seahawk Park Cape Coral	Dusk
July 6 <sup>th</sup> , 2017	Monthly Meeting	Calusa Nature Center & Planetarium	7:30pm
July 22 <sup>nd</sup> , 2017	Monthly Star Party	Seahawk Park Cape Coral	Dusk
August 3 <sup>rd</sup> , 2017	Monthly Meeting	Calusa Nature Center & Planetarium	7:30pm
Aug 19 <sup>th</sup> , 2017	Monthly Star Party	Seahawk Park Cape Coral	Dusk
Aug 21 <sup>st</sup> , 2017	Solar Eclipse	Across America	
Sept 7 <sup>th</sup> , 2017	Monthly Meeting	Calusa Nature Center & Planetarium	7:30pm
Sept 23 <sup>rd</sup> , 2017	Monthly Star Party	Seahawk Park Cape Coral	Dusk
Oct 15 <sup>th</sup> , 2017	Ding Darling Days	Ding Darling National Wildlife Refuge - Sanibel	Solar Observing/Displays
Oct 21 <sup>st</sup> , 2017	Monthly Star Party	Caloosahatchee Regional Park	Dusk (Arrive before gate closes, park fee)
Nov 18 <sup>th</sup> , 2017	Monthly Star Party	Seahawk Park Cape Coral	Dusk
Dec 16 <sup>th</sup> , 2017	Monthly Star Party	Caloosahatchee Regional Park	Dusk (Arrive before gate closes, park fee)

***All events are Weather Permitting. If it is cloudy, we may not setup at all. There may be no way to provide advance notice of cancellation.***

**Monthly Star Parties:** These are held at either Caloosahatchee Regional Park (CRP) off SR78 7 miles east of SR31 or at Seahawk Park in Cape Coral. Other than park fees noted, these are free and open to the public.

**CRP** has a gate that closes at dusk, you can check the county's website for current gate closing times and the status of the park's Northside entrance as that is where we observe from. (They may close the area if there are issues with the trails.) There is a parking fee of \$1/hr or \$5/day at CRP. Park in the main Northside parking lot. We sometimes setup down the dirt road that goes to the east. That area is grassy and may not be level, so one should walk on the dirt road as much as possible and watch their step. They have added new dirt mountain bike ramps at the start of the road.

**Seahawk Park** is in North Cape Coral off Wilmington Blvd. (Nelson Rd or Chiquita Blvd are the nearest cross streets.) There is a brown sign in the center median at the entrance to the park. (GPS may not get you to the park, as some of the local roads have been closed.) You will make a big J hook before getting to the parking area. Seahawk Park is utilized by the Radio Controlled Planes and they have priority. They are usually done by sunset but may be there before sunrise. Park in the lot and transport your equipment to the concrete staging area before the runway. This park is handicap capable as there is level concrete leading from parking to the staging area.

**Big Cypress:** The Big Cypress Visitor Center is located off US41 5 miles east of SR29 about 25 miles east of Naples. Big Cypress has earned a Dark Sky Park designation. They hold observing events down the road that extends south of the Visitor Center during the winter months. This is a real dark sky site. Their observing events are free. After the fires of March, it has been decided the site will be closed till the fall season.

**Solar Events:** We have daytime solar events where one can safely look at the Sun. Things such as sunspots and prominences may be visible. These are free unless tied to another event that may have an entrance fee.

**Rotary Park Star Party:** This is a free public star party held at Rotary Park at the south end of Pelican Blvd in South Cape Coral. Park to the west of the main building and walk to where we are setup to the east of the main building. If the weather is bad, we will try again the next night.

**Moore Observatory, FSW Punta Gorda Campus:** The campus is located off Airport Rd just east of I-75. Go to the right around the lake and park. The observatory is located down the path along the lake. Besides the telescope in the observatory, additional scopes may be setup around the observatory. This is a free event.

**Star Party Etiquette:** Bright white flashlights are not welcome. We use red flashlights to preserve our night vision. At the parks, please use just your parking lights if possible. As there may be cords and tripod legs that are hard to see in the dark, we ask that all children be well behaved and cautious around the telescopes. If you need help in moving around in the dark, just ask. Someone will be happy to guide you with a red light. If you have a telescope and need help with it, just ask. Someone will be glad to show you how to use it.

**Golden Rules to Telescope Observing:** Move your eye to the telescope, don't try to move the telescope to your eye! Ladders/chairs are there for your support, the telescopes do not provide support and should not be touched.

## **Minutes of the Southwest Florida Astronomical Society – March 2, 2016**

The regular monthly business meeting of the Southwest Florida Astronomical Society was called to order at 7:34 pm by president Brian Risley in the Calusa Nature Center Planetarium. Forty-four people were present, including four new members and visitors. Members were reminded that annual dues are now due. Because of some problems with records at Wells Fargo, it was recommended that the Club change to Suncoast Credit Union for our bank. Stephen Berni made a motion, seconded by Elizabeth Chong, to approve the recommendation. The motion passed on a voice vote. This will occur after tax season. A donation from the proceeds of the sale of Bob Gossen's equipment in the amount of \$100 was announced. Also there was a \$125 donation from Tom Segur from managing the sale of the equipment from an estate. Several requests for school programs were discussed. Brian Risley suggested getting a glass solar filter for the Nexstar 6 Telescope. Bruce Dissette made a motion, seconded by Jean Pilon, to approve Brian spending up to \$150 to obtain a filter. Phil Jansen donated an eight inch glass solar filter. When using the Cape Coral Seahawk Park at night, get advance permission from the Cape Coral Parks and Recreation Department in case your presence is questioned. A letter granting us general permission to use the park is available at club meetings. The past events listed in the printed agenda were reviewed. Upcoming events listed on the printed agenda were discussed. Joe Senich made a motion, seconded by Jean Pilon, to approve the minutes of the February 2 meeting as e-mailed to the membership. The motion carried on a voice vote. Treasurer Tim Barrier reported a February ending balance of \$2116.46. Ray Wolf made a motion, seconded by Joe Senich, to approve the report. The motion passed on a voice vote. We were reminded that Lee County expects each vehicle to pay for parking at Caloosahatchee Regional Park events. Equipment Coordinator Brian Risley stated that more scopes are available for loan now that public events are less frequent. Contact Brian. Website Coordinator Bill Francis announced that the newsletters are available on the website. Anyone interested in participating in one of the Astronomical League observing programs, or with other questions, should contact our AL Coordinator, John MacLean. A discussion was held regarding the August solar eclipse. Is the club going to buy and/or make available for sale eclipse related items. Brian will check into the bulk prices for eclipse viewers. Also, the Planetarium will have them available for sale. There was a free raffle for a telescope provided by Tom Segur from the estate sale equipment. Bruce Dissette won. The business meeting was adjourned at 8:28pm. The program was videos from the Great Courses series on the Andromeda Galaxy and the Pleiades.

submitted by Don Palmer, secretary

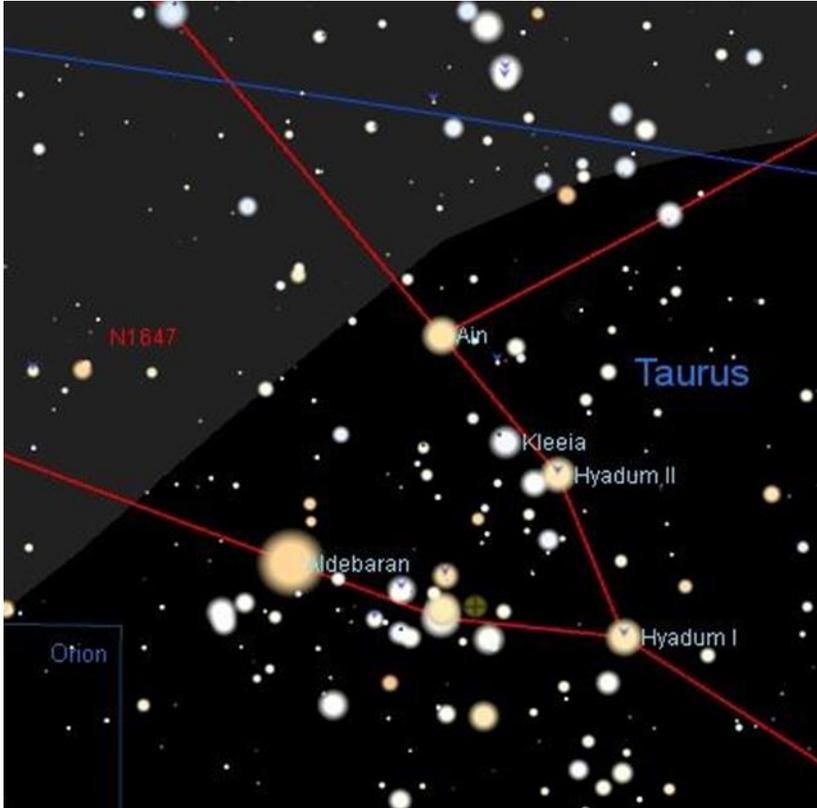
### **Annual Dues**

It is Annual Dues time again. Dues are \$20.00 and can be paid at the meeting or mailed to SWFAS, Inc. PO Box 100127 Cape Coral, FL 33910. If you have any question about whether you have paid for 2017, contact me or Tim Barrier.

# Shallow Sky Object of the Month: Aldebaran – the eye of the bull

By Bill Pellerin, Houston Astronomical Society

**Object:** Aldebaran (SAO 94027)



**Class:** Orange giant star

**Constellation:** Taurus

**Magnitude:** .87

**R.A.:** 04 h, 35 m, 55 s

**Dec:** 16° 30' 30"

**Size/Spectral:** K5 (4100k temperature)

**Distance:** 65 ly

**Optics needed:** Unaided eye

When you see the constellation Taurus and the nearby and popular constellation of Orion you know it's winter. Well winter officially began at 10:44 a.m. (UT) on December 21. Those of us who live in the southern United States are now having days of cool temperatures and days of warm temperatures while the weather figures out what season it wants to be. Northerners are, according to news reports, having quite cold weather and some snow.

If it's too cold for you to get outside and set up your telescope for an extended observing session there are still plenty of objects to admire with a quick visit to the backyard. The object this month is a very bright star, obvious to the unaided eye in the constellation Taurus. Aldebaran, a K star, stands out for both its brightness and its color, a bright orange / red that's not duplicated by any nearby stars. To see a redder star, look to Betelgeuse, which is a M class star.

So, what are we looking at here? Aldebaran is slightly variable, from .75 magnitude to .95 magnitude, but this change in magnitude is not easily visible to anyone making visual observations. A photometric observer could detect this change, but a quick check of the AAVSO (American Association of Variable Star Observers) finds no data for this star submitted.

Aldebaran is close enough to the ecliptic that there are times when the Moon occults (moves in front of) the star. It would also be true that the Sun can occult the star, but it would be impossible to observe this occultation for obvious reasons. There's an occultation of Aldebaran on March 4, 2017 beginning at 7:53:22.9 **Central** time and ending on March 5, at 00:04:50.5 Central time. For this occultation, the Moon will be at first quarter. This is a long duration occultation because the star goes almost directly behind the moon.

Usually, when a star is occulted by the Moon it simply winks out. It's there one instant and in the next instant it's not there. Aldebaran is .02 arc-seconds on the sky and has been reported by observers to not wink out in the same way that other stars do, perhaps taking as much as .02 seconds to disappear. Can you see this?

In the finder chart associated with this article, note that the ecliptic (blue line) is north of Aldebaran. As we all know, the Moon's path through the sky is close to, but not on the ecliptic.

What else can we see while we're waiting for the occultation? When we observe Aldebaran with binoculars or a wide field telescope we're looking into the Hyades cluster, considered by some to be the 'sister' cluster to the nearby Pleiades cluster. Aldebaran is not a member of the Hyades cluster, however. The cluster is about twice as far from us as is Aldebaran. It's very pretty to see this cluster on a dark night.

Our understanding of stellar evolution tells us that Aldebaran has evolved and is no longer on the main sequence, the mid-life of stars. This means that hydrogen burning is no longer taking place at the core of the star, and helium is now powering the star. A hydrogen shell is still burning at an outer layer of the star, however.

Whether Aldebaran is the host star for a planet, or a planetary system, is still under discussion. Some wobble has been detected in the star, and this wobble could be associated with the tug of a planet, but it is also believed that that some of this wobble may be intrinsic to the star going through the transition from a main sequence star to a red giant.

**This article is provided by NASA Space Place.**

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## **What It's Like on a TRAPPIST-1 Planet**

By Marcus Woo

With seven Earth-sized planets that could harbor liquid water on their rocky, solid surfaces, the TRAPPIST-1 planetary system might feel familiar. Yet the system, recently studied by NASA's Spitzer Space Telescope, is unmistakably alien: compact enough to fit inside Mercury's orbit, and surrounds an ultra-cool dwarf star—not much bigger than Jupiter and much cooler than the sun.

If you stood on one of these worlds, the sky overhead would look quite different from our own. Depending on which planet you're on, the star would appear several times bigger than the sun. You would feel its warmth, but because it shines stronger in the infrared, it would appear disproportionately dim.

"It would be a sort of an orangish-salmon color—basically close to the color of a low-wattage light bulb," says Robert Hurt, a visualization scientist for Caltech/IPAC, a NASA partner. Due to the lack of blue light from the star, the sky would be bathed in a pastel, orange hue.

But that's only if you're on the light side of the planet. Because the worlds are so close to their star, they're tidally locked so that the same side faces the star at all times, like how the Man on the Moon always watches Earth. If you're on the planet's dark side, you'd be enveloped in perpetual darkness—maybe a good thing if you're an avid stargazer.

If you're on some of the farther planets, though, the dark side might be too cold to survive. But on some of the inner planets, the dark side may be the only comfortable place, as the light side might be inhospitably hot.

On any of the middle planets, the light side would offer a dramatic view of the inner planets as crescents, appearing even bigger than the moon on closest approach. The planets only take a few days to orbit TRAPPIST-1, so from most planets, you can enjoy eclipses multiple times a week (they'd be more like transits, though, since they wouldn't cover the whole star).

Looking away from the star on the dark side, you would see the outer-most planets in their full illuminated glory. They would be so close—only a few times the Earth-moon distance—that you could see continents, clouds, and other surface features.

The constellations in the background would appear as if someone had bumped into them, jostling the stars—a perspective skewed by the 40-light-years between TRAPPIST-1 and Earth. Orion's belt is no longer aligned. One of his shoulders is lowered.

And, with the help of binoculars, you might even spot the sun as an inconspicuous yellow star: far, faint, but familiar.

Want to teach kids about exoplanets? Go to the NASA Space Place and see our video called, "Searching for other planets like ours": <https://spaceplace.nasa.gov/exoplanet-snap/>



*This artist's concept allows us to imagine what it would be like to stand on the surface of the exoplanet TRAPPIST-1f, located in the TRAPPIST-1 system in the constellation Aquarius. Credit: NASA/JPL-Caltech/T. Pyle (IPAC)*

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