



# SPACE

St. Petersburg Astronomy Club **Examiner**

September 2023

Editor – Guy Earle

The St. Petersburg Astronomy Club has been the center of family astronomy in the Tampa Bay Area since 1927. Our 399 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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## Astronomy Image of the Month

The **Elephant Trunk Nebula** by Phillip Roey



## October Preview

In next month's issue, Guy Earle will discuss the start of the 2023-24 observing season. I'll talk about what highlights are coming up, things to remember when prepping your equipment, and how the club can help your astronomy addiction.

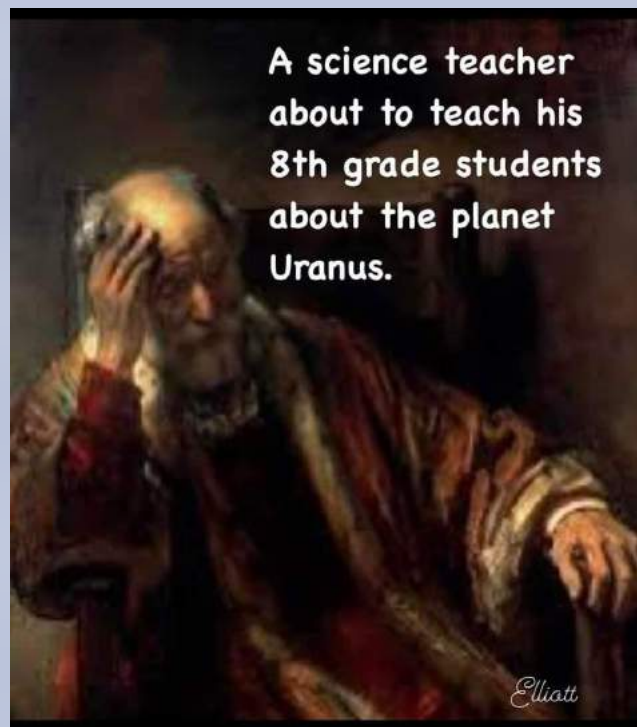


## Annual SPAC Officer Elections

We are seeking nominations for the following club leadership positions: **President, Vice President, Secretary, Treasurer, and 2024 Director-at-Large**. Please submit your nomination to [Browncongo@yahoo.com](mailto:Browncongo@yahoo.com) no later than September 28<sup>th</sup>. The slate of nominations will be published in the October Examiner. This year's elections will be in person at the October monthly meeting. Once you have signed in, you will see a green button, "Annual Elections."

Any Club member who wishes to submit a nomination is encouraged to do so by the September general meeting. If you nominate a person for a position, be sure to ask that person if he or she is willing to serve in that position.

### Night Sky Humor



## September General Meeting

This month's general meeting is on Thursday, Sept. 28th at **7:30 PM**. The meeting will be *in person* at St. Petersburg College, Gibbs Campus, 6405 5<sup>th</sup> Avenue North, Natural Science Building, Classroom 236, 2nd floor, and **also virtual**. This month's re-scheduled presentation is a **Deep Sky Planner** by Phyllis Lang



To attend virtually with **Zoom**, join from your computer, tablet or smartphone by clicking [here](#). You can also dial in using your phone. United States: +1 (301) 715-8592 Meeting ID: 993-399-3311 Passcode: 999123

The club's **New Moon observing weekend** will be by October 13<sup>th</sup>-15<sup>th</sup> at [Withlacoochee River Park](#) east of Dade City.



## New SPAC Members

We would like to welcome Traci & Simon Phillips, Mark Kepka, Prisha Ranjan, Angela Unterholzner, John & Kristin Pauley, Sonja Zehr, Stephanie Colon & Ariel Grajales, and Shannon & Chris Knox to our family of members.

## Examiner Staff

<b>Editor</b>	<a href="#">Guy Earle</a>	813 785-1972
<b>Space News</b>	<a href="#">Steve Robbins</a>	386 736-9123
<b>Field Reporter</b>	<a href="#">Kelly Anderson</a>	813 672-2751
<b>Mirror Lab</b>	<a href="#">Ralph Craig</a>	727 384-2086

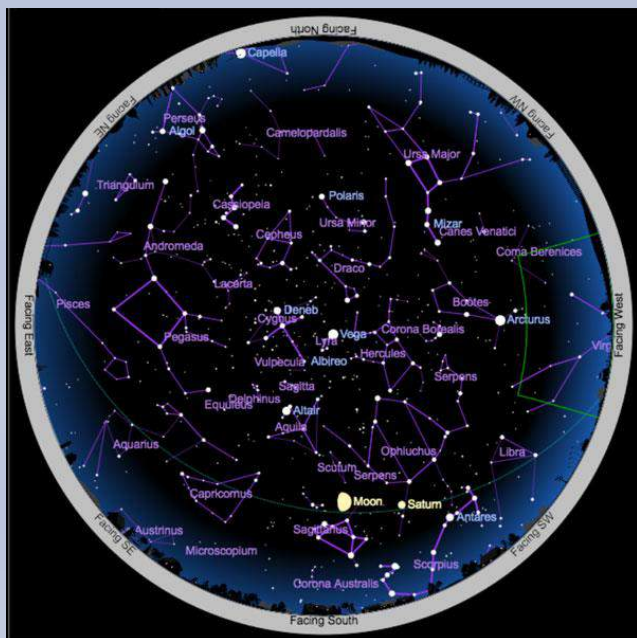


## Observing Moons of our Solar System

If you don't avidly follow the planets, then you likely know which planet is overhead by noticing it on the monthly star chart in either *Sky & Telescope* or in *Astronomy* magazine. I remember before I started imaging them, I would go to a New Moon weekend star party and only then look to see which planets were up. All that changed in 2019 after I started imaging, as I began to notice when planets crossed the highest part of the night sky, the meridian, so as to provide the best seeing, but also learning more about their apparent size, composition, all aspects of them. As you look for the planets, take some time to learn which planets and moons you can see.



GUY EARLE



Mercury and Venus never stray too far in the sky from the Sun since they are on the inner orbit to the Earth, so you'll either see them after sunset or just before sunrise, with Mercury being much tougher. It is difficult to image Mercury's surface detail, an accomplishment I've yet to achieve, but I've seen it done. Like Venus, it has no moon. When imaging Venus, you can pick up cloud details, even seeing them with your eyes and the use of filters. Joe Reichle and I noticed this at the last *Cats in Space* event in April with a UV filter.

As for the Earth, well...just look up. I'm skipping the discussion of our rather easy satellite. Mars goes through a two-year orbit cycle, getting closer to the Earth and subsequently growing significantly in size through a telescope. The Red Planet has two asteroidal moons, Phobos and Deimos, but they are very difficult to image—you can't see them.

At this point, I need to explain arc seconds; a planet's size is designated in arc seconds in the night sky. Think of the night sky as a globe that surrounds the Earth, divide it into 24 hours, those hours into minutes, and finally minutes into seconds. Yes, arc seconds are small. For comparison, our Moon when in Full phase is typically 1,900 arc seconds across, while Jupiter at its largest is usually only around 45 arc seconds. While that is tiny, using our telescopes and higher-power eyepieces can still yield detail in the planets. Now, going back to Deimos, for example, that moon is only 0.033" (arc seconds are represented by the " symbol). That means Deimos is less than 1/10<sup>th</sup> of 1 arc second, which is why they require imaging to even stand a chance.

Next up, Jupiter. The king of the gas giants has over 80 moons, but only four are seen in a telescope or possible to be imaged. First observed by Galileo, they are called the Galilean satellites: Io, Europa, Ganymede, and Callisto.



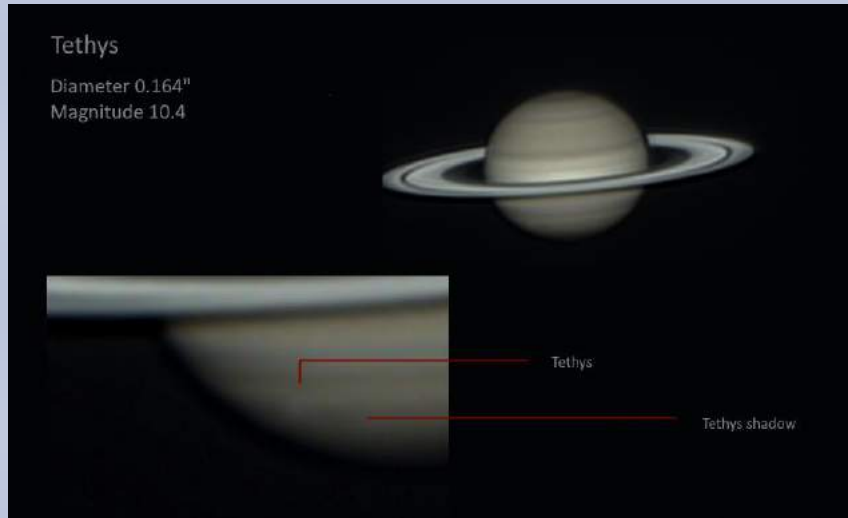
Io usually shows up with a yellowish hue due to its sulphur volcanos, and in photos shines brightly from the reflected sunlight. Ganymede is the largest moon in the solar system and on good nights will actually show surface detail when imaged. As for Europa, to quote as Arthur C. Clarke, "these worlds are yours, except Europa. Attempt no landing there." Routinely, the moons will cross in front of the planet, with its sharp, black, shadow following behind, called a transit.



Saturn has a whopping 146 moons at current count, but only six are visible with your eyes or imaged, including its largest, Titan. This large moon is known to have an atmosphere and can easily be seen even in tiny telescopes. Here is a screenshot of Saturn and its moons in the program WinJUPOS, a really nice program for stacking images or planning an observing session.



The other five moons are Rhea, Dione, Enceladus, Mimas, and Tethys. You won't see any detail, but it's a challenge to capture one of them crossing, or transiting, in front of Saturn. To draw another comparison, I attempted to capture Tethys transiting the southern hemisphere, but the moon and its shadow is only barely seen since it is 0.165" across.



As you head out of the solar system, you leave the ability to visually observe any moons and move strictly to imaging. Uranus has 27 moons, but only 5 can be imaged with amateur equipment: those being Miranda, Ariel, Umbriel, Titania, and Oberon. They are roughly the size of Tethys but even fainter. The picture to the right was captured at our observing site, Withlacoochee River Park with my 16" Dobsonian reflector (yes, I spelled Ariel incorrectly), when I captured all but Miranda.



Lastly, there's Neptune with its 14 moons, but only one can be imaged, Triton. Hopefully, you'll seek the challenge to see all the moons in our solar system besides the big, bright one that is frequently over our heads, as they present an interesting challenge and a better appreciation for our solar system.





## Registration for OBS 2024

Next month officially begins OBS season and with it advanced registration which will begin on **October 01, 2023** and continue through January 07, 2024.

Your registration and payment must be received by 5:00 PM on January 07, 2024 to qualify for the reduced registration fee. Registrations received after that are subject to a \$25.00 late fee. Registration will close on January 30th.

I encourage those of you who plan to bring an RV to register as soon as possible as electricity on the field is limited and will be filled on a first come first served basis. Once the 30 AMP service is filled, I will reach out to those who registered to see if you would want 20-amp service on the field or 30-amp service in the camp ground area. Last year we filled up quickly, so be sure to register early. We will see a return of *D and D BBQ* again this year and hope to have an exciting OBS, as always. If you should have any questions, please feel free to give me a call.

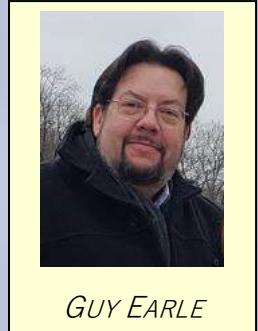


## *Cats in Space III* and a Vintage Meade 826

The third *Cats in Space* event is coming up on October 21<sup>st</sup>, where SPAC members bring their telescopes out to [First Ladies Farm and Sanctuary](#) for an evening of telescope observing in support of their cat adoption event. The Farm hosts multiple events during the year, except the summer when it's too hot to host large events. But then again, most of us amateur astronomers avoid New Moon weekends during the summer for the same reasons, especially this past summer when it has felt like the Sun's chromosphere even at night.

We participated in the first *Cats in Space* last November and then again in April, but since it doesn't get dark until after 8 o'clock at that time of year, having telescopes for an event that ends at 9 o'clock doesn't time out well. So, *Cats in Space* has now become an annual event each fall, and part of the event is raffling off a donated telescope from First Ladies as a fundraiser for the Farm. They truly do amazing work, rescuing so many cats and kittens, finding them homes or a new life through their barn cat program with local farmers. Back in May, I purchased a telescope that gave me serious flashbacks—a Meade 826 from the early 80's, with the intention of making it the next raffle telescope.

The 8" reflector was lovingly cared for by the original owner, who even had constructed a foam-lined case to store the optical tube. Between that and the vinyl end caps, the coatings were kept immaculate. The only thing that needed cleaning was a slightly rusted declination shaft and some minor cleaning of the tube and mount assembly. It even still has the original manual and the all-metal Modified Achromatic eyepieces. SPAC member Daniel Dawson called the telescope a piece of "industrial art," and he couldn't be more correct. Back in 1993, I owned a 6" Meade Starfinder, a later version of the model 826, and I loved it. To say this model exists in such perfect condition is rare is an understatement.





The original owner even put a drive interruptor to the right ascension gear, so that way if he needed to stop the motor and allow the object to drift into a better position, all he had to do was push and hold a button. Once released, the drive kicked back in.

Anyone can put tickets in to the raffle scope, but that link has not yet been created, as the Farm will do that when the event gets closer towards the beginning of October. I will post the link from the Farm on the SPAC Facebook page, so keep checking for a chance to get this amazing piece of Meade history and an opportunity to support a great cat rescue.



*MARK YOUR CALENDAR FOR:*

A horizontal silhouette of various world landmarks, including palm trees, pyramids, a Buddha statue, the Golden Gate Bridge, the Eiffel Tower, the Colosseum, the Sydney Opera House, and the Statue of Liberty, set against a gradient background.

# International Observe the Moon Night Saturday October 21, 2023

 **in Gulfport** 

Bring your 'scope to this public outreach opportunity and  
set up at the corner of Beach Blvd. & 31st Avenue South.

Saturn will be up too!

Sunset 'til 10:00pm

***FREE parking but get there early!***

*This coincides with "Third Saturday IndieFaire" street market;  
lots of foot traffic!*



[moon.nasa.gov/observe](https://moon.nasa.gov/observe)  
#ObserveTheMoon

for more info, contact Greg Simpson at  
[fzwick@aol.com](mailto:fzwick@aol.com)

## SPAC New Moon Weekend

Withlacoochee River Park

August 11-13, 2023

By Intrepid Field Reporter

It's still Summer, with Florida following the national trend of melting. But, when the Perseid Meteor Shower coincides with the New Moon, it's very tempting for some, so we did have a small band of indomitable astronomers show up for what promised to be a memorable weekend. And it was, kinda.



**North American Nebula**  
by Kelly Anderson

was pretty good with the odd clear area passing through.

I have it on good authority that the Perseids arrived on schedule, but we didn't see much evidence of it. A couple of us saw glimpses of a meteor through a gap in the clouds, but (as usual) your IFR was looking the other way at the time. Sigh.

Johnny and Joe spent an inordinate amount of time trying to make me smart about my newly acquired AISAir Plus, which is a marvel of technology but does represent something of a challenge for me.

After finally getting fairly facile with SharpCap, I found myself once again on a steep learning curve, but we did manage to move forward towards my goal of having my equipment do all the work while I do close to nothing. I've managed to take advantage of the fairly clear skies we've been blessed with lately and get some hours of practice, but my backyard resembles the 50-yard line during prime game time, so I'm really looking forward to darkness during our next New Moon, which is scheduled for September 15–17.

The forecast is looking pretty good for clear skies and the temperatures have been very comfortable after sunset. So, no excuses ... come join us for several nights of outstanding potential.



## Space Exploration News

The scoreboard of the rush in Lunar landing attempts is partially inked in. Russia experienced an unfortunately typical failure, when its retrorocket fired for too long, placing its orbital path intersecting with the Moon. It did not end well, as Russia took too long to interpret the error and apply a corrective burn. Russia [has not had a successful mission](#) beyond geosynchronous Earth orbit in 34 years, since 1984's Vega 2 mission to Venus.



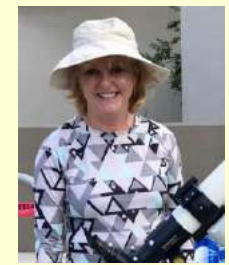
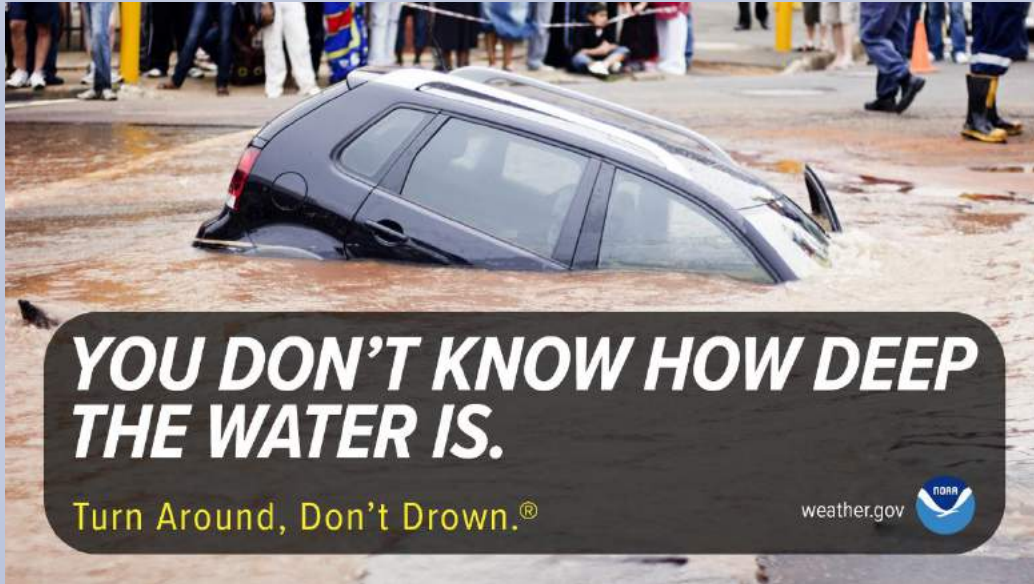
However, having simplified its strategy for landing on the Moon, India scored a spectacular success, becoming the first ever landing near the Moon's south pole with [Chandrayaan 3 on August 23](#). India's success stemmed from changing its landing routine from simultaneously reducing both orbital velocity and descent speed to first eliminating orbital velocity, then descending vertically to the surface. This costs more fuel, but allows computers and humans to handle one aspect at a time, just as the Apollo landers did, and what use is fuel on the surface of the Moon if you're not returning to Earth? With the advantage of 50 years of lunar returned sample research, India made new discoveries of resource availability and water content in the lunar regolith. Also, Chandrayaan 3 found that a mere 60 mm of [regolith could thermally shield](#) future human habitations from severe solar heat. Still to come are at least three other landers during the next year.

OSIRIS-REx is [returning its samples from the asteroid Bennu](#) on September 24. Collecting its sample with an unexpectedly dramatic touchdown on the asteroid October 20, 2020, Bennu has been on the journey back since. It will drop off its sample, which will reenter Earth's atmosphere, deploy a recovery parachute and be snatched out of the air by a recovery plane. But that isn't the end of OSIRIS-REx. It will continue on to another target, the near-Earth asteroid Apophis and be renamed OSIRIS-Apophis Explorer, or OSIRIS-APEX. We just love acronyms. We've reduced every meaningful name to an incomprehensible or misleading jumble of letters

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## 2023 Hurricane Season Preparedness

A humorous reminder to please be safe when it floods.



SHIRLEY VUILLE

## October Lunar Calendar

October 1, Jupiter will be  $3.4^\circ$  south of the Moon

October 2, the Pleiades will be  $1.1^\circ$  north of the Moon

### Third Quarter October 6

October 7, Pollux will be  $1.4^\circ$  north of the Moon

October 9, Venus will be  $2.3^\circ$  south of Regulus

October 9, the Moon will be at Apogee: 405,426 km from Earth

October 10, Regulus will be  $4.2^\circ$  south of the Moon

### New Moon October 14

October 14, an annular solar eclipse will cross Oregon, Nevada, Utah, Arizona, New Mexico and Texas beginning at 8:06 am PDT in Oregon and 10:23 am CDT in Texas

October 14, the Moon will cross the celestial equator going southward at the Descending Node

October 18, Antares will be  $.9^\circ$  south of the Moon

### First Quarter October 21

October 21 is the Orionid Meteor Shower with a ZHR of  $\sim 15$ . The Moon will not interfere.

October 23, Venus will be at greatest elongation from the Sun,  $46.4^\circ$  west

October 24, Saturn will be  $2.8^\circ$  north of the Moon

October 25, the Moon will be at Perigee: 364,873 km from Earth

October 27, the Moon will cross the celestial equator going northward at the Ascending Node

October 22, Mercury will be at greatest elongation from the Sun,  $17.9^\circ$  west

October 23 is the northern hemisphere Autumnal Equinox

### Full Moon, October 28, the Full Hunters' Moon

October 28, a partial lunar eclipse which will not be seen in Florida.

This one's for Asia, Europe & Africa

October 29, Jupiter will be  $3.1^\circ$  south of the Moon

October 30, the Pleiades will be  $1.1^\circ$  north of the Moon

October 2023						
«	Sun	Mon	Tue	Wed	Thu	Fri
»	Sat					
1						
8						
15						
22						
29						
30						
31						



## SPAC Image Gallery



Here are some excellent astrophotography highlights from our fellow SPAC members. Anyone who would like to share his or her work, I encourage you to [email the editor](#) to submit for future newsletters or share them on our [SPAC Facebook page](#).



Above: The **nebula within Cephus** by Peter McLean



Supermoon of August 30, 2023 at 11:24 pm local time or August 31, 2023 3h 24m UT. This image was taken approximately 23 hours after Category 3 Hurricane Idalia was churning northward in the Gulf of Mexico. Fortunately, the skies cleared around 11:00pm local time and I was able to obtain this image. The ground was still wet after over three inches of rain. Amazingly, the seeing was Above Average at 6/10 while the transparency was below average 4/10 with haze and passing cloud banks. Image was taken with a Meade 60mm refractor with a 260mm focal length at f/4 piggybacked on a tracking equatorially mounted Meade 2080 Schmidt-Cassegrain telescope. Camera utilized was a ZWO ASI 178MM with an Optolong UV-IR cut filter. Aligned and stacked with Autostakkert 3.14 sharpened with Registax 6.1 and Photoshop CS4. The moon was 38 degrees above the horizon at 99.9% phase and 33'26" in size.

This Supermoon is unique since August had two full moons on August 1<sup>st</sup> and August 30<sup>th</sup>, 2023. Supermoons are seven percent larger and 14% brighter than a typical full moon. When two full moons occur in the same month, it is known as a Blue Moon. The August 30<sup>th</sup> full moon was also at perigee closest to the earth and is thus called a supermoon. Therefore, this event was a rare Super Blue Moon which occur only once every decade. Image previous page **by Gregory T. Shanos** from Sarasota, Florida

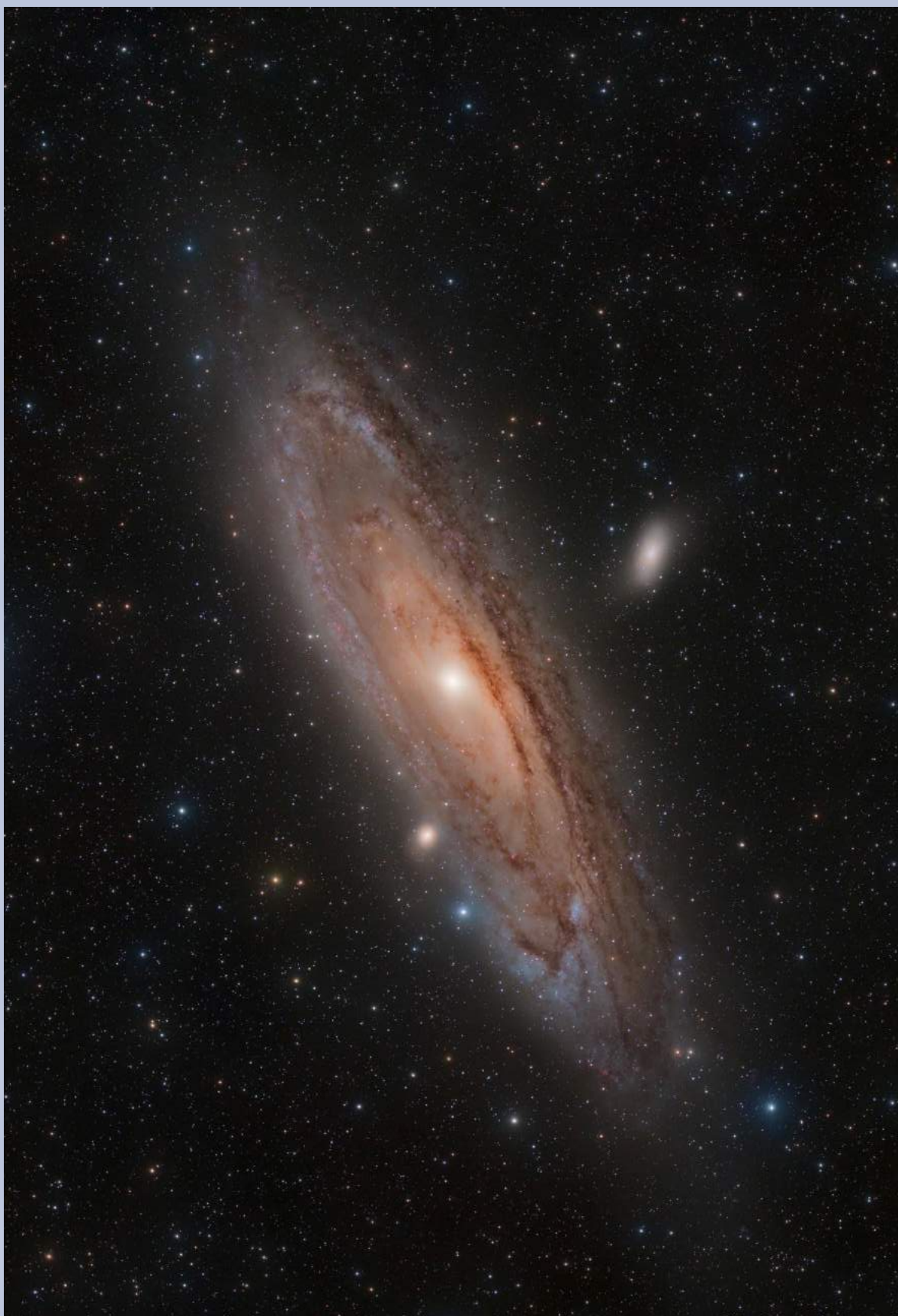


Above: **M31**, 2 Hours of integration, 120 X 60 Second subs, ISO 800, F4.8, Bortle 6, SV503 70ED, Canon 1000D Full Spectrum modded, Mount: EQM 35 Pro, ran with a Mini PC/ Stick PC  
Filter: UV/IR Cut filter, Processed in Sirril and Gimp.  
Stars were removed with Starnet **by Jake Kummelman**

\*\*\*\*\*

Following Page and Rotated: **M31** **by Jamie Kenas**





## SPAC Business Meeting

Our next business meeting is **Wed., Oct. 4<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

President	<a href="#">Brad Perryman</a>	727 420-1957
Vice Pres.	<a href="#">Paul Krahmer</a>	727 535-5827
Secretary	<a href="#">Shirley Vuille</a>	727 864-2624
Treasurer	<a href="#">Jim Hunter</a>	813 507-8415
Dir.-at-Large	<a href="#">Kyle Brinkman</a>	727 455-6931
Dir.-at-Large	<a href="#">Steven Gaber</a>	727 215-0464
Dir.-at-Large	<a href="#">Jack Fritz</a>	727 692-9831
SPACE Editor	<a href="#">Guy Earle</a>	813 785-1972
Public Relations	<a href="#">John O'Neill</a>	727 637-5945
Membership Chair	<a href="#">Shirley Vuille</a>	727 864-2624
Mirror Lab Chair	<a href="#">Paul McNabb</a>	727-345-5713
Outreach Chair	<a href="#">Jim Hunter</a>	813 507-8415
Star Party Chair	<a href="#">Mike Partain</a>	850 339-0828
Librarian	<a href="#">Ralph Craig</a>	727 384-2086
Club Webmaster	<a href="#">Jack Fritz</a>	813 508-5680
Dark Sky Chair	<a href="#">Leeann Muszynski</a>	813-601-0986

*Click on the name to send email*

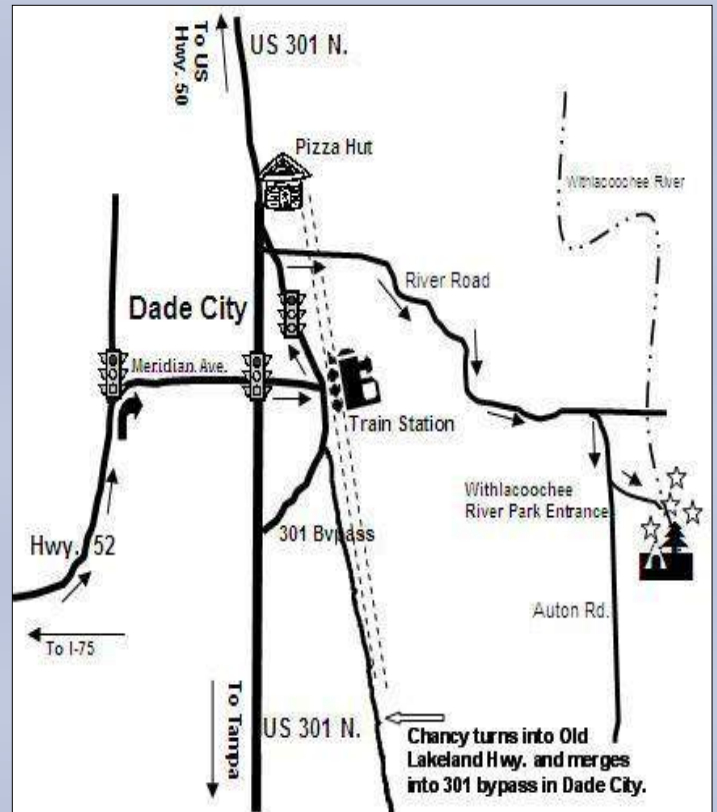
### Withlacoochee New Moon Weekends

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

### Recognition of Patrons & Benefactors

Lakeisha & Stephen Black	Benefactor	Steven Balke	Patron
David Brewer	Benefactor	Christopher Bankston	Patron
Walter Brinkman	Benefactor	Lori Bartels-Tobin &	
Dave & Deborah Catalano	Benefactor	Espen Holmen	Patron
Stephanie Colon		Sean Bloch & Emiliy Kulokas	Patron
& Ariel Grajales	Benefactor	Kyle Brinkman	Patron
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& Caroline Sherman		Ralph & Christine Craig	Patron
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Valerie Hyman	Benefactor	Peter & Jaclynn Dimmit	Patron
Sai & Maggie Kakumanu	Benefactor	Guy & Kelly Earle	Patron
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Greg Legas	Benefactor	Steve Gaber & Karen Sell	Patron
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Kelly McGrew	Benefactor	Timothy & Mary Ann Harris	Patron
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David & Tara Pearson	Benefactor	Charlie & Linda Hoffman	Patron
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Jill & Robin Sumner	Benefactor	Matt Labadie & Jennifer Willman	Patron
Andrew & Bonnie Watts	Benefactor	Bill Larsen	Patron
*****			
Bill & Norma Amthor	Patron	Joe & Shirley Litton	Patron
Jan Anschuetz	Patron	Steve & Jeri Maiaroto	Patron
		Allen Maroney & Tracee Elliott	Patron



Herb Monroe & Martha Stewart	Patron
David & Kathryn Musser	Patron
Leeann Muszynski	Patron
Robert Nadeau & Ali Wuchert	Patron
Dominick Oppolo	Patron
Stephen Oros	Patron
Michael & Carli Partain	Patron
Brad & Lisa Perryman	Patron
Alan Polansky	Patron
David & Jenny Powell	Patron
Thomas & Andy Prince	Patron
John & Abbie Redmond	Patron
Christian & Wendy Rubach	Patron
Gregory Satchwell	Patron
Nancy Schafer	Patron
Anthony Staiano	Patron
Jonathan Stewart	Patron
Tom & Michelle Sweet	Patron
Wally & Ramona Vazquez	Patron
Alexie Velez & Yanira Hernandez	Patron
Elizabeth Wood	Patron



## 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.**