



# Monthly Notices of the Everglades Astronomical Society



Naples, FL  
February 2015

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## President's Message

We are less than a week away from the annual Winter Star Party (WSP) held in the Florida Keys from Feb. 16<sup>th</sup> through Feb. 22<sup>nd</sup> and that's about all I can think about now. Several of the club members will be making this year's event. I was told there is still plenty of room for those last-minute participants. If I can help with any questions about the WSP please let me know. It is an event to remember.

Our last big event was the Collier Schools "Super Science Saturday" daytime event on Jan 31<sup>st</sup>. We got to show some spectacular live views of the Sun to a large group of various ages outside the North Collier Regional Park Exhibit Hall. Jackie has included more about the event and pictures in this newsletter. Check our calendar for other upcoming events and consider helping if needed.

Also be sure to look at the beautiful image Chuck captured of comet Lovejoy. As always thanks to our members for sharing their images for the newsletter.

Clear Skies (and warmer nights for WSP),  
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
February 14	2:54 a.m.	2:03 p.m.
February 21	8:49 a.m.	9:35 p.m.

## Sky Events

February 3 - Full moon  
February 11 - Last quarter  
February 18 - New Moon  
February 25 - First Quarter

## Next Meeting

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

## EAS VOLUNTEERING By Jackie Richards

It's been another busy season for club members that have been volunteering their time and telescopes at the many events in Collier County. Club members Todd Strackbein, Charlie Paul, Rick Piper, Mike Usher, Denise Sabatini, Bob Francis and I represented the EAS on Saturday, January 31<sup>st</sup>, at Collier County's Super Science Saturday featuring science fair projects at the North Collier Regional Park with hydrogen alpha and white filter telescopes. The public is always amazed at what they see in these scopes and handheld sun-viewing



Photo by Todd Strackbein (1/31/15). Club members Denise Sabatini and Rick Piper educating the public about astronomy. Kid, oblivious to everything but the sun.

devices. Rick Piper was interviewed by Fox 4 News at this event and the news clip aired Saturday night on the 10:00 news during which he spoke about educating kids with astronomy and the importance of preserving dark skies.



Photo by Todd Strackbein (1/31/15). Club Member Rick Piper being interviewed by Fox 4 News.

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## BIG CYPRESS PRESERVE

### By Mary Ann Wallace

Over 80 observers showed up at Big Cypress Preserve on Friday, January 23<sup>rd</sup>, for the 7:00 p.m. large-screen PowerPoint presentation by Luke Gommermann and viewing through telescopes afterwards. Mike Usher and I were there from the EAS, as well as members from the Southern Florida Amateur Astronomers Association (“SFAAA”).

There were low clouds early in the evening, but by 8:00, when Luke’s presentation had finished, skies were clear to show a good sampling of the sky (Crescent Moon, M31, M42, M45, star clusters and Comet Lovejoy. Luke had spent some time on talking about M31 (the Andromeda galaxy) in his presentation, so when the crowd approached the telescopes, they all wanted to see Andromeda. It was viewable, but we did not have the best atmospheric conditions for galaxies. M42 (the Orion Nebula) was much better for viewing. Mike was a whiz in pointing his Dob straight up and getting Comet Lovejoy almost instantaneously. With the help of right ascension and declination coordinates, I was able to get my Evolution 9.25” on Comet Lovejoy; it tracked nicely for public viewing while the others showed additional objects. By 9:15 p.m. most of the public had left, so we had a chance to play around some more in the sky before packing up to leave.

I and others from SFAAA had a chance to talk with Luke about his February scheduling and the timing of the Winter Star Party. Since Luke does not plan his schedule until October, he will, in the future, get the date of the WSP to avoid it since he is now aware that both EAS and SFAAA members most likely will not be able to send anyone for his February showing if it scheduled the same time as the WSP.

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## Fak and Other Photos



Comet Lovejoy taken by Chuck Pavlick on 1/16/15 in Cape Coral.



Orion Wide Field taken by Chuck Pavlick at the Fak; scope: Canon 24-105 lens @ 50 mm; Camera: Hap Griffin Modified; Mount: AP Mach 1 w/Orion autoguider; 11 @ 420 seconds; ISO: 800; captured in Nebulosity; processed in PinInsight.



## Minor mergers have massive consequences for black holes

By Dr. Ethan Siegel

When you think of our sun, the nearest star to our world, you think of an isolated entity, with more than four light years separating it from its next nearest neighbor. But it wasn't always so: billions of years ago, when our sun was first created, it very likely formed in concert with thousands of other stars, when a giant molecular cloud containing perhaps a million times the mass of our solar system collapsed. While the vast majority of stars that the universe forms—some ninety-five percent—are the mass of our sun or smaller, a rare but significant fraction are ultra-massive, containing tens or even hundreds of times the mass our star contains. When these stars run out of fuel in their cores, they explode in a fantastic Type II supernova, where the star's core collapses. In the most massive cases, this forms a black hole.

Over time, many generations of stars—and hence, many black holes—form, with the majority eventually migrating towards the centers of their host galaxies and merging together. Our own galaxy, the Milky Way, houses a supermassive black hole that weighs in at about four million solar masses, while our big sister, Andromeda, has one nearly twenty times as massive. But even relatively isolated galaxies didn't simply form from the monolithic collapse of an isolated clump of matter, but by hierarchical mergers of smaller galaxies over tremendous timescales. If galaxies with large amounts of stars all have black holes at their centers, then we should be able to see some fraction of Milky Way-sized galaxies with not just one, but *multiple* supermassive black holes at their center!

It was only in the early 2000s that NASA's Chandra X-ray Observatory was able to find the first binary supermassive black hole in a galaxy, and that was in an ultra-luminous galaxy with a double core. Many other examples were discovered since, but for a decade they were all in ultra-massive, active galaxies. That all changed in 2011, with the discovery of two active, massive black holes at the center of the regular spiral galaxy NGC 3393, a galaxy that must have undergone only minor mergers no less than a billion years ago, where the black hole pair is separated by only 490 light years! It's only in the cores of active, X-ray emitting galaxies that we can detect binary black holes like this. Examples like NGC 3393 and IC 4970 are not only confirming our picture of galaxy growth and formation, but are teaching us that supermassive relics from ancient, minor mergers might persist as standalone entities for longer than we ever thought!

*Check out some cool images and artist reconstructions of black holes from Chandra:*  
<http://chandra.harvard.edu/photo/category/blackholes.html>

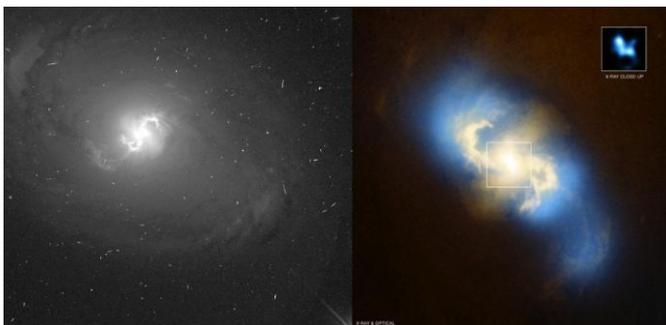
*Kids can learn all about Black Holes from this cool animation at NASA's Space Place:*  
<http://spaceplace.nasa.gov/black-holes>.

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**Items For Sale or Trade or Wanted:**  
[http://www.naples.net/clubs/eas/equipment\\_sales.html](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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NGC 3393 in the optical (L) by M. Malkan (UCLA), HST, NASA (L); NGC 3393 in the X-ray and optical (R), composite by NASA / CXC / SAO / G. Fabbiano *et al.* (X-ray) and NASA/STScI (optical).

## 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:

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Address:

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