



# SPACE

St. Petersburg Astronomy Club **Examiner**

July 2024

Editor – Guy Earle

The St. Petersburg Astronomy Club has been the center of family astronomy in the Tampa Bay Area since 1927. Our 375 adult members are dedicated to promoting and sharing the wonders and science of astronomy. We host a dark-sky star party each New Moon at Withlacoochee River Park, along with local star parties, telescope-making workshops, science lectures, astronomy lectures, educational outreach sessions and much more.

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## The Crescent Nebula in Hydrogen, Oxygen and RGB stars by **Steven Miller**



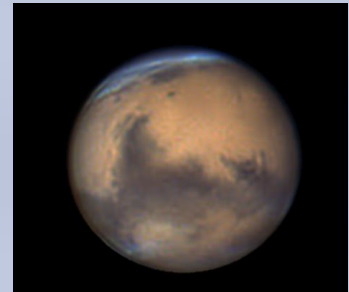
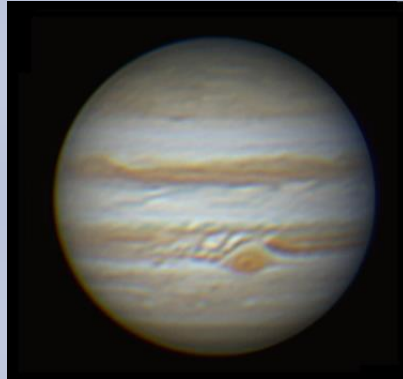
## August Preview

Your Editor–VP will be returning for an encore performance at the August general meeting, talking about the upcoming planetary season. We'll look ahead to Saturn's rings going edge-on, and both Jupiter and Mars' oppositions over the winter, with the Red Planet's biannual close approach at the start of 2025.

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### General Meeting Synopsis

Moving forward, this portion of the page will be used to give everyone a brief synopsis of the upcoming General Meeting each month, thereby providing some information on the topic or activity that we have planned.



Julius Caesar is ancient Rome's most famous historical figure. His life was as spectacular as his death, assassinated by a group of Roman senators on March 15th, 44 B.C. From his family line came the rulers of the emerging Roman Empire, with his adopted son, Octavian, becoming Rome's first emperor. The July presentation will be an examination of Caesar's death and the funeral games that were held in his honor, because it was during those games in July of 44 B.C., that a bright comet appeared. Being interpreted as his soul becoming divine, an image of the comet was used as propaganda by his heir, both on a temple in Julius' honor and on coinage for many years, which will be the focus of the discussion.



## July General Meeting

This month's general meeting will take place on **Thursday, July 25<sup>th</sup>** at **7:30 PM.**

The meeting will be at **St. Petersburg College**, Gibbs Campus, 6405 5<sup>th</sup> Avenue North, Social Arts Building, **Classroom 322**, 3<sup>rd</sup> floor, and **also virtual.**

This month, the presentation will be by SPAC member, **Guy Earle**, on "**The Historical and Astronomical Significance of Caesar's Comet of 44 B.C.**"

THE HISTORICAL AND  
ASTRONOMICAL SIGNIFICANCE OF  
CAESAR'S COMET OF 44 B.C.



Join Zoom Meeting [HERE](#)

Meeting ID: 852 9687 2152

Passcode: 111992

The club's **New Moon observing weekend** will be by August 2<sup>nd</sup>-4<sup>th</sup> at [Withlacoochee River Park](#) east of Dade City.



## New SPAC Members

We would like to welcome Michael Kayat, Marianne & Ken Caldwell, and Skip & Kim Walker to our family of members.

## Examiner Staff

Editor	<a href="#">Guy Earle</a>
Space News	<a href="#">Steve Robbins</a>
Field Reporter	<a href="#">Kelly Anderson</a>
Mirror Lab	<a href="#">Ralph Craig</a>
Image Gallery	<a href="#">Peter McLean</a>
Mirror Lab	<a href="#">Mike Davis</a>
	<a href="#">Allen Maroney</a>

**\*\*\*PLEASE NOTE\*\*\***

This month's General Meeting will be in the same room, **Social Arts Room 322**, which it was for both May and June. Construction in our old classroom has delayed the move back until September. I'm attaching the map to the building; there is an elevator by the SE entrance.

**SPAC May 23<sup>rd</sup> and June 27<sup>th</sup> Meetings Temporary Location change:**  
Philip Benjamin Social Arts (SA) Bldg.  
Room 322 (third floor).  
Time: 7:30pm  
This is due to construction scheduled in the Natural Science building.

### St. Petersburg/Gibbs Campus

St. Petersburg/Gibbs Campus  
6605 Fifth Ave. N., St. Petersburg

**ST. PETERSBURG/GIBBS CAMPUS BUILDING CODES**

- AD - ADMINISTRATION  
The Administration Building is under construction and will become the new Student Success Center. The Provost office has been moved to DC 231. All other administrative departments have been moved to either the Technical Building (TE) or the Social Arts Building (SA). Please see the list of departments for each building.
- ET - ETHICS
- GM - GYMNASIUM
- HE - HUMANITIES
- LA - LANGUAGE ARTS
- LI - LIBRARY
- MA - MANTERANCE
- MC - MUSIC CENTER
- MR - MRA
- PA - PAPERWORK/Recording Arts Studio
- QED - QED Program
- RE - RECREATION TRACK
- SA - SOCIAL ARTS  
Center Services (Rm 157)  
CROP/College Reach Out Program (Rm 101)  
International Program/International Student Center (Rm 111)  
Mathematics  
Social and Behavioral Science  
Special Programs (Rm 101)  
Student Support Services (Rm 101)  
Veteran's Services (Rm 133)
- SC - SCIENCE  
WOW Woman on the Way (Rm 124)
- DC - NATURAL SCIENCE  
Planetarium  
Physical Office (Rm 231)  
Science
- GS - STUDENT SERVICES  
Baskette  
St. Petersburg Collegiate High School  
Student Life and Leadership
- TE - TECHNICAL BUILDING  
Accessibility Services (Rm 108)  
Associate Provost (Rm 120)  
Admissions and Registration (Rm 100)  
Business Office (Rm 138)  
Career and Academic Advising (Rm 100)  
College of Business  
College of Computer and Information Technology  
College of Education  
Financial Assistance (Rm 101)  
Learning Support Commons (Rm 200)  
Security (Rm 210)  
Testing (Rm 100)
- WE - WELLNESS CENTER

KEY:  
ACCESS TO DISABLED PARKING  
DISABLED ACCESSIBLE DOORS  
ELEVATOR  
BICYCLE PATH FROM THE PHILLIPS TRAIL

SPG\_B-21-17



## President's Message



I wanted to take a moment to thank our 17-year treasurer for SPAC, Jim Hunter. Jim has served in this position for what seems a lifetime and he advised the board this week that he will be stepping down. Jim is also a frequent sight at our community outreaches and at the Cracker Country exhibit held at the Florida State Fair in Tampa. Jim has been an invaluable asset to our club and will be sorely missed. When you see him, please take a moment to thank him for all he has done for us. As I mentioned last month, we will have our club elections in a few months. Jim's position will be one of the ones we need to fill for the club. If you are interested in serving in the club's leadership, please contact us and let us know.



Last month, we became aware of some disturbing developments in our astronomy community. One of my goals as president has been to reach out and network with the other clubs here in Florida. Last month, we were informed that two new proposed housing developments are slated to be built near two of the remaining premiere dark sky sites in the state. Chiefland Astronomical Village and Kissimmee Prairie Preserve State Park are now both threatened by light pollution from these new communities. Last month, leadership authored a letter to the Chiefland CAV in support of their efforts to see lighting guidelines be adopted to protect the night sky. Our own dark sky site also faces encroachment from new construction in Dade City. One of the things we need to do is to organize and get involved with the local city and county commissions. If anyone is interested in working with our club as a representative to the International Dark Sky Association (IDA), please let me know.



# SPAC New Moon Weekend Field Report June 5 – 7, 2024

By Intrepid Field Reporter

Our Intrepid Field Reporter, Kelly Anderson, was on the move and not at the July New Moon weekend. The summer is not usually one where we have many members going out, it's just too hot, too humid, and way, way too many mosquitoes. Summer observing is not for the faint-hearted. To my shock, even Joe Canzoneri wasn't in attendance, making me wonder if the apocalypse is at hand. He did point out that Rich Tobin was there and a few other SPAC members. I have to admit, if the weather was a bit better, it was iffy at best, I would have gone up with my Seestar and Dwarf to do some imaging. Normally, the summertime is imaging the planets and Moon from home, rolling the scope out of the garage but still getting soaking wet in the process, no matter how brief the session. Taking the small scopes, I can set them up in mere moments, sit back in the chair with an adult beverage and a fan blowing on high at me, keeping the mosquitoes from my skin. My wife humorously calls it "lazy astronomy," but I don't get to see the summertime sky very much because of the natural Florida climate and these little scopes change that aspect.

Rich Tobin reports that Thursday night opened up around 11:30 after not looking very promising, getting some good shots of the Dumbbell Nebula with open skies through most of the night. The heat was intense during the day but again it opened up near midnight for those intrepid enough to get back up out of bed. Saturday night was very cloudy but again a few holes, closing up early in the night.





## Cats in Space IV tickets on sale now for November 16<sup>th</sup>!

SPAC has partnered up again with **First Ladies Farm and Sanctuary** (FLFAS) for a special event called "Cats in Space." FLFAS's mission statement is: "an urban farm and animal sanctuary. We rescue cats and domestic poultry, providing love, care and a safe haven for as long as it takes to find their forever homes."

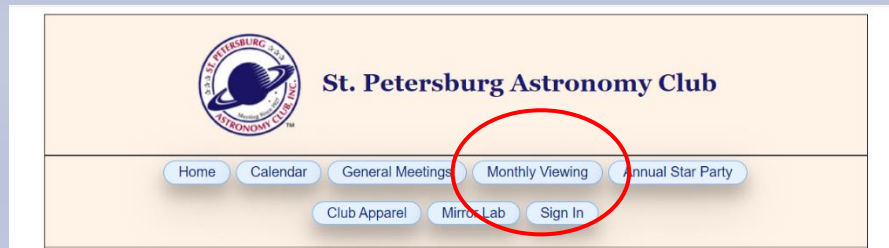
They are a wonderful rescue and for Cats in Space, a group of SPAC volunteers come out with their telescopes for an astronomy-cat adoption event that centers around an absolutely amazing charcuterie table, raffle prizes, along with beer and wine to enjoy the evening.

Starting at 6PM on November 16th on the Farm, SPAC will have a battery of scopes set up for the attendees to look through. It is a private, ticketed event, which has just gone up on Eventbrite. So, get your tickets now! There will also be a really great telescope that will be raffled to raise funds for FLFAS, which I'll post soon. You can [click on the link](#) or the QR code to go to Eventbrite:

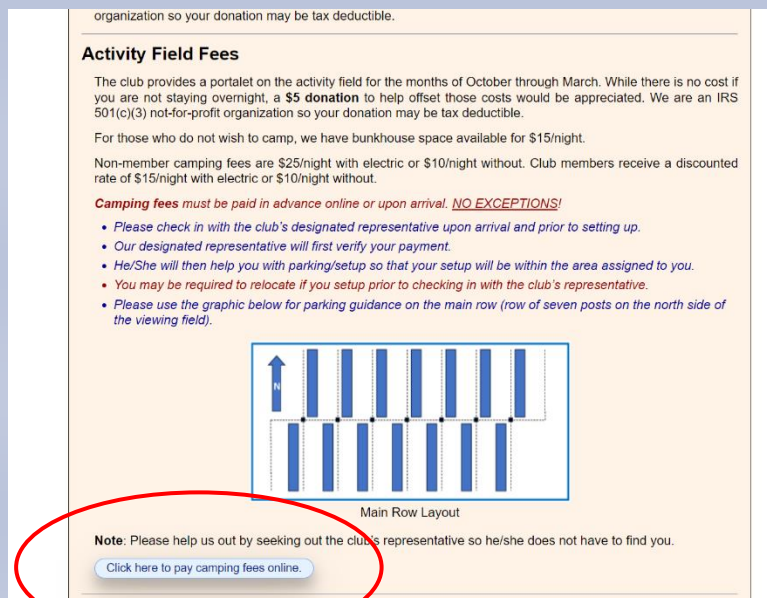


# How to Pay Observing Fees at Withlacoochee River Park

July and August are typically slow observing months at our dark sky site at Withlacoochee River Park (WRP) east of Dade City because of the heat, rain, and mosquitoes. So, I thought it was a good time to remind people that you can pay the park fees for observing. Go to our club webpage ([www.stpeteastronomyclub.org](http://www.stpeteastronomyclub.org)) and go to the Monthly Viewing link:



Once on that page, there is plenty of information about SPAC's partnership with WRP and the fees the park charges for both members and non-members. Click on the link to pay:



Once you click on the link to pay, this is the screen you see. As you fill out the options, the Paypal button pops up to pay. So, no worry about bringing cash onto the observing field.



**Camping Fees**

*Camping fees are accepted as a donation and non-refundable.*

*PayPal charges a convenience fee which will be reflected in the total cost.*

Viewing Field Camping

- Camping with electric: \$15/night.
- Camping without electric: \$10/night.

Cabin Rental \$15/night/person.

- Email [Jack.Fritz99@gmail.com](mailto:Jack.Fritz99@gmail.com) to confirm availability before paying.
- *The cabin cost is per person per night so, Two people for two nights equals four Nights.*

Item:  Nights:  Member#:

Cost: \$  Convenience Fee: \$  Total Cost: \$



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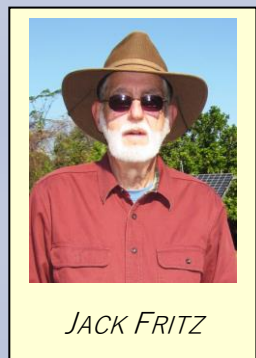
There are times when maybe you cannot spend the entire night, or if unfortunately there is an emergency, which means you have to leave the field at some point. SPAC will have the code to unlock the gate so you can leave, but if you know ahead of time that you won't be spending the night, we ask you follow the protocols for parking and leaving the field. No one wants their gear or person run over, right?

## SPAC Officer Elections

As the Director with the longest remaining service, I am assigned the chair of the nominating committee. I am asking for two volunteers to serve on the committee with me.

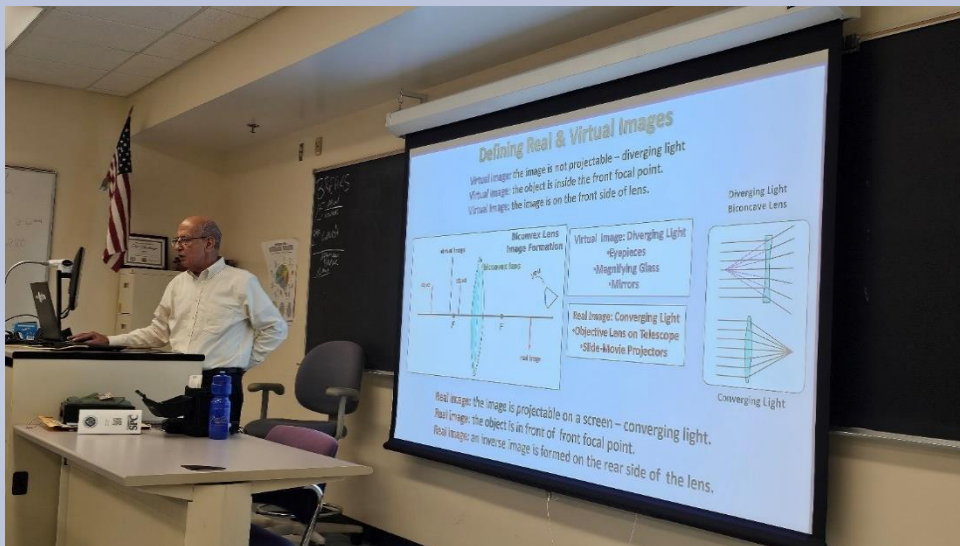
We will be nominating at least one member for each of the following positions: President, Vice President, Secretary, Treasurer, and one Director at Large. I am asking each of the current officers to confirm their intentions for seeking reelection.

If you wish to be nominated to any of those positions, please email me at [Jack.Fritz99@gmail.com](mailto:Jack.Fritz99@gmail.com). Jim Hunter, our treasurer, has already informed us that he will not seek reelection. **I am therefore asking for nominations for that position.** Please let me know if you are willing to serve.

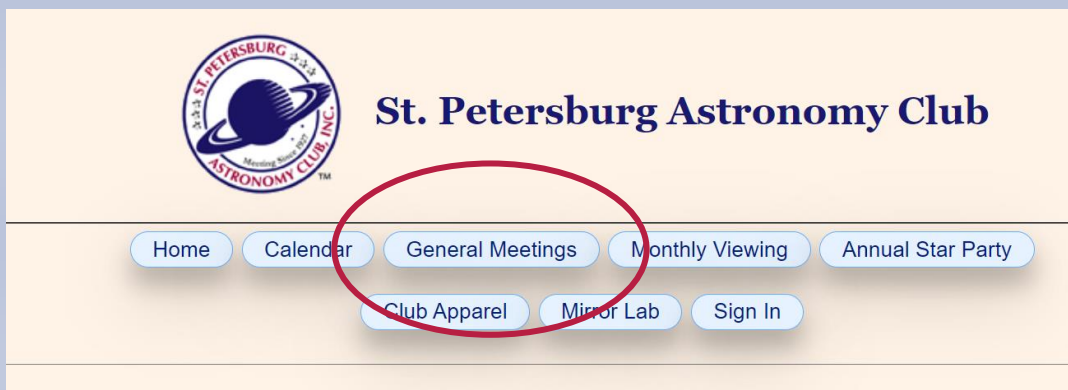


# June General Mtg., Past & Future Presentations, and Astronaut Nicole Stott

A very big thank you to **Carmen Manfredi** for taking the time to do a presentation on space telescopes and optics at our June meeting. Carmen has presented many times for SPAC, and his lectures are always informative and interesting. And thank to Carmen for planting the idea of putting these lectures on our website!



We know that there are times that you just can't make the meeting, even by Zoom, so we've **started recording the lectures and putting them on our website**, along with any PDF handout or presentation that goes with it. The tab is located on our homepage: [www.stpeteastronomyclub.org](http://www.stpeteastronomyclub.org)



After clicking on the General Meetings link on the front page, you'll be able to see the general meeting date as well as the link to each month's video and PDF. I hope this becomes a valuable resource for our membership.

## General Meetings

The table below displays links to our past general meeting presentations and videos.

ID#	Meeting Date	Video Link PDF Link
1	June 27, 2024	<a href="#">June: Lens, Light And Telescope Video</a> <a href="#">June: Lens, Light And Telescope PDF</a>

Also, looking ahead at future meetings, the SPAC admin have been working on getting general meetings lined up through the spring. After an engaging conversation with the group last meeting about the Dwarf II telescope, some of SPAC's monthly meetings will be simply dedicated to open topic discussions, such as telescope gear, upcoming observing targets, etc. Looking ahead, that will be our September meeting and also one in the spring. October's General Meeting is actually our officer election and pot luck, while December is our holiday party. Here's a breakdown of our upcoming General Meetings' topics and/or events:

As you can see from the schedule, we have an opening for April's General Meeting. If you have a topic that you'd like to share with your fellow SPAC members, please reach out to myself or Mike Partain.

- h. General Meeting:
- Scheduled:
1. August: *Guy Earle: Saturn's Rings and Mars' Early 2025 Opposition*
  2. Sept: *Open Topic Discussion*
  3. Oct: *Officer Election and Pot Luck Celebration*
  4. Nov: *Greg Shanos: The Smart Scope Revolution: Introducing the Seestar*
  5. Dec: *SPAC Christmas party*
  6. Jan 2025: *Conrad Cardano: Solar Imaging*
  7. Feb 2024: **No General Meeting/OBS star party**
  8. March: *Kelly Anderson: OBS Video and Recap*
  9. April: **OPEN**
  10. May: *Open Topic Discussion*



Lastly, but certainly not least, I'm very happy to announce that retired NASA **Astronaut and mission specialist/flight engineer Nicole Stott**, who kindly joined us in January as our guest speaker at our general meeting, has tentatively agreed to be our **main speaker on Saturday afternoon during our 2025 Orange Blossom Special star party!** We always try and have a series of lectures and workshops over the four days of the big star party, with Saturday being our keynote speaker. A great many members came out in January to hear her amazing stories, from being on the ISS to flying on space shuttles Discovery and Endeavor, and it will be great to have her join SPAC again for her talk, dinner, and an evening's observing at the telescopes.



## Should You Insulate Your Telescope?



That's actually a really interesting question and has led me to do a boatload of research and experimenting. The executive summary is; yes, if you have a SCT or MAK, no to your scope is an open tube reflector and probably don't bother insulating your collection of refractors. But if you hate waiting for your SCT or MAK to cool down and are frustrated by dew problems this process might tweak your banana.

### **COOL DOWN IS REASON ONE**

My grab and go telescope is a freaky sharp, little Celestron C5. It is compact and weighs almost nothing which makes it perfect for a quick spontaneous session under the stars. However, it takes about an hour to cool down before it can be used. So, I was excited to learn that if I insulated my scope, I could crank it up to high powers with no waiting time! Now I'm stoked.

It's only logical that you would wonder why this works. You can read the forum discussions on Cloudy Nights where thermal dynamic engineers argue which actual principle of science eliminates the cool down time. What I have learned is that when your scope is moved from the inside temperature to outside, the mirror cools down to the ambient temperature much slower than the inside of your scope tube. This causes heat plumes to ruin your view. By insulating your scope both the mirror and the inside of the OTA are closer to the same temperature which eliminates the heat plume. Once I insulated my C5, it became a true grab and go scope. When I happen to notice that the terminator of the moon is hitting the Appeninne mountains, I no longer need to wait an hour for a quick peak.

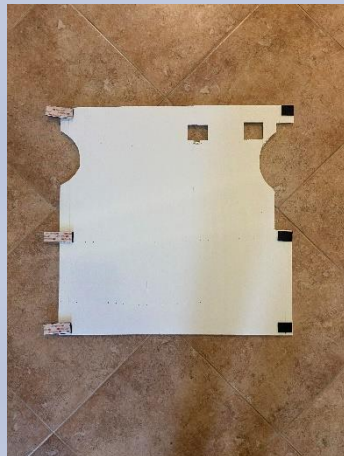
### **DEW CONTROL IS REASON TWO**

What's more annoying to a Florida astronomer than light pollution? Watching a uniform layer of moisture cover your telescope's eye to the sky. Here's another crazy extra benefit to scope insulation; huge improvement in dew control. Again, the brilliant Phd genius types on Cloudy Nights forum love to argue about the types of heat transfer and how moisture in the air behaves at a molecular level, but what they all agree on is that it really helps with dew control. Basically, when the sun is not shining, the absolute zero temperature of deep space (-460F) radiates down to earth with one goal in mind and that is to find a corrector plate on someone's telescope. Once the corrector plate drops below the ambient temperature, moisture in the air meets its heart's desire by becoming dew on the

front of your favorite telescope. By insulating your scope the inside temperature of the OTA is warmer than the outside temp by just enough to frustrate the air moisture's attempt at becoming telescope dew. I have found that for my usual 2-hour observation session, I no longer need to use dew strip heaters. There's a few bright folks out there that are using little 40mm, 12v computer fans recessed into the inside of the dew shield to keep the air moving in front of the corrector plate. This allows these people to observe all night without the use of dew heaters. No one seems to suggest that these fans don't help, but there is a lot of arguing about which laws of science are responsible for the benefit. I have not needed to add a fan to prevent dew formation on any of my SCTs during my usual 2-hour sessions.

### **EASY TO MAKE**

Most material used to insulate a scope can be extended to make a nice dew shield. Some folks use yoga mats, while many use a corrugated plastic sheet called Coreflute. Personally, I like a combination of the Coreflute and a layer of Reflectix that provides an extra insulating airspace. Both of these materials are available at Home Depot at very low costs. My photo shows that the inside of the dew shield portion also has a layer of black flocking cloth. There's not a lot of rocket science involved in making the pattern or cutting the materials, nor is it an unpleasant job. The Corelite needs to be scored with an Exacto knife every fourth cell so that it bends evenly around the tube. I use three small patches of velcro for easy on easy off.



It's generally recommended that dew shields extend 1.5 times the diameter of the OTA. However, people have used 2.0 times diameter with no sign of vignetting. The longer hood helps keep the air warmer inside the dew shield for a longer time, further preventing dew buildup. Longer shields also help with deflection of stray light.



You may have noticed that dew will form on a black telescope before a white one. So it's best not to paint your insulation shield black or any dark color. Thankfully the Coreflute comes in white.

### **DAMP PROOFING IS REASON THREE**

Have you ever had a night where your entire scope became soaking wet with dew? Imagine the moisture seeping into the cracks where your scope components come together. The thought of mold and fungus growing inside one of your favorite telescopes is sorta terrifying. If you use the plastic Coreflute you will eliminate 95% of that concern. Years ago I was out having a peek at Saturn when my neighbor's sprinkler came on and blasted my C6 scope for about 5 seconds before I could move it out of harm's way. I took the scope indoors and saw there was a little bit of moisture inside. However, at that point I had never taken apart an SCT and midnight was not a good time to learn. The next morning I researched the disassembly process and dried everything out. There was no water on the mirror, but somehow two small drops of water had camped out overnight on the inside of the corrector plate. The inside coating now had two small defects. I sold the OTA with a disclosure and a big discount. If my scope would have been sporting the Coreflex jacket, it would have remained dry inside and out.

### **EXPERIMENTAL STAGE**

I am not sure when people first started insulating their scopes, I found internet discussions going back to 2018. I would imagine that there were some lone wolfs experimenting long before that. The Hubble telescope (1990) uses 4 layers of a foil that is similar to Reflectix to slow down the rate of temperature change inside the scope.

The folks experimenting with insulating are pioneers in methods that are still being perfected. What's the best insulating material? Should the rear of the scope be insulated also? Can you avoid the use of a fan by extending the dew shield? How does insulation affect the thermodynamics of the scope when used in our Florida summer. There's a lot more experimenting and testing to be done.



While I am far from an expert in this field, I am enjoying tweaking other people's ideas and getting positive results. By eliminating cool down time and reducing dew problems, it makes allowing your scope fulfill its dreams a little bit easier. Remember that dogs need to walk, birds need to fly and telescopes need to soar!

## Dwarf II polar alignment and a cheap solar finder for the Seestar



This is becoming a constant thing, doing Dwarf announcements, but it really needs to be a “what’s new with the Seestar-Dwarf” article each month. I firmly believe that the growth of these telescopes and others like them will be the biggest revolution in this hobby since Dobsonians flooded the scene back in the 90’s.

For the Dwarf, you can follow Dwarf Labs on Facebook, and they actively monitor the responses for updates they do and suggestions. That’s almost unheard of and really impresses me. Updates to the software will of course work on the Dwarf III when it comes out and retroactively on the Dwarf II. They recently updated a sky atlas program from the Beta test app, which I’m on, to the app in general. At the moment, they’re working on an ability for it to polar align. As a side note, it seems that iOS users are having more issues that Android with Dwarf updates. They are addressing them as they pop up, but my Galaxy phone and tablet have been really stable.

For Seestar users of both operating systems, you may have noticed that while the telescope is fantastic at plate-solving star patterns for night-sky imaging, it is terrible at using the compass calibration to find the Sun and Moon. It finds it maybe 1/3 of the time, and it can be surprisingly difficult, if not hot and sweaty, to find the Sun from a phone screen. Many users have 3D printed solar finders or something, so I went all-MacGyver and used a lid from an eyepiece box. I poked a small nail hole at one end and just taped it carefully in-line with the housing. I didn’t bother calibrating or adjusting the level, I just put the Seestar down, powered up, put on the solar filter and finder, and retreated to the shade. I moved the scope until the bright white dot of the Sun was centered on the opposite side and voila, the Sun was on my screen. I hit the “it’s centered” button and the Seestar started tracking. I snapped off a few shots (on the next page) and some video, using my new K& F, ND 1,000,000 solar filter and adapter, then brought it back inside. I was out for less than 5 minutes.







# Successful Weather Balloon Launch!































The National Weather Service in Ruskin allows visitors to attend the weather balloon launch over the summer. SPAC has arranged a **tour of the facility, starting at 6:30 with the balloon launch at 7PM**. The address is **2515 14<sup>th</sup> Avenue SE in Ruskin**, and of course the launch depends on the weather. Hope to see you there, and thanks to Shirley for setting this up!



SHIRLEY VUILLE



# August Lunar Calendar

August 2024						
««	Sun	Mon	Tue	Wed	Thu	»»
					1 	2 
4 	5 	6 	7 	8 	9 	10 
11 	12 	13 	14 	15 	16 	17 
18 	19 	20 	21 	22 	23 	24 
25 	26 	27 	28 	29 	30 	31 

# SPAC Image Gallery

★ Here are some excellent astrophotography photos from our fellow SPAC membership, shot from various locations and divided into categories similar to our annual star party imaging competition. If you would like to share your work, I encourage you to [email Peter](#) your image or share them on our SPAC Facebook page.



## Deep Space (Galaxies, Star Clusters, Comets)



*M31 Andromeda Galaxy  
w/ASI1600MM  
From Lakeland, FL  
by Steven Miller*

*NGC 4565 Needle Galaxy  
w/ASI533MM  
From Lithia, FL  
by Les Gatechair*



*M31 and Companion M32 from Blowing Rock, NC  
by Bruce Sobut*



## Nebula

*M16 Eagle Nebula  
w/ASI2600MC  
By Philip Roey*



*M8 Lagoon Nebula  
By Joe Canzoneri*



*NGC7380 Wizard Nebula  
w/ASI533MM  
from Mulberry, FL  
By Peter McLean*



*Cygnus Wall Region of NGC7000  
From Chiefland Astro Ranch  
w/Player One Poseidon-M Pro  
By Jamie Kenas*

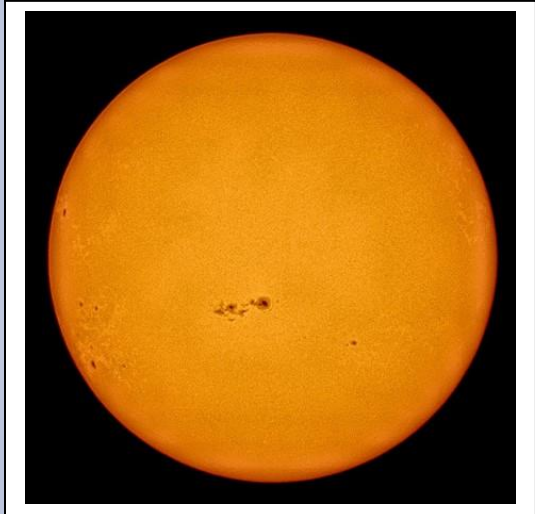




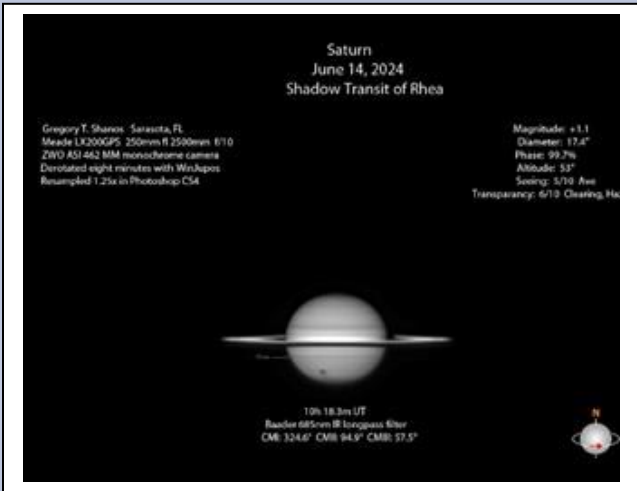
### Planetary-Lunar-Solar



*Clair-Obscur Lunar X and V on the terminator boundary.  
Captured by Gregory Shanos.  
Look for this again on 8/12/24 0130UT*



*Extremely active Sunspot Activity  
continues during July. Captured by  
Bruce Sobot*



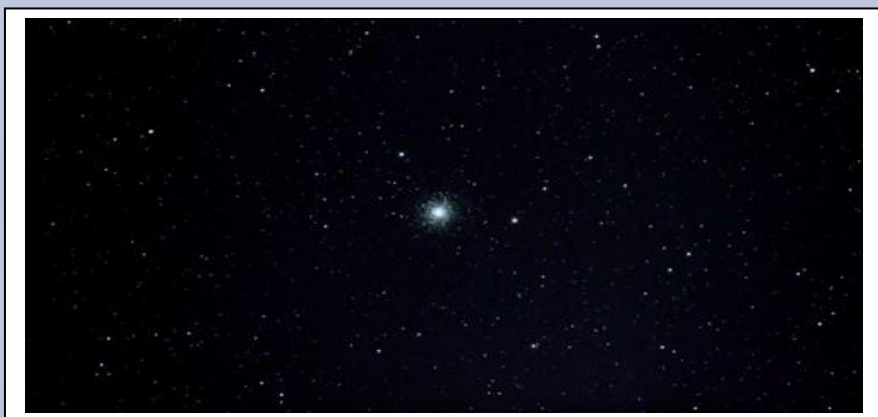
*Two Jovian moon transits across the face of Saturn. Captured by Gregory Shanos*



*Saturn captured with a 16" DoB  
and a Uranus-C astrophoto camera.  
By Guy Earle*

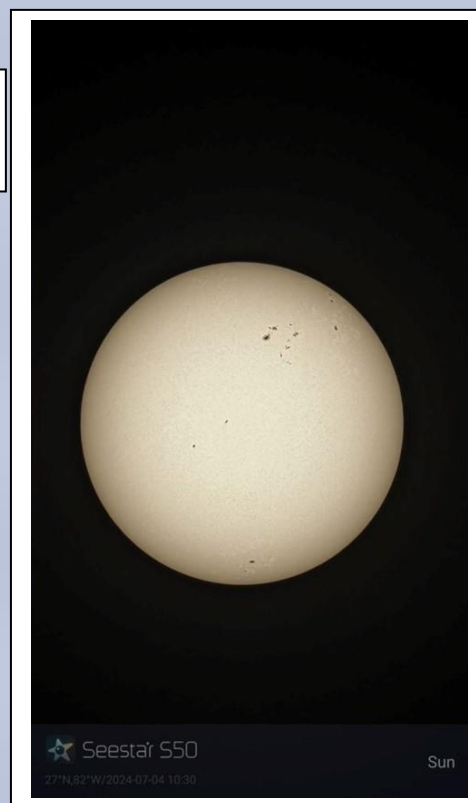
### Smart Telescope

*Vespera Image of IC5070 Pelican  
Nebula  
By Daniel Dawson*

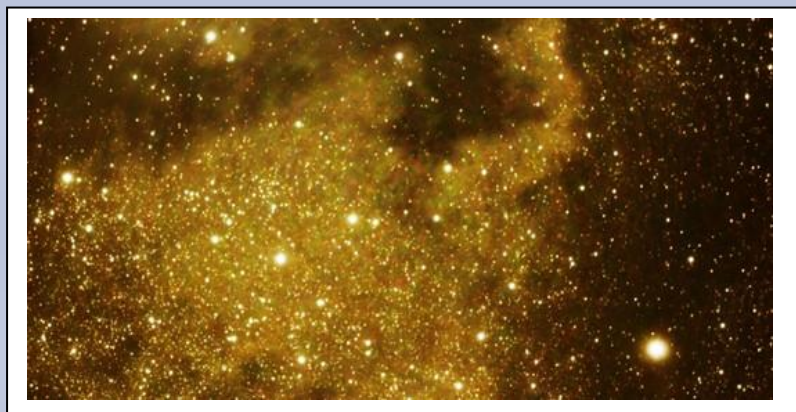


*Dwarf II image of M13  
Hercules Globular Cluster  
by Guy Earle*

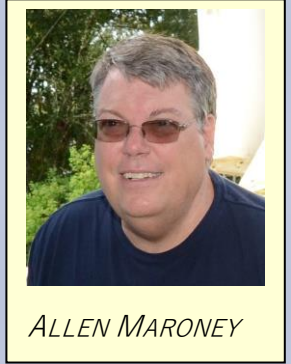
*Seestar S50 Solar  
Image  
by Guy Earle*



*NGC7000 North American Nebula with  
Dwarf II at Santa Rosa Beach, FL  
By Peter McLean*



## SPAC Mirror Lab: Refractor Glass Quality and Abbe Numbers



About 120 years ago a German physicist named Ernest Abbe was working with Otto Schott (Schott Glass and the inventor of Borosilicate Glass, A.K.A Pyrex) and Carl Zeiss (Zeiss Optics and instruments). This was an amazing convergence of brainpower.

As the Research Director at Zeiss Optical Works Abbe invented the apochromatic (APO) lens in a microscope. This eliminated the primary and secondary color distortions bringing the visible wavelengths to a common focus. The formulas that Abbe created were the basis for the future APO refractor telescopes.

Working on his APO lens he came up with the 'Abbe Number', which allowed any transparent material to have a single value that represents how well multiple wavelengths of light converged based on the refractive index and the wavelength. Usually this is considered to be visible, UV and IR wavelengths.

Different types of glass have different Abbe numbers. The higher the number the closer that different wavelengths focus at the same point. In telescope speak, glass with a low Abbe number will show bright objects with blue/violet fringes around them. Glass with a high Abbe number will not have that fringe. Lower Abbe numbers are assigned to standard glass. As the Abbe number goes up the glass will be referred to as Extra Low Dispersion (ED) glass and Super Low Dispersion (SD) glass. Often any glass in the ED or higher range is labeled as ED even if it is SD since all of the advertising has been aimed at ED refractors.

Keep in mind that how well the optics are made, their element design and the machining of the telescope also play a huge role in the quality of the image. Using high quality glass is a good starting point.

Now let's get some practical use out of the Abbe numbers. Many telescopes list the type of ED glass that they are using in the specs. Just listing it as ED isn't enough, you need to know the specific type of glass.

Here's a few commercial refractors and the glass that they are using and their Abbe number:

<b>Telescope</b>	<b>Glass</b>	<b>Abbe Number</b>
Orion ShortTube 80T	Crown/Flint	59.00
Orion EON 110mm ED f/6.0	Ohara FPL-51	81.54
Altair Starwave Ascent 102ED F7	Ohara FPL-51	81.54
Astro-Tech AT70ED	H-FK-61	81.61
Explore Scientific ED102	HOYA FCD1	81.61
Lunt 80mm MT ED	Ohara FPL-53	94.94
Williams Optics Redcat 51	Ohara FPL-53	94.94
Sky Watcher Esprit 100ED	Ohara FPL-53	94.94
Vixen SD81S	Ohara FPL-53	94.94

The glass may be looked up on the manufacturer's web site or at [RefractiveIndex.info](http://RefractiveIndex.info) to get the Abbe number, often listed as Abbe or 'Vd'. Below are some common glass types and their Abbe values.



## For Sale

\*\*\*\*REDUCED\*\*\*\* **Listing #1:** Steve Robbins is selling his **mid-1980s Coulter 13.1" Odyssey Dobsonian telescope**. I've just had Spectrum Coatings recoat the primary, It is in original condition but has a Novak mirror cell, aftermarket dielectric coated secondary, a Telrad and Tektron 2" focuser. I'm including a Televue 35mm Panoptic eyepiece and a Televue Nagler Type II 20mm. \$1000. Contact Steve @ [steve.robbins13@gmail.com](mailto:steve.robbins13@gmail.com)



SPAC Business Meeting 🏠

Our next business meeting is **Wed., August 14<sup>th</sup>, at 8:00 PM** via conference call; details upon request.  
 All interested members are invited to attend. All club business decisions are made at the business meeting so as not to encumber the general meeting.

## Officers & Directors

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*Click on the name to send email*

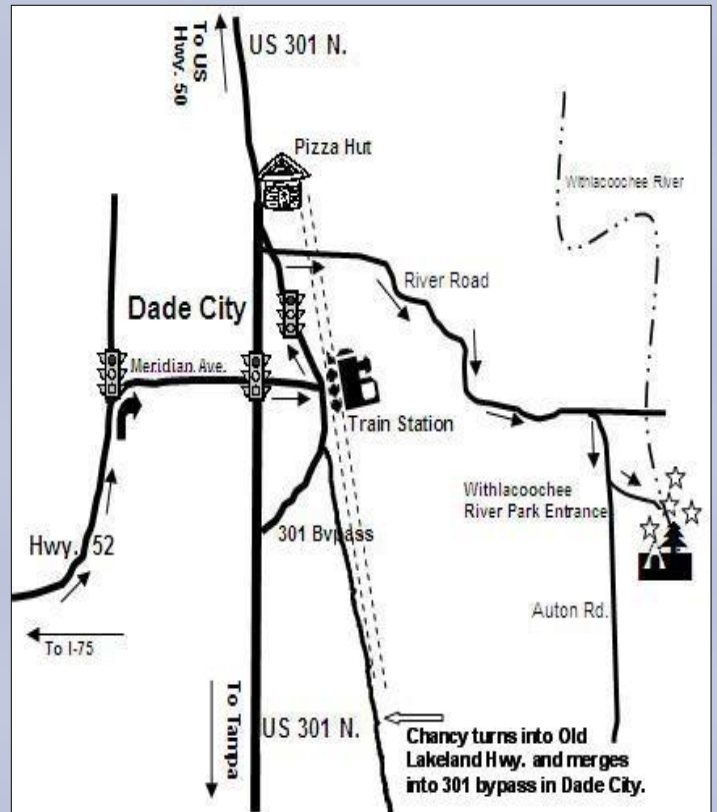
## Withlacoochee New Moon Weekends

There's no need for reservations. However, the park closes at sundown, so you will need to arrive before then. The park rangers will give you the gate-code once you're inside the park. Please do not call for the gate code as they are not allowed to give it out over the phone.



Reservations are not necessary. Please print and display our [Friends-Of-The-Park Pass](#) on your dashboard.

Please join us! All astronomy enthusiasts are welcome. You do not need to be a club member to attend. Please refer to our [Club Calendar](#) for details and scheduled dates.



**Withlacoochee River Park - Dade City, FL**  
 Detailed directions can be found at:  
[www.StPeteAstronomyClub.org](http://www.StPeteAstronomyClub.org)



# St. Petersburg Astronomy Club

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## St. Petersburg Astronomy Club Membership Form

Membership in St. Petersburg Astronomy Club, Inc. (SPAC) is open to anyone, regardless of age, who is interested in astronomy. Benefits of membership include a monthly subscription to the SPAC Examiner newsletter, reduced camping rates and use of the club's bunkhouse at our dark sky site at Withlacoochee River Park, the ability to serve on the SPAC board and voting privileges. Dues are considered donations and are non-refundable. Membership options are available as listed below.

You are now able to choose how you wish to join or renew your membership:

- **Preferred On-line Website Option: New instructions as our website has been updated.**

Go to [https://www.stpeteastronomyclub.org/Sign\\_In.php](https://www.stpeteastronomyclub.org/Sign_In.php) on the SPAC website where you can join, view and update your membership profile, provide payment, and **print your membership card.**

- **US Mail Option: Takes more time to process manually because we are all volunteers.**

Complete the attached membership form and send it along with your payment to:

Jim Hunter  
17316 Oak Ledge Drive  
Lutz, FL 33549.  
(Checks should be made payable to SPAC, Inc.)

Adult 1: \_\_\_\_\_ Adult 2: \_\_\_\_\_

Street: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Home Phone: \_\_\_\_\_ Cell Phone: \_\_\_\_\_

Email Address: \_\_\_\_\_

Number of Children under 18: \_\_\_\_\_

### Memberships:

Single:  \$ 30.00/YR. Includes one adult, minor children, the "SPACE" newsletter, and all the rights and privileges of membership.

Family:  \$ 35.00/YR. Includes two adults, minor children and the above rights and privileges.

Patron:  \$ 50.00/YR. A Patron member is entitled to the above rights and privileges.

Benefactor:  \$100.00/YR. A Benefactor member is entitled to the above rights and privileges.

Student:  FREE. SPAC offers free membership to full time high school and college students.

Expected date of graduation: \_\_\_\_\_

Total Submitted: \$ \_\_\_\_\_

**Your SPAC Membership Card is required for reduced fees at the campground.**