



June 2019

Editor - Guy Earle

The St. Petersburg Astronomy Club has been the center of family astronomy in the Tampa Bay Area for decades. Our 251 adult members are dedicated to promoting and sharing the wonders and science of astronomy. We host dark-sky and local star parties, telescope-making workshops, science lectures, astronomy lectures, educational outreach sessions and much more.

President's Message

KYLE BRINKMAN



Can you all remember the wonder of going out into the country and seeing a clear dark sky for the first time? Mine was being out camping with the Boy Scouts around Micanopy. The sky was so dark and the stars so bright I thought I could see some color in the stars. I stared so long I got dizzy and thought I could fall off the earth. A cold crystal clear sky out in the country is a sight to behold.



An alarming event took place last month that should have us all concerned. Light pollution is a serious problem but this could be much worse. You can escape light pollution by going out into the countryside. Even those places are shrinking and becoming more remote. At least there are some nature lovers out there trying to keep the wild spaces wild.

The Starlink satellite system that was just launched is a first in a series of launches

that will pollute the night sky in a new way. The launch of 60 satellites on May 24th was video recorded by an amateur astronomer in the Netherlands. He showed a "train of bright lights". The plan is to have some 12,000 satellites that provide internet to every inch of the earth. That is only the 12,000 that SpaceX will launch. Other companies and governments have satellites as well. Satellites will outnumber the visible stars.

It is not long before nobody can look up and avoid a satellite. Long exposure photography already loses frames when a satellite crosses the field of view. This will get much worse when every single frame has one. Every earthbound telescope, including the ones on remote mountaintops, will suffer performance problems. Professional and amateur astronomers will suffer. This is all being done so that everybody all over the planet can have high speed access to cat videos. I love the internet too, but the cable to my

house doesn't ruin the night sky for everybody.

New Members

We would like to welcome Rob & Ishtar Thomas-Lewis to our family of members.

General Meeting

This month's general meeting will take place on Friday, June 28th at 8:00 PM, at St. Petersburg College, Gibbs Campus. 6405 5th Avenue North.

Main Program

Radiation Environment and Lava Tubes on Mars by Antonio Paris.



Withlacochee River Park Clubhouse

GUY EARLE

★ SPAC is still seeking donations for the Withlacochee observing clubhouse, named the Huff House, to help offset the cost of renovations. You may donate online for our [website homepage](#) or mail a check to SPAC, 17316 Oak Ledge Dr., Lutz, FL 33549.



July Astronomical Events

STEVE ROBBINS

★ Tuesday, July 2, a full eclipse of the Sun will be visible only from parts of Chile and Argentina just before sunset, which means a very low sun angle. Unless you have a deep, abiding scientific interest, this is one to skip.

On Thursday, July 4, the Moon will be only .2° north of M-44, the Beehive Cluster. And Earth will be at aphelion, furthest distance from the Sun at 1.0168 AU.

Friday, July 5, the Moon will be at perigee, 363,700 km from Earth. Remember, this is the distance between the Earth's and Moon's centers of mass, not the distance between their surfaces.

Tuesday, July 9, Saturn will be at opposition, rising at sunset and setting at sunrise.

Saturday, July 13, find Mars only .4° north of the Beehive Cluster.

Tuesday, July 16, Saturn will be .2° north of the Moon. There will also be a partial eclipse of the Moon, not visible from Florida.

Saturday, July 20, the Moon is at apogee, 405,500 km from Earth.

Sunday, July 28 is the Delta Aquarid Meteor Shower, with a ZHR of about 20. The last quarter Moon will rise at 03:09, leaving dark sky for earlier observers.

Wednesday, July 31, is the second new Moon of the month, called a black Moon. July's full moon is the Full Buck Moon.

The Moon

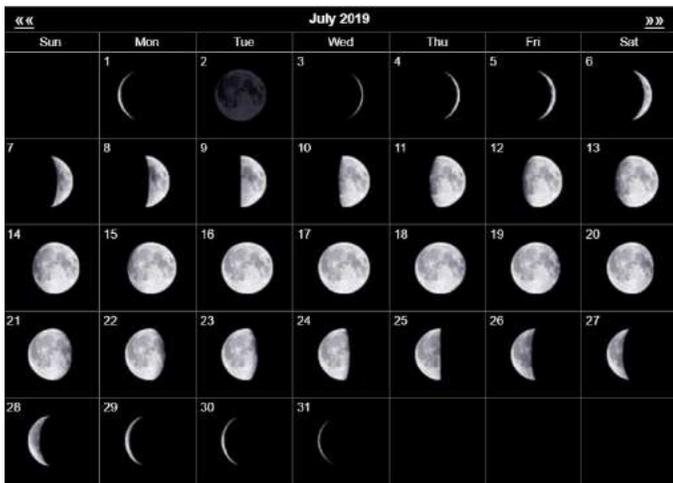
New Moon – July 2

First Quarter – July 9

Full Moon – July 16

Third Quarter – July 24

New Moon – July 31



NASA News

STEVE ROBBINS



Welcome to [High Beta Angle season](#) for the International Space Station. Near each solstice the 51.6° inclination of the ISS' orbit means that the station is fully illuminated for its entire orbit around Earth. Summer solstices are better for northern hemisphere observation, and during the

[month of June](#) we're elected. [Since the ISS](#) is fully illuminated 24 hours a day, NASA generally feathers the solar panels to put the people tubes in shade so they don't overheat.

SpaceX continues to smash its own internal [speed records for refurbishment](#) of Falcon 9 boosters, even as it leans up against factors that mean that they will never meet the 24 hour turnarounds they looked for a year ago. The record time from Of Course I Still Love You docking to the booster horizontal on a railroad car was 41 hours, But B1049.3, after boosting the heaviest payload by a huge margin and landing further offshore than any booster has had to so far, went from vertical on OCISLY to horizontal on the railroad car in only 29 hours. Elon Musk's goal was routine 24–48 hour periods between launches of the same booster. However, the 15 mph speed of OCISLY from 300 miles offshore, the six hour hold time for clearance to enter port, which must be obtained from a position just offshore, means that transit times for the barge alone will be in the 36 hour range. Only then can the process of unloading and refurbishment begin. It appears that Falcon 9 isn't up to previously published goals.

It appears that OSIRIS-REx is just a bit behind schedule. Now having left orbit to drive around the asteroid Bennu to obtain precise angle and Sun angle shots for 100% coverage from a known range, this phase of observation is called the Baseball Diamond Phase, previously scheduled for May. Here's [a great chart](#) of the entire procedure.

June New Moon Weekend

GUY EARLE

★ Only two SPACers braved the soul-scorching heat on Friday at Withlacoochee River State Park, Jamie Kenas and Bob Stemlock, who enjoyed very good skies that night. On Saturday afternoon more intrepid SPACers joined Jamie and Bob, armed with fans, repellent, and clothing to combat the Florida aviary nemesis, the mosquito. Mike Partain, Doug Sliman, and Guy Earle set up near Jamie, with Joe Canz joining our cluster of telescopes; a couple non-SPAC members also were in attendance.



The skies were clear with a pleasant breeze in the late afternoon, wafting in occasional nearby pungent bovine aromas, when clouds rolled in for a near total overcast at sunset. We kept our spirits up waiting for clear skies by finding amusement in the rhythmic zapping of any errant mosquito who flew too close to Jamie and his hot pink tennis racket of electrification. The clouds partially cleared within an hour of sunset but continued to obscure the eastern horizon. This brief clearing allowed the members to align their telescopes and observe for a short time before it became overcast yet again. Joe called it an early night due to equipment issues and Jamie

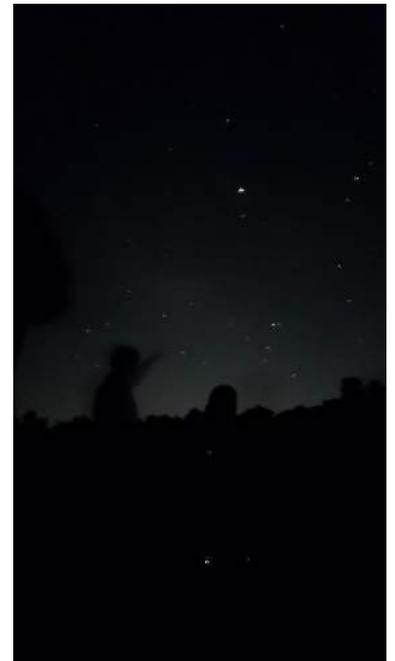
grew disheartened with cumulus despair, however, his fellow SPACers encouraged him to put aside the negative waves.

We were granted with a complete clearing and extremely good skies well before midnight with no perception of humidity. The skies became steadier and more transparent as the night went on, and the summer Milky Way rose over the trees with Antares and Scorpius shining brilliantly. Jupiter displayed tremendous detail in its banding, easily surpassing 250X and was steady and brilliant among the summertime constellations.

Numerous globular clusters were being beautifully resolved, sparkling and blown open down to the core, such as M5, M13, M22, and M92. Nebulas like the Swan (M17) showed distinction with feathering and contrast against the background

sky, along with the Lagoon (M8) and the Trifid (M20) in Sagittarius.

The southern Milky Way is rich in targets and the only obstacle to continued observing was our emerging fatigue. But the knowledge that it would soon be too hot and stormy in the coming Florida months pushed us to make the most of the evening. Mother Nature decided to end the night for us when dew started to settle



around 2 AM., prompting the pack-up of our equipment before it became too damp.

Bob Stemlock and Jamie Kenas remained to continue imaging, particularly in the southern sky, until about an hour before sunrise. The month of June can be a gamble for observing in Florida, and this Saturday certainly paid off for SPAC members with a beautiful star-filled sky.

SPAC Astrophotography

GUY EARLE

Here are some outstanding SPAC photos for the month of June. I encourage members to submit for future newsletters. More photos can see on our [SPAC Facebook page](#).



Jupiter on May 26 by Kyle Denny



Jamie Kenas, M8 Lagoon Nebular @ WRP



Jamie Kenas, M20 Trifid Nebula @ WRP



Crater Plato & Mare Imbium, June 12th

SPAC Mirror Lab

BRAD PERRYMAN

★ Bill and the crew finished making Bill's 10" telescope. After lining up the optics, Bill successfully achieved first light by spotting the moon in the day-lit sky.



After completing his mirror last month, Dimitri is now building a Dobsonian mount. In the picture Dimitri is attaching a side baring to the telescope tube.



I am still cleaning the edge of my 16". Hopefully, I can start figuring the parabolic surface soon. Dave P. is grinding a 12-1/2" mirror, Mike D. came back to finish figuring his 10" slump mirror, and Richard is resting a bad back. We hope he gets better soon.



And for a bit of sad news: Unfortunately, this will be our last month at the Science Center. We have to be out by the end of July and are looking for a new place. So, while we do have some possible locals in mind, we could still use your help. If anyone has a lead for a location, then please let me know so we can add it to the list of options. Until the board can agree on a new site we will have to place all of the equipment in storage.

NWS Balloon Launch

Paul Krahermer

★ The National Weather Service (NWS) graciously hosted the St Petersburg Astronomy Club to a weather balloon launch and tour of their facility in Ruskin Florida on June 3. Twelve members attended.



The weather was perfect for viewing the balloon during its flight. The sky was clear and blue throughout the event. Then it was time to go outside and watch the NWS perform balloon launch preparations. The balloon was filled with potentially explosive hydrogen while inside the hydrogen building, a special building used to fill balloons. Club members stayed a safe



Meteorologist Tony Hurt filling the balloon

distance back, while watching these operations. Attached with a rope below the balloon is a small red parachute used to safely return the balloon's sonde data package to the ground when the flight is complete. As the balloon rises in the atmosphere, the atmospheric pressure reduces, causing the balloon to grow in size, until the balloon cannot hold the hydrogen any longer and bursts in flight. No explosion occurs, the balloon just pops, and the sonde data package begins its return to the ground.



Tara Pearson releases the balloon

During observation, the balloon continued to shrink in observed size while increasing altitude. After an about an hour, the observed size of the balloon began to grow. At 8:45 pm local time, the color of the balloon changed from white to red, as the balloon was in civil and nautical twilight behind the Earth, and the sun light hitting

the balloon passed through the Earth's atmosphere. Five minutes later, the balloon's brightness dropped significantly when the balloon passed through astronomical twilight behind the Earth, and only scattered light from the Earth's atmosphere hit the balloon. Four minutes later it just disappeared. I then went back into the facility, relayed my observations, and obtained the above data from the balloon data package.

We all had a great time at the Ruskin National Weather Service. The staff were friendly and accommodating. Tours are provided by appointment only, which the club had established. I had a new experience, and now know where, when and what to look for to identify weather balloons in flight.



SPAC members in attendance

Club Meeting Hurricane Policy

Hurricane season is upon us. We may cancel the meeting if a hurricane is threatening Pinellas County. If that happens, we will send a cancellation notification via email. Alternatively, you may call Allen Maroney at 727 867-4781 or Jack Fritz at 813 508-5680 to check on the status of the meeting.

SPAC Solar Outreach

Shirley Vuille

★ Our St. Petersburg Astronomy Club is involved in many outreach events for our communities across the Tampa Bay Area. Saturday, June 1st Tom Spano, Shirley Vuille and Steven Gaber helped launch the summer reading program with the nice folks at the Barbara S Ponce Public Library in Pinellas Park. Their theme this year is “Space”. We set up our solar telescopes and enjoyed lots of families taking part in the event.



SPAC members Steve Gaber & Shirley Vuille



Tom Spano and his solar scope setup

National Weather Service

SHIRLEY VUILLE

★ NOAA has been gearing up for the 2019 Hurricane Season. It's better to be prepared than caught wanting.



This is their website for more information: <https://www.weather.gov/wrn/hurricane-preparedness>

Editor's Note

Guy Earle

I would like to take a moment to express my gratitude to the members of the SPAC Mirror Lab, who have worked so tirelessly to help other members, both new and old. I went to the lab in December to strip the coatings off a 1959 Cave Optical 10" mirror, and the members not only prepped it for being re-coated but also tested its quality. Mirror making is a specialty of amateur astronomy that to me seems more professional than amateur in skill. Always friendly, always helpful, I'm indebted to the Mirror Lab members for their assistance.

SPAC Business Meeting 

Our next business meeting is Wednesday, June 12th, at 8:00 PM at SPC Gibbs Campus, Natural Science Building, Room 139.

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.

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Outreach Chair	Jim Hunter	813 507-8415
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Librarian	Ralph Craig	727 384-2086
Club Webmaster	Chris Curran	813 653-2604

Click on the name to send email

Recognition of Patrons & Benefactors:

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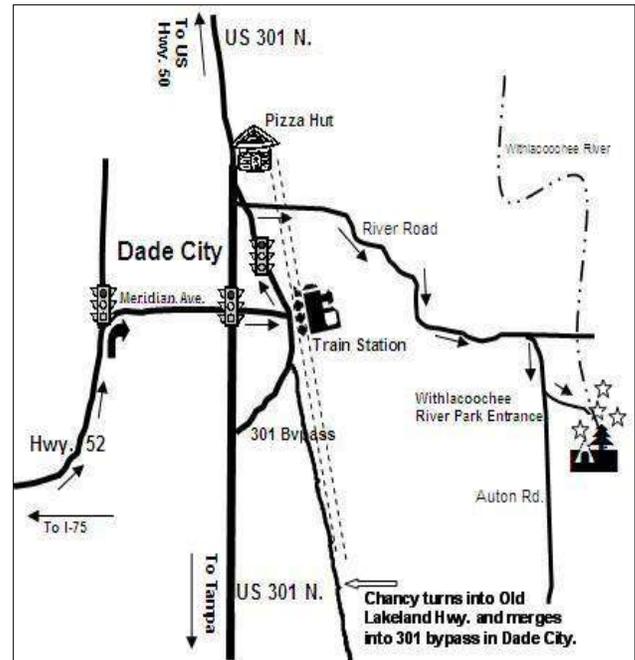
Editor	Guy Earle	813 785-1972
Reporter	Kelly Anderson	813 672-2751
In the News	Steve Robbins	386 736-9123
Mirror Lab	Ralph Craig	727 384-2086

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



SPAC, INC. MEMBERSHIP INFORMATION

Membership in St. Petersburg Astronomy Club, Inc. is open to anyone, regardless of age, who is interested in astronomy. Dues are considered donations and are non-refundable. Membership options are available as listed below:

To join or renew your membership:

Complete the following form and return it with your payment to: Jim Hunter - Treasurer, 17316 Oak Ledge Dr., Lutz, FL 33549-7626 - Telephone number (813) 909-7013 (checks should be made payable to SPAC, Inc.)

Name: _____ Telephone Number: _____

Spouse: _____ Children (*Under 18*): _____

Address: _____ City: _____ St. ____ Zip: _____

E-Mail address: _____

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.

Student: [] Free. Expected date of graduation: _____

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.