



Monthly Notices of the Everglades Astronomical Society



Naples, FL
March 2015

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President's Message

Welcome to March and the "Spring ahead" time change. Although this dampens the early observing, it gives us a bit more time before dark to set up for evening events and to observe Jupiter which is well placed in the early evening sky. Two of the recent events the were cancelled by weather that will be affected by the time change were "FOLKS" at Lovers Key State Park beach viewing and at Koreshan Park for the campers. I'm looking forward to both of these events which will be rescheduled according to their organizers and will keep everyone informed of new dates. Also our friends at the Golisano Children's Museum and the YMCA have reached out to partner with them on teaching young children about astronomy. We will have further details available at the March meeting and discuss volunteering.

I think most of us that went to the Winter Star Party had a great time and did get some great observing despite weather issues throughout the week. Early in the week a record cold front pushed all the way down past the Marathon area creating a stormy night followed by cooler and windy conditions for most of the remaining week. We still got to enjoy the Keys and mingling with fellow astronomers, most of which were fleeing "really cold" northern temps. Please see the excellent article and photos in the newsletter about this event. We will also have a presentation on the WSP at a future meeting.

As always check our calendar for other upcoming events and consider helping. Special thanks to our members for sharing their images and articles used in the newsletter and to Jackie for her time researching, editing and assembling the newsletter.

Clear Skies, Todd Strackbein

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
March 14	1:39 a.m.	1:48 p.m.
March 21	7:22 a.m.	7:17 p.m.

Sky Events

March 5 - Full moon
March 13 - Last quarter
March 20 - New Moon
March 27 - First Quarter
March 3, 9,
19, 21 & 26 - Single Transits of Jupiter

Next Meeting

March 10, 2015: Time 7:00 – 9:00 pm
Norris Center, Cambier Park

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31st Winter Star Party-February 16-22, 2015 By Mary Ann Wallace

Approximately a five-hour drive or 235 miles from Naples to Scout Key (MM34.5) was the site of the WSP 2015 organized by the Southern Cross Astronomical Society and assisted by



Southern Cross. Photo by Rick Piper. WSP 2015.

many volunteers from other clubs. Todd Strackbein, EAS President, put in many man hours of labor helping them set up. See photos # 63, 78, 89 of Todd: <http://scas.org/winter-star-party/2015-wsp-photo-albums/2015-winter-star-party/>. Club members in attendance this year were Armando Merlo, Todd Strackbein, Lou Tancredi, Bob Gurnitz, Bob Francis, Charlie Paul, Eric Uthus, Mike Usher, Rick Piper, Jackie Richards and me, along with family members.



Photo by Eric Uthus. WSP 2015.

Wind and cool temperatures characterized WSP 2015 with a huge thunderstorm with lightning on Wednesday evening that left some with leaking tents and others with their dobs or tripods knocked over by the wind. We were dressed in double and triple layers, ski jackets, gloves, earmuffs and hats. We're in the Florida Keys? Someone's smartphone weather app predicted the storm would hit us between 11 pm and midnight. My watch read 11:33 pm when I awoke to the sound of rain and wind against my tent. In preparation, I had removed my 5" refractor and 6" SCT from the mounts and put them inside my car, leaving only the heavy 9.25" SCT covered with a thick plastic drop cloth and wrapped tightly with bungee cords. The thatched roofs of the chickee huts leaked, eaten away in places by the resident lizards searching for insects; and tarps were blown off the roofs by the wind. The rain poured in through the screened, uncovered chickee hut doorways. Fortunately, my small Coleman Sundome tent was on relatively high ground with a few trees around it so it wasn't as exposed as some others. None of us slept that night wondering if our tents would come out of their stakes and land on top of us with the constant thunder crashing around us, the sky lighting up from the lightening and the wind blowing at our tents. The next morning, parts of the campground were flooded and even a couple of the port-a-potties were sitting in 6" of water. See <http://scas.org/winter-star-party/2015-wsp-photo-albums/2015-wsp-monday/> photos # 10 & 11.

Monday and Thursday evenings were the best viewing times of the entire week. Windy conditions left imagers unable to do the kind of astrophotography they had hoped to do. But Monday and Thursday were worth the trip for the visual viewing. This was one year we didn't have to worry about humidity. Both of those nights I catnapped between 11-1 to catch the sky between 8-11pm and then 1:30 - 5 am for the Southern Cross, NGC 4755 (Jewel Box), and Centaurus A with its spectacular NGC 5139 (Omega Centauri) - objects viewable at really low latitudes. After seeing club member,

Armando Merlo, take a spectacular DSLR photo of NGC 3372, Eta Carinae, I aimed my scope at it. But it was a different night, timing was a bit late and although I could make out some fuzz in my scope, Armando's scope was designed with a low focal ratio. I've put viewing NGC 3372 on my list for a future WSP. Seeing Scorpius rising up in the east over the ocean with no other constellations around it at 6 am as the sky turned light blue was worth losing sleep over.

Also worth the trip was being at the PixInsight tutorial seminar led by Ron Brecher from Canada, an excellent presenter.

<http://scas.org/winter-star-party/2015-wsp-speakers/ron-brecher.html>. Ron gave a superb introduction to PixInsight. It was for beginners, but it was intense. We all had our laptops



Eta Carinae (NGC 3372) taken by Armando Merlo at the 2015 WSP. Camera: Canon 60DA; ISO: 6400; Lens: 400mm FD f/2.8 modified; Filter: Astronomik CLS; 45 seconds (unguided).

with the trial program on them and if we missed a mouse-click or went to the wrong menu item, we easily fell behind. Ron had us download three files and work with them to develop an edited photo. I commend Ron on the way he handled every single question. If anyone momentarily fell behind, all we had to do was raise our hand and he got us right back on track. You don't see this type of presenter in many tutorials. Ideally, of course, you'd have two others walking around the room, but Ron was doing this as a non-paid volunteer and there were few others available to volunteer who had that type of PixInsight knowledge. The tutorial was only two hours, but it gave us a good introduction as to how PixInsight works. As a result, I think it'll be a few years before I reach that stage, and I have the highest admiration for those doing astrophotography and using software programs to process the photos.

But speaking of imaging, you might want to check out the photos that were submitted for the WSP's annual astrophotography contest, although conditions weren't that good. <http://scas.org/winter-star-party/astrophoto-contest/deep-sky-contest-entries/>

I had a few goals at the WSP and accomplished them. I wanted to use all of my scopes to make comparisons. I wanted to concentrate on viewing southern constellations Crux and Centaurus. Explore Scientific was at the WSP and they were able to adjust the Crayford focuser on my ED 127 as

well as fix the looseness in my Twilight I mount, problems that had existed for some time. They donated the grand door prize - an ED carbon fiber 102 on a Twilight I mount. Celestron also donated a door prize - a lucky lady from NC won an 8" Evolution. My AVX with the StarSense Accessory (SSA) was right on target, so much so that I put the refractor on it. I didn't have an SSA on the Evolution and got frustrated over the time it took me to do a good alignment.



Horse Head and Flame Nebulas. Photo by Armando Merlo. WSP 2015. Camera: 60DA; ISO: 6400; Lens: 400 mm FD f/2.8 modified; Filter: Astronomik Ha; 2 minutes (unguided).

I decided to take the Celestron StarSense Accessory off the AVX and put it on the Evolution and use that as my main scope. The Evolution was spot on with the StarSense. As a result, I'm biting the bullet and investing in a second SSA just to make my life a lot easier. I am the worse when it comes to using a hand control to center a star - the right star. I've been known to center a star only to have it be the wrong one. If I want to spend my time visually looking at objects and studying them, I need accessories such as the SSA. Life is short.

There was no Internet access at the WSP as there had been in previous years. Last year we also didn't have it, but it was because the vendor who graciously supplied the WSP with Wi-Fi each year had his truck break down on the way to the WSP. This year, it was sadly another story. We were told he was busily working at a task a month or so ago, fell asleep and didn't wake up. I'm sorry I didn't write down his name to more properly convey in this report the WSP's appreciation of his past generosity. It appears that with the popularity of smartphones, everyone may be on their own as far as Internet access at the WSP. I don't have a smartphone and didn't feel like going to the local library, so I was without access for a week. The e-mails sure piled up!

Doorprize winners from the EAS this year were Eric Uthus (*Observing and Photographing the Solar System* by Dobbins, Parker and Capen, *Binocular Astronomy 2nd Ed.* by Crossen and Tirion, and *The Year-Round Messier Marathon* by Pennington) and Jackie Richards (Olivon 2-inch, 32 mm 70 degree eyepiece).

Next year's WSP is from February 8 - 14, 2016.

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More WSP 2015 Pictures



Southern Cross. Photo by Jackie Richards. WSP 2015.



EAS President, Todd Strackbein. Photo by Mike Usher. WSP 2015.



Scout Key. WSP 2015. Photo by Todd Strackbein.



Newsletter Editor, Jackie Richards. Photo by Mike Usher. WSP 2015.



Winner of Telescope. Photo by Lou Tancredi. WSP 2015.

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The heavyweight champion of the Cosmos

By Dr. Ethan Siegel

As crazy as it once seemed, we once assumed that the Earth was the largest thing in all the universe. 2,500 years ago, the

Greek philosopher Anaxagoras was ridiculed for suggesting that the Sun might be even larger than the Peloponnesus peninsula, about 16% of modern-day Greece. Today, we know that planets are dwarfed by stars, which themselves are bound together by the billions or even trillions into galaxies.

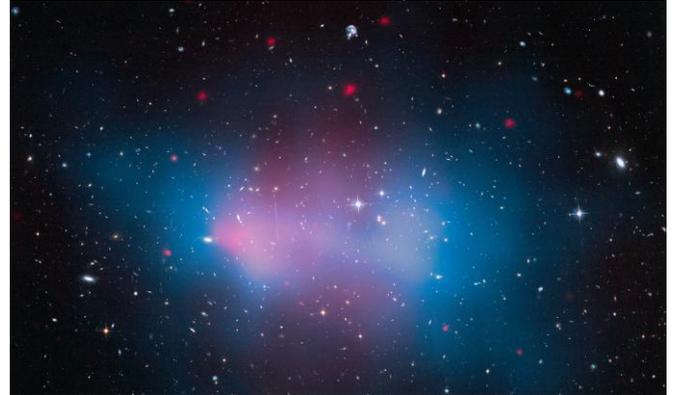


Image credit: NASA, ESA, J. Jee (UC Davis), J. Hughes (Rutgers U.), F. Menanteau (Rutgers U. and UIUC), C. Sifon (Leiden Observatory), R. Mandelbum (Carnegie Mellon U.), L. Barrientos (Universidad Catolica de Chile), and K. Ng (UC Davis). X-rays are shown in pink from Chandra; the overall matter density is shown in blue, from lensing derived from the Hubble space telescope. 10 billion light-years distant, El Gordo is the most massive galaxy cluster ever found.

But gravitationally bound structures extend far beyond galaxies, which themselves can bind together into massive clusters across the cosmos. While dark energy may be driving most galaxy clusters apart from one another, preventing our local group from falling into the Virgo Cluster, for example, on occasion, huge galaxy clusters can merge, forming the largest gravitationally bound structures in the universe.

Take the "El Gordo" galaxy cluster, catalogued as ACT-CL J0102-4915. It's the largest known galaxy cluster in the distant universe. A galaxy like the Milky Way might contain a few hundred billion stars and up to just over a trillion (10^{12}) solar masses worth of matter, the El Gordo cluster has an estimated mass of 3×10^{15} solar masses, or 3,000 times as much as our own galaxy! The way we've figured this out is fascinating. By seeing how the shapes of background galaxies are distorted into more elliptical-than-average shapes along a particular set of axes, we can reconstruct how much mass is present in the cluster: a phenomenon known as weak gravitational lensing.

That reconstruction is shown in blue, but doesn't match up with where the X-rays are, which are shown in pink! This is because, when galaxy clusters collide, the neutral gas inside heats up to emit X-rays, but the individual galaxies (mostly) and dark matter (completely) pass through one another, resulting in a displacement of the cluster's mass from its center. This has been observed before in objects like the Bullet Cluster, but El Gordo is much younger and farther away. At 10 billion light-years distant, the light reaching us now was emitted more than 7 billion years ago, when the universe was less than half its present age.

It's a good thing, too, because about 6 billion years ago, the universe began accelerating, meaning that El Gordo just might be the largest cosmic heavyweight of all. There's still more universe left to explore, but for right now, this is the heavyweight champion of the distant universe!

Learn more about "El Gordo" here:
<http://www.nasa.gov/press/2014/april/nasa-hubble-team-finds-monster-el-gordo-galaxy-cluster-bigger-than-thought/>

El Gordo is certainly huge, but what about really tiny galaxies? Kids can learn about satellite galaxies at NASA's Space Place <http://spaceplace.nasa.gov/satellite-galaxies/>.

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Items For Sale or Trade or Wanted:

http://www.naples.net/clubs/eas/equipment_sales.html

Useful links (software, telescope making, telescope and equipment suppliers, astronomical data sources, iPhone and iPad Apps and more):

<http://www.naples.net/clubs/eas/links.html>

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EAS 2015 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 1868, Marco Island, Florida, 34146.

Name:

Address:

Phone:

Email:
