SPACE

St. Petersburg Astronomy Club Examiner

June 2023 **Editor – Guy Earle**

The St. Petersburg Astronomy Club has been the center of family astronomy in the Tampa Bay Area since 1927. Our 395 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.

Inside this Issue:

Astronomy Image of the Month

The best image of **M27, the Dumbell Nebula** I have ever seen, done **by Jamie Kenas**

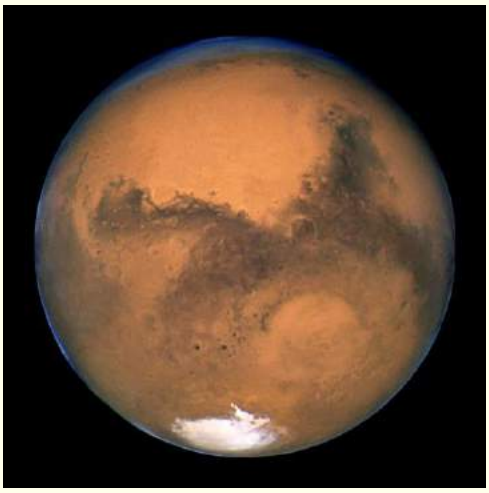
July Preview

In next month's Examiner, Rich Tobin will be providing his thoughts for those people just getting into the hobby and figuring out **what telescope to purchase**.

There are a couple important **solar eclipses** that are coming up this fall and next spring, so we'll take a moment to talk about where you'll be able to see them.

June General Meeting

This month's general meeting is on Thursday, May 25th at **7:30 PM**. The meeting will be ***in person*** at St. Petersburg College, Gibbs Campus, 6405 5th Avenue North, Natural Science Building, Classroom 236, 2nd floor, and **also virtual**. This month's presentation is **Why Mars, Why Now?** by Mars Society Ambassador, Carl Greenbaum



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: 993-399-331
Passcode: 999123

The club's **New Moon observing weekend** will by June 16th-18st at Withlacoochee River Park east of Dade City.

New SPAC Members

We would like to welcome David & Kathryn Musser and Deborah Corn to our family of members.

Examiner Staff

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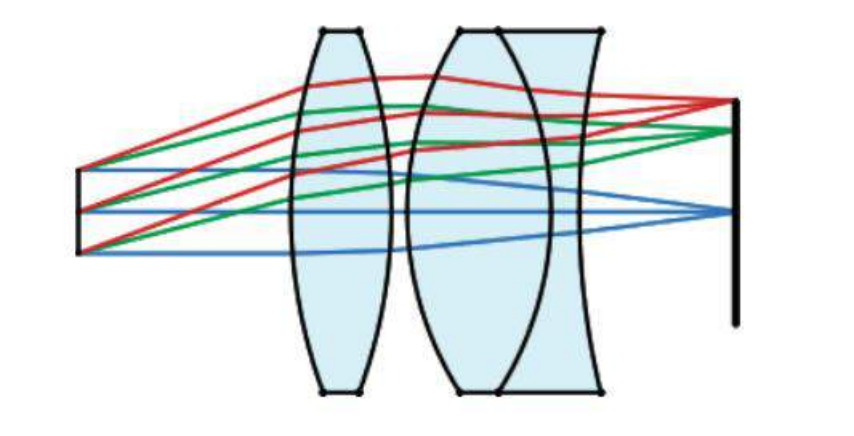
An RKE Review

Guy Earle

Since Mike Partain was not able to put together a full review on the RKE this month due to other obligations, I thought I'd share my impressions. You see, the first night we looked through an RKE eypeiece was, if memory serves me right, was at Michael Davis' refractor a little over a year ago at Withlacoochee River Park. The RKE's are produced by Edmund Optics, who have been around for decades and have been a very popular eyepiece line, which goes from 8mm to 28mm. However, I think I remember Mike shrugging dismissively about any others besides the 28mm, which is the eyepiece I will review.

Before I start talking about what I think of the 28mm RKE's, I need to provide some context. I've been using a Denkmeier binoviewer since around 2003 in my reflectors. It revolutionized and reinvigorated visual astronomy for me, making all the old familiar objects new again, giving depth and dimension in my 16" reflector that I had never seen before. The common complaint about binovewiers is that you need two eyepieces, so that instantly double the expense. However, Denkmeier made something years ago called the Power X Switch, which introduced two lens elements into the light path by pushing an arm in from either side, so you end up getting three different magnifactions from just one set of eyepieces (from 1.3X to 3X). So, for many years I've had my reliable pair of old Meade 24.5mm Super Wide Angle (67 degree apparent field) smoothies, which are named that because of the lack of eyeguards on them. This one set of eyepieces have stayed in the binoviewer 95% of the time. Very rarely did sky conditions exceed the magnification of the Meade eyepieces. The 24.5mm's are first generation Meade's, produced in Japan back in the early to mid 1990's. They always gave me the biggest true field possible in 1-1/4" eyepieces, and have been fabulous through the decades at providing great views of everything from nebulae to galaxies, most especially globular clusters. That's the other common complaint about binoviewers—you can't use them on certain objects. That opinion is garbage, I use the binos for everything, from the Moon to globular clusters, and it's all awesome.

Back to Mike: he decided to purchase a pair of the RKE's a few months ago to go with a Denkmeier binoviewer he bought about a year prior for his 16" Dobsonian. Imitation is the highest form of flattery, huh, Mike? Heh. Well, we got the chance to give the RKE's a side-by-side comparison in Chiefland recently against my old Meade SWA's. First off, the RKE's are very light weight and composed of just two lens elements—I did say these eyepieces are old school. The fewer the lenses, the brighter the image. They are also inexpensive, going for $107 each, which in this hobby is very good pricing. The eye relief is generous at 24.5mm, meaning I can use my glasses without any issue of cutting off my field of view. As I've gotten older, astigmatism has become an issue, making my stars look "v" shaped without my glasses. I've found I'd much rather keep my glasses on, so having the generous eye relief of the RKE's is very nice.



It was a very clear night in Chiefland and I was immediately struck at the difference between my old Meade's and the RKE's. The view in the RKE's were brighter, easily and very noticeably brighter than my old eyepieces. Now, being around 30 years old the coatings on my Meade's aren't like new, and neither are my knees, but the views in the RKE's struck home. The dust lanes in M82 popped and I'd swear that I could see pinpoints down to the core in the globular cluster Omega Centauri! It was the best view of that glob that I've ever seen. The design of the eyepiece also has a very unique edgeless appearance when viewing through them, like a newer high-def tv that has a minimal edge on it. It takes a bit of training to get used to it, but once you find that sweet spot in the binoviewer, the object appears to float right there in front of your eyes. The field looks extremely flat, crisp, and bright, with pinpoint stars out to the edge. However, for the casual observer who has never looked through an RKE, they can be a frustrating eyepiece because they seem to blackout easily, and they do if you don't have your head just right. Like I said, you have to find that sweet spot, but once you do—oh, baby, is it worth it!

And in case you're curious, yes, I will be picking up a pair myself and my beloved old Meade's will go into semi-retirement.

Flats and Darks

My Favorite Celestial Objects
By Wayne Frey
part II

In part I we talked about Galactic deep sky objects (those in our galaxy). This time I would like to tell you about my favorite extragalactic objects but first I need to finish up with the galactic types of objects.

The last type of deep space object found in our galaxy is called Nebulae a word that means cloud or fog. This cloud is formed between the spaces that stars occupy, thus they are often called interstellar clouds. We can see some of them because they have a star embedded which lights them up. Example and my favorite reflective type is the Orion Nebula.

It is also an emission nebula meaning some of the Hydrogen is in an excited state emitting its own light. There is also a dark portion of it known as a dark nebula. The Horsehead is another dark nebula AKA Barnard 33.

We have now left the galaxy and are traveling out in space to the realm of galaxies which is the season we are in now. Starting with the constellation of Ursa Major (the big bear) follow the pointer stars south to Leo (the lion) from this line move east to the next group of constellations Canes Venatici (hunting dogs) Coma Berenices (Queen Berenice's hair) and Virgo (maiden). This group of constellations contains thousands of visible galaxies.

One hundred and twenty years ago astronomers thought that galaxies were nebulae inside the Milky Way galaxy but thanks to a group of women astronomers (they were called computers back then) working at the Harvard Observatory and Edwin Hubble we now know they are star cities like our own galaxy.

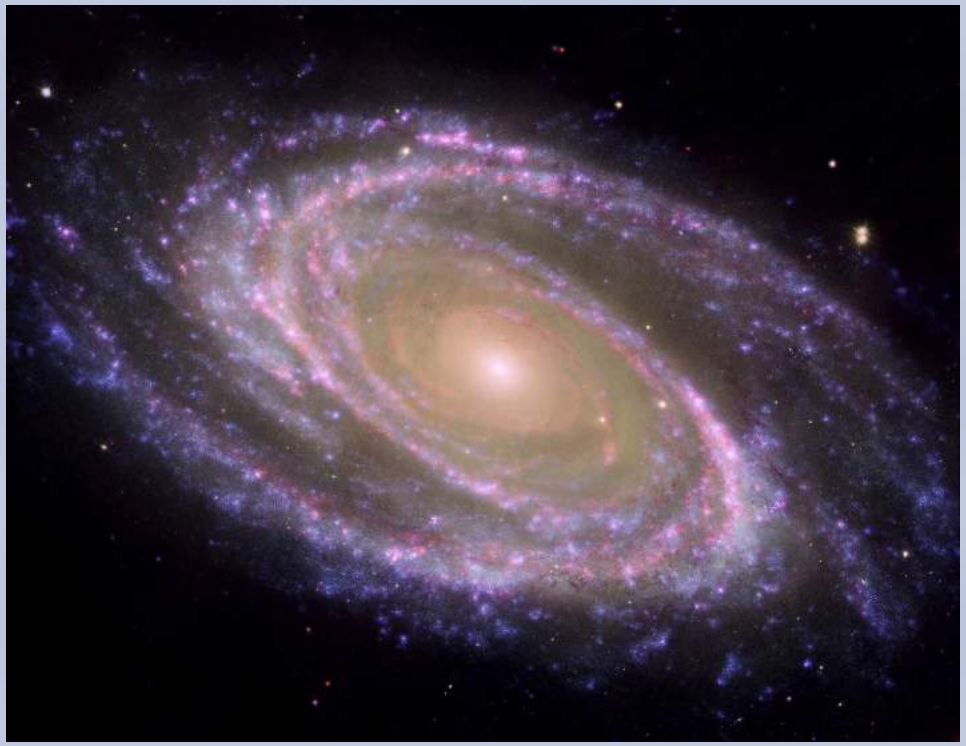
The closest complete or mature galaxy to ours in the Great Andromeda galaxy AKA M 31 or NGC 224 just a mere 2.537 million light year away. A light year is 5.879 trillion miles so we are talking incomprehensible distances. There are so many that you could spend a life time looking at just galaxies and not see them all. Hubble developed a classification for them based on how he and others thought they were formed and their appearance or their morphology.

Hubble's classification has been modified as our equipment has improved but the basic types are still the same. Elliptical galaxies are my least favorite type as they are shaped like the name

implies and they are smooth and nearly always featureless, like NGC 2717 with many companions in the same Field Of View.

A lenticular galaxy is an intermediate type between an elliptical and a spiral. They have a large-scale disc but no spiral arms. M 104 the Sombrero galaxy in Virgo is an example and my favorite.

Now we come to the spiral galaxy classification which is what most people think of when you mention the word galaxy. The Milky Way (our galaxy) the great Andromeda is another and surprise so is M 81 Bode's galaxy in the constellation Ursa Major. Most people who look through an eyepiece will not see the spiral arms only the core and halo of the galaxy.



You may have guessed already that the spiral is the most common type and that is why it has the most sub-classifications. They range from SA = ordinary; barred = SB; mixed = SAB and on.

Irregular galaxies are the next group and they are very interesting and often mistaken for nebulae. A fine example is NGC 4656 AKA the Hockey Stick or Crowbar galaxy. It was a barred spiral but due to interaction with several other galaxies it has an irregular shape.

Prior to 1959 this classification did not exist. The last classification is Peculiar a sort of junk bin for those galaxies that would not fit any other of the previous classes. American astronomer Halton C. Arp published his “Atlas of Peculiar Galaxies” in 1966 solidified this classification. There are more galaxies in the Universe than stars in our Milky Way galaxy. Keep looking up and happy hunting for these faint elusive fuzzies.

SPAC New Moon Weekend

Withlacoochee River Park

May 18-21, 2023

By Intrepid Field Reporter

KELLY ANDERSON

Your Intrepid Field Reporter was bitten by a technology bug last New Moon Weekend (the trailer brake controller on my trusty steed failed). Dragging a travel trailer that weighs twice as much as the towing vehicle without reliable brakes is not a particularly good idea, so we had to forgo the trip up to Withlacoochee.

However, a worthy participant (thanks, Jack) graciously agreed to capture the essential details for me, so we can chronicle the events that alter and illuminate our astronomical endeavors.

As usual the three-day weekend started out early on Thursday when Jack Fritz, Joe Canzoneri, Jeff Tobergte, Bob & Rita Mizell, Peter McLean, Joe & Pam Faubion and first timers Tony and Gina Mason arrived and made ready to look at and image cosmological phenomena as they revealed themselves. The weather, however, failed to produce an ideal experience. Running a bit later than usual, the Florida rainy season finally showed up. It clouded over at sunset, but after an hour or so it began to clear. The sky was pretty good for astronomy for a couple of hours, but then clouded over again. Patience was rewarded when the skies cleared for the rest of the night at about 11:30.

On Friday our numbers increased with the arrival of Bob Stelmock, Russ Fadil, Bron Gorecki, Tom Boyko, and Jeremy Schiffler. We now had enough attendees to fill out a pick-up game of softball, but that didn't happen. Not much astronomy happened either. Once again sunset brought a complete overcast, and the occasional drizzle dampened enthusiasm somewhat.

No new arrivals joined our merry band on Saturday. The occasional drizzle grew to an impressive rainstorm at about 9:00 pm. Estimates of accumulation ranged up to five inches! Our field at Withlacoochee usually dries out quickly, but the rain came down so hard that it couldn't drain fast enough. The field looked like a small lake with a depth of a couple of inches. Boo, hiss! But once again it cleared for good viewing by 1:30 Sunday morning. Only Joe Faubion and Peter McLain stayed up for a pretty good session of imaging.

We're not only getting into the rainy season, but on June 1st we begin the annual Hurricane Season (Season's Greetings!). Even though it's forecast to become a strong El Nino year which

typically portends a fairly light hurricane season, we're probably going to see some nasty weather threaten our tranquility, so everybody please keep a weather eye out and stay safe.

Having said that, I have it on good authority (no I don't) that our next New Moon Weekend will have mild temperatures, fair weather and clear skies, guaranteed. Mark your calendars for the June edition scheduled for June 16 – 18.

Cats in Space II, redo

Mother Nature decided not to grant clear skies at the second **Cats in Space** astronomy and cat adoption event at the end of April. The rain and winds came in strong, yet the wonderful team at **First Ladies Farm and Cat Sanctuary** did a fantastic job of accommodating everyone despite the inclement weather. For the SPAC members, our scopes naturally stayed in our cars, but that's okay because first and foremost this is an opportunity for some beautiful and wonderful cats and kittens to find their forever homes. So, it was a success despite the rain.

But I offered them the opportunity for SPAC to come back out in May if the weather was better, and we did. On the Friday night before Memorial Day weekend, SPAC members Joe Reichle and Peter Haviland brought their scopes out to join me that night, as well as Doug Sliman and Tim Harris in attendance with their families to show support. We had a First Quarter Moon, Venus, and tiny Mars, so three scopes were more than enough. Plus, the weather was very iffy, so it was a 50/50 gamble for any skies at all. The skies did clear shortly after sunset for about an hour, so we got the chance to look through the telescopes (photos on the following page). We will be doing this event again in the Fall, which works much better for sunset times and viewing, plus Saturn and Jupiter will be in the skies. Hopefully, we will see you there and most importantly show support to First Ladies Farm!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Space Exploration News

STEVE ROBBINS

YouTube may be a great source of information, but it is quickly sporting vast sources of science disinformation, generated by AI with clickbait titles often entirely unrelated to the actual content. Kyle Hill, a science channel, did a great job of describing the problem and helping you to avoid these fake science videos that are cropping up by the thousands. They share curious similarities that beg the question of whether they are all from the same or closely related sources, including similarity in logos, similar content, using the names of Michael Kaku, Neal deGrasse Tyson, Elon Musk, Albert Einstein, James Webb Space Telescope, and several other notables, who don't contribute to the content at all. They share clickbait titles using the words, "horrifying" or "shocking". They really like to use "terrifying." Their subject matter features mass extinctions, aliens, ancient mysteries, unknown factoids, etc. Actually, they are very similar to the History Channel scam: no history there. They publish more frequently than humans can, some publishing a new video every 12 hours. They have apparently vastly inflated view numbers on each video, and each video is a complete waste of time to watch. They are stealing your attention for dollars not earned by providing information. They are rampant.

James Webb Space Telescope's observing schedule for cycle 2, July 2023 to June 2024 has just been announced by its governing body, the STScI, Space Telescope Science Institute. These are the projects with guaranteed time. There are other flexible spots for unexpected events which can be quickly scheduled as the situation warrants. Science teams from the entire world submit plans for proposed use of JWST for their projects. There were a total of 1,600 proposals by more than 5,450 scientists from 52 countries around the globe for this second year of JWST observations. The submissions requested more than 35,000 hours of observation time for a telescope with only 5,000 hours of scheduled operation per year, an oversubscription of 700%. Needless to say the selection process is complicated and the results sometimes controversial. Great coverage by NASA, and a video by astrophysicist Dr Becky Smethurst, highlighting the top proposals granted time and a few notables who were not granted time.

It seems like the Space Shuttle era lasted forever. It went to orbit again and again, impressing us with its incredible usefulness and relative safety. Well, this week, only two years into operations with the ISS, Dragon spacecraft from SpaceX have completed more missions to ISS than the Space Shuttle did during its career, completing Dragon1 and Dragon 2's 38th mission to ISS, surpassing 37 from the Space Shuttle. Even more surprising, Dragon 2 alone has more time in space, 1,324 days, than the entire Space Shuttle fleet. And this is only since 2020.

Boeing finds itself in even more hot water, being sued by Wilson Aerospace for improperly copying proprietary tools. But it's even worse, Wilson Aerospace's CEO, David Wilson, Jr., in a published statement after the court filing said, "Boeing has not only stolen our intellectual property and damaged our company's reputation but has used the technology incorrectly and at the expense of astronauts' safety, which is beyond despicable."

But that's not all, folks! Less than two months before the required test mission to ISS that would certify Boeing's Starliner spacecraft for manned missions to the International Space Station, Boeing announced that it is standing down from its scheduled July 21 launch. This is now almost three years late from its planned first flight, even before SpaceX first executed a manned rendezvous with ISS in 2020. Inconceivably, here is why Boeing announced the new delay. First of all there is a defect in the attachment of shroud lines to the parachutes, such that if one did not open, forces on the other two chutes could tear the shroud lines from the canopy, plunging the spacecraft freefall to Earth with fatal consequences. The second is even more astonishing, in that 1970 lessons from Apollo 1 were ignored and the tape used to secure all Starliner capsule wiring turns out to be very flammable under conditions during flight. This is hundreds of feet of the same kind of stuff that killed Gus Grissom, Ed White and Roger Chaffee. Of course, all costs of this abysmal malfeasance will be passed on to the American taxpayer. When do we just tell Boeing to find something else to do?

2023 Hurricane Season Preparedness

Shirley Vuille

The Atlantic Hurricane season is from June 1 through November 30 each year. Now is the time to plan and prepare for these storms. Each county has developed a guide for their residents. Please take time to look at the information where you live or work, and make plans and preparations for you and your family by scanning the QR codes.

Pinellas County

Hillsborough County

July Lunar Calendar

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July 1, Venus will be 3.6° north of Mars

July 1, Antares will be 1.5° south of the Moon

Full Moon July 3, the Full Sturgeon Moon

July 4, the Moon will be at Perigee: 360,151 km from Earth

July 4, Venus will be at Greatest Elongation: 45.4° east of the Sun

July 6, Earth will be at Aphelion, 1.01668 AU from the Sun

July 6, Saturn will be 2.7° north of the Moon

Third Quarter July 9

July 10, Mars will be 0.6° north of Regulus

July 10, the Moon will cross the celestial equator going northward at the Ascending Node

July 11, Jupiter will be 2.2° south of the Moon

July 13, the Pleiades will be 1.7° north of Moon

July 16, Venus will be 1.7° south of Regulus

New Moon July 17

July 19, Mercury will be 3.5° south of the Moon

July 20, the Moon will be at Apogee: 406,291 km from Earth

July 20, Regulus will be 4.2° south of the Moon

July 20, Mars will be 3.3° south of the Moon

July 24, Spica will be 2.8° south of Moon

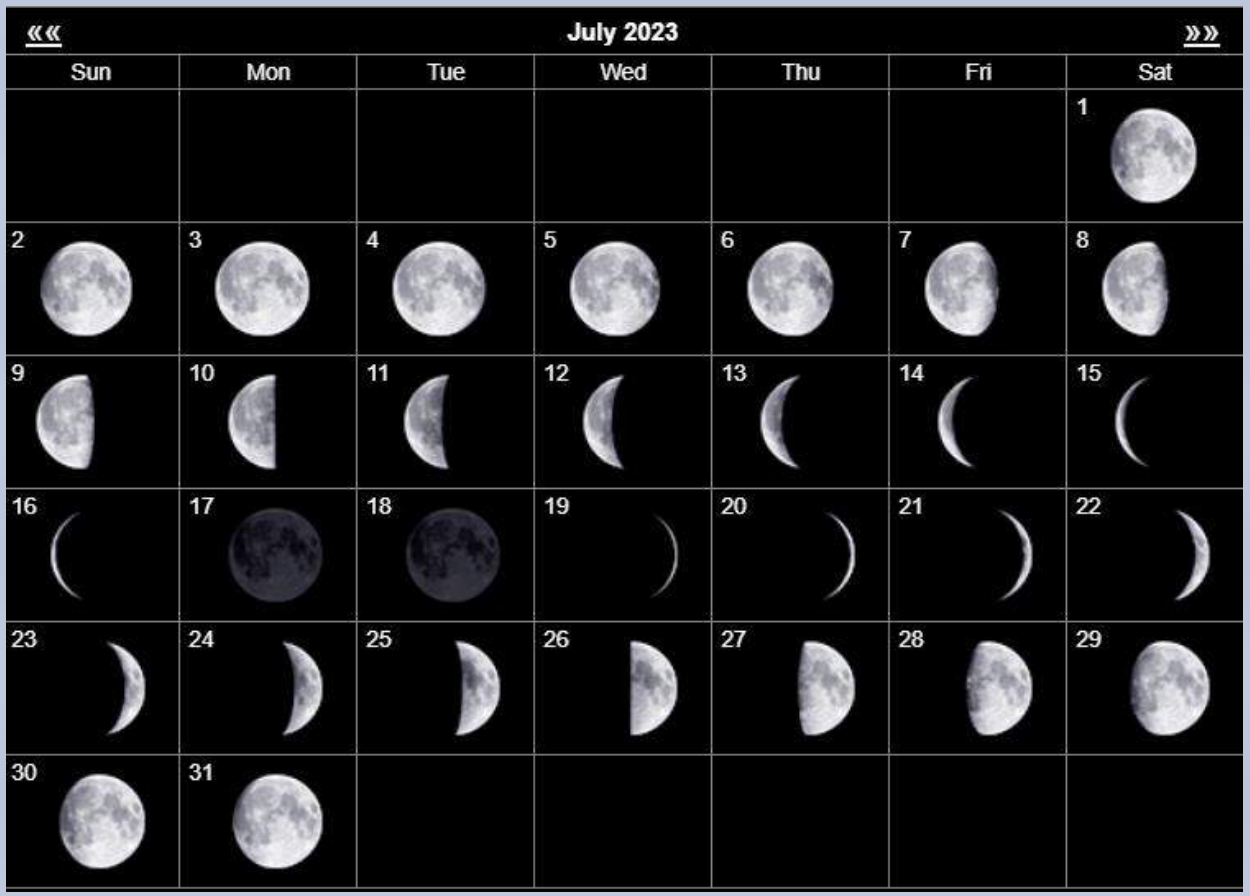
July 25, the Moon will cross the celestial equator going southward at the Descending Node

First Quarter July 25

July 28, will be the Delta-Aquarid Meteor Shower

July 28, Antares will be 1.3° south of the Moon

July 28, Mercury will be 0.1° south of Regulus



A Very Brief Dwarf II Review

GUY EARLE

Okay, I'm not a deep sky imager, let's get that out there right away. Jamie Kenas, Bob Stemlock, Christian Rubach, Rich Tobin, Joe Canzoneri, they are all excellent deep sky imagers. I'm just a planetary and lunar dude, so take that into account on this brief and very uneducated review of the Dwarf 2.

Bob Stemlock has put on our club's Facebook page some excellent information about the Dwarf, and Christian Rubach previously did an overall review in the Examiner. Here's my experience: a bit of delight and also frustration. The portability is great. Being so small, it's easy to grab it and your tripod and be on your way. I only had a few nights at home with good weather to try using it. I watched some Youtube videos and readied myself for a trip to Chiefland and its dark skies. The Dwarf is fickle, and you have to learn how to set the exposure and placement to get a good plate solving, which means that to align itself the telescope takes a series of photographs, swinging around the

sky and identifying star patterns. If you can't see stars on your phone, then your scope can't align. Also, make sure to take the time to focus properly and not count on auto mode.

The delight came from being able to image nebulae and galaxies with ease, once it started working properly, or to put it more accurately, t have set it up properly. To my surprise, I picked up an image of M101 and its supernova, not bad for about an inch of aperature. It's really neat to see your image get better and better on your phone. You're waiting for my frustration, right?

I have hot pixels. I've done my dark frames, following the Youtube instructions from Dwarf Labs, but nonetheless I get red, blue, and green streaks in my images. I haven't learned how to fix this yet, so my opinon will improve once I learn what the heck I'm doing wrong. To be honest, I bought this wanting to have something that did everything I need in one shot. I see people online taking the individual images and dark frames, processing them in another program and tweaking like a regular deep sky image. I didn't want that. I don't want that. To be honest, it's a learning curve I'm not interested in doing. To those that already do deep sky, these steps would be as easy as breathing, but to me it's something that I am intentionally trying to avoid by buying the Dwarf in the first place.

Is it worth the $400? I think so, but I haven't decided yet.

Top: **M101**
Above: the **Veil Nebula**
Right: the **North American Nebula**

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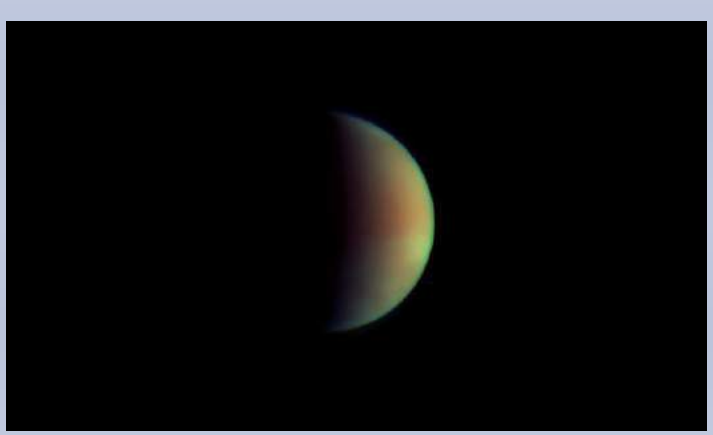
SPAC Image Gallery

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: **M94**, Dates: 2023-06-04,05,06, OTA: GSO 10" RC 1350mm f/5.3, Mount: CEM 70, Camera: ZWO ASI 2600MM, Exposures: L: 180s x88, RGB: 180s x20, Filters: Anlita 2" LRGB **by Jamie Kenas**



Top Above: **M63 by Howard Ritter**
&
Left: **The Moon** w/Samsung 23 Ultra—
phone only, no telescope
&
Above: **Venus in IR and UV** with 10" f/14
dob on eq platform **by Guy Earle**

SPAC Business Meeting

Our next business meeting is **Wed., July 12th, 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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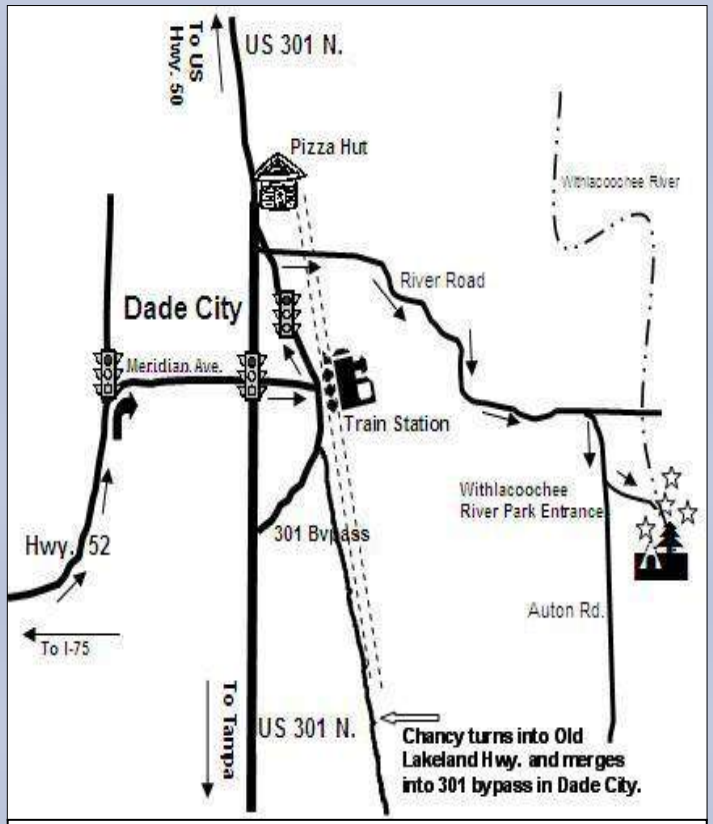
Dark Sky Chair	Leeann Muszynski	813-601-0986

Click on the name to send email



Withlacoochee River Park – Dade City, FL
Detailed directions can be found at:
www.StPeteAstronomyClub.org

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.

St. Petersburg Astronomy Club

Recognition of Patrons & Benefactors

Clifford B. Benham	Benefactor
Lakeisha & Stephen Black	Benefactor
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Walter Brinkman	Benefactor
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Nancy Schafer	Patron
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Jonathan Stewart	Patron
Tom & Michelle Sweet	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 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.