



September 2019

Editor - Guy Earle

The St. Petersburg Astronomy Club has been the center of family astronomy in the Tampa Bay Area for decades. Our 262 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



There was a Flash Gordon movie in the 1980s where Ming the Merciless was viewing Earth on his telescope from a distant star. The image let him see the people and cities in real time. There were a host of scientific problems with this movie. Not the least of which was the time difference from looking at a system 100 light years away means the image is 100 years old. There is also the problem of resolution. Daw's limit establishes that the resolving power of a telescope is dependent upon the aperture of the telescope. You just can't build one big enough to read a newspaper on a distant planet. Or can you?



I'm fascinated by an article today that is titled "Hubble Telescope Spies Water Raining on Distant World." The planet is called K2-18b. Other articles say "Water World", "Life Friendly Alien Planet" or "habitable exoplanet". Our news is so quick to jump on conjecture as if it were fact. At

least the one titled "First water detected in the atmosphere of a habitable-zone planet" is technically accurate.

The fact is that the Hubble did not see water raining in the clouds of another planet. The Hubble never could see an exoplanet directly. It is 2.4 meters in diameter and has a Daw's Limit of 0.05 arc seconds. While impressive, that is not going to see a raindrop on Earth much less an exoplanet.

Exoplanets are observed by looking for the flicker of light as the planet passes its star. Even then, it takes a spectrophotometer to separate the light from the star with and without the planet in the way to tell what the atmosphere might be made of. Subtracting one set of data from the other will result in a very small difference. That pattern is then broken down into the most likely elements.

The fact is the Hubble's data was combined with the Spitzer Space Telescope's data. That data suggests that there is both hydrogen and oxygen in the atmosphere. The probabilities drawn from that indicate the possibility of water vapor

in the atmosphere that could conceivably rain. There are other possibilities speculated in the papers.

In the end the scientific papers speculate that the planet K2-18b might have anywhere from 0.01% to 50% water vapor in its atmosphere. The Webb telescope may tell us more in a few years. Even that marvelous telescope will not "see" rain on another world. Of course it is going to take a bit longer to travel 110 light years to find out for sure. Maybe Flash Gordon can lend us his rocket.

New Members

We would like to welcome Steven Mariaroto, Tom & Michele Sweet, Eric Grossman & Jacquelyn Graham, Damon Rath & Jean Futch, and Richard Tobin to our family of members.

General Meeting

This month's general meeting will take place on Friday, September 27th at 8:00 PM, at St. Petersburg College, Gibbs Campus. 6405 5th Avenue North.

Main Program

The main program is about The SETI League by retired teacher David Ocame. He first became interested in radio astronomy in 1997, and while at Yale University, he was employed at the Laboratory of Developmental Neurochemistry and Molecular Neurology, The Child Study Center. David's tasks for The SETI League include evaluating websites for their SETI SuperStar award, soliciting and collecting nominations for their

annual Giordano Bruno and Orville N. Greene Awards, and recommending new awards and competitions to The SETI League Advisory Board.

Club Meeting Hurricane Policy

Hurricane season is upon us. We may cancel the meeting if severe weather is threatening Pinellas County. Please check the Club Meeting Hurricane Policy on the website prior to leaving home.

October Astronomical Events

STEVE ROBBINS

★ Thursday, October 3, find Jupiter 2° south of the Moon.

Saturday, October 5, the moon will be at greatest southern declination, 22.8° south. Also, find Saturn .3° north of the Moon.

Thursday, October 10, the moon is at apogee, 405,900 km from Earth.

Saturday, October 19, Mercury will be at greatest elongation, 24.6° east of the Sun.

Sunday, October 20, the Moon is at greatest northern declination. 22.9° north.

Monday, October 21, with the last quarter moon in the sky, is the Orionid meteor shower, with a ZHR of about 20.

Tuesday, October 22, the Moon will be .7° north of the Beehive Cluster.

Saturday, October 26, the Moon is at perigee, 361,300 km from Earth.

Tuesday, October 29, Uranus is at opposition, rising at sunset and setting at sunrise, also closest to Earth.

Thursday, October 31, Jupiter will be 1.4° south of the Moon.

October's full moon is the Hunters' Moon, even though we only hunt for galaxies.

The Moon

First Quarter - October 5

Full Moon - October 13

Third Quarter - October 21

New Moon - October 27



Space Exploration News

STEVE ROBBINS



Stepping up quickly following Israel's failure to land a probe on the Moon, it was India's turn last month. The headlines read "India fails to land on the moon" [but the story is much more complex](#) than that. First of all American and European space agencies were studying the Indian effort to take away lessons that would aid their own upcoming Moon shots. But most importantly, India has a lunar orbiter, 100% successful and with a better camera than our own Lunar Reconnaissance Orbiter. [ISRO has said](#) that even without a successful landed component, the Chandrayaan-2 mission

has completed between 90% and 95% of its objectives.

SpaceX flew it's Starhopper test bed for the world's first operational methane fueled rocket motor on August 27, flying to 150 meters, hovering and moving laterally to a perfect landing on a marked landing pad. The best video was by amateur space buff Tim Dodd in his You Tube channel [Everyday Astronaut](#). Give it a watch. He gets just a tad excited.

NEOs, Near Earth Asteroids are all the rage now, I guess you'd have to call them "trending" (how I hate that word). The hysteria was only heightened when a 3 meter asteroid, 2019 MO was declared a miss by NASA just shortly before it ended up in the Caribbean Sea. NASA then said that this rock was too small to be a danger to civilization, so it was the kind of asteroid they are concerned with. [Here's the evidence](#) of the 5 kiloton asteroid impacting Earth at about 14.5 km/s. This is only the 4th time in history that an asteroid has been observed before it impacted Earth.

September New Moon Weekend

GUY EARLE



The New Moon weekend should have been at the very end of August, but thanks to the approach of Hurricane Dorian and generally poor weather conditions it was cancelled. Feeling the need for a clear, semi-dark sky, Doug Sliman, Mike Partain, Guy Earle, and Kelly Anderson met the following Friday under a relatively bright moonlit night. We had faith that [Clear Sky Clock](#) promised clear skies and we intended to observe well

past midnight and the setting of the moon. However, the demon of digital chaos visited Doug's SCT, deciding it was in South America or something, that disco music was still popular, and instead slewed around the sky searching for stars like a lost child seeking a parent in a crowded Walmart. The dew began to collect a few hours after sunset, slowly at first, then came on strong and when we went to pack up it was too late. Clearly, Saturday morning was going to be a "dry out" of our equipment. Before the night was over, however, I had my own misfortune—my telescope's very heavy counterweight coming loose twice, slamming into the bottom safety plate, jarring the scope violently out of collimation. Kelly had long since gone to bed by the time Mike and I left Doug alone with thoughts of creepy clowns in the now deserted and shadowy observing field, and drove home having seen only a few objects shortly after midnight.

KELLY ANDERSON

★ The New Moon weekend should have Sunday dawned bright and clear, with temperatures in the mid-70s that quickly climbed to match the 90% relative humidity. An excellent day to hide from the heat. As we approached sunset the skies were cloud-free. Jamie Kenas joined your intrepid Field Reporter as the only astronomer left standing ... everyone else from Friday night had departed. The skies were really clear and steady, what with the hot, dry air that chased Hurricane Dorian away making for pretty good viewing. Even though the 1st Qtr moon was

washing everything out, Jamie and I got some pretty good images, I with my 4" refractor and Jamie with his 11-inch Schmidt-Cassegrain, a real monster that did a magnificent job of sucking up all the photons in the vicinity. As on Friday night, a couple of hours after sunset found the temperatures very comfortable, and about 11:00 o'clock or so the mosquitoes went away (mostly).

Proposed 2020 SPAC Ballot

★ The nomination for the 2020 SPAC officers will be presented at September's general meeting and the floor is open to nominations. Here are the results of the nominating committee:

President: Brad Perryman

Past President: Kyle Brinkman

Vice President: Paul Krahmer

Past Vice President: John O'Neill

Treasurer: Jim Hunter

Secretary: Shirley Vuille

2020 Director: Steven Gaber

Past 2017 Director: David Pearson

The voting will occur at the October meeting and the election of officers at the potluck party afterwards. Please, see the map and special instructions for where to meet on October 25th. Hope to see you there!

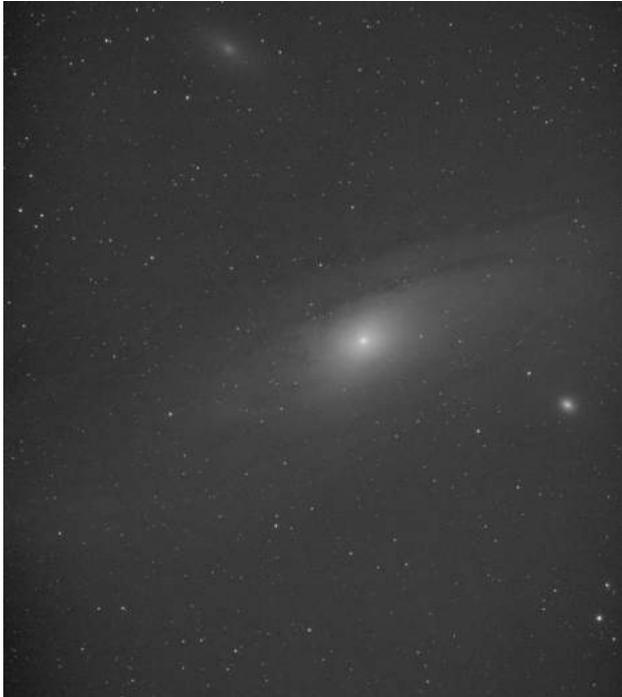
SPAC Astrophotography

GUY EARLE

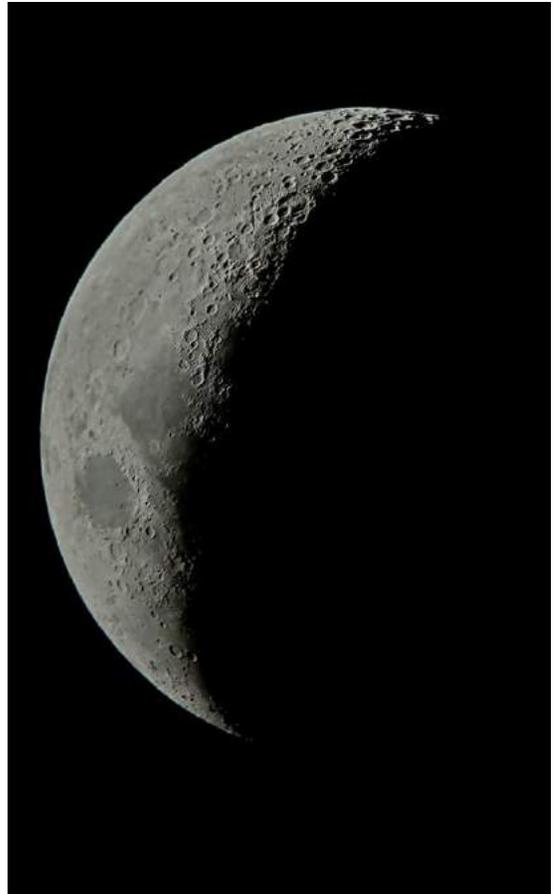
Here are some outstanding SPAC photographs, and I encourage our members to submit for future newsletters. More photos can see on our [SPAC Facebook page](#).



Jamie Kenas, the Cave Nebula @ WRP



M31, the Andromeda Galaxy & M110
by Kelly Anderson



4.6 Day old Crescent Moon w/Galaxy S9+
and 10" reflector



Jupiter on Sept 24th by Richard Tobin



Jamie Kenas, IC 1805 *The Heart Nebula*
Date: 2019-09-07
Location: WRP
Exposures: 31x180sec HA Filter
Processing: stacked & auto-stretched in Celestron 11" RASA f/2

Globular cluster M13 in Hercules by Kelly Anderson



Thoughts on Jupiter

GUY EARLE

★ I've been in this hobby for (God help me, has it been this long?) twenty-six years now, and there have been times where I've stepped away from it for a time. I think most of us have done this at one point or another if you've been doing it long enough. After a pause, we gravitate back to astronomy sometimes because of new friends, maybe a glance skyward on a clear, dark night pulls on you like some nicotine induced habit, or sometimes a bit of new tech will entice us and make all the "old familiars" seem new again.

In the [July Examiner edition](#) I wrote about the restoration of a vintage Cave telescope and how I began using it and a Neximage 5 camera on Jupiter and Saturn. Since late June I've been loading the [club's Facebook page](#) with images of both planets, and as a result of spending hours imaging and processing, I've come to know Jupiter better in the past four months than the 26 preceding years.

Saturn, while beautiful, is a carbon-copy of itself almost every image. The cloud belts tend to look the same, so the challenge is trying to get the sharpest image possible.



Jupiter, however, is a different story. You see, from my driveway in Riverview, I can only see due south to south-southwest. Fourteen years ago when the house was built, we chose a lot that faced south, meaning I could easily take my telescope out of the garage and see the whole ecliptic. Fourteen years later and the trees have limited my visibility to a fraction of the southern sky.



The Cave is not an easy telescope to transport even 20 feet, and I really didn't want to put wheels on the bottom due to vibration transfer. So, some cheap furniture sliders and a bit of Archimedean principle enables me to pull the scope out smoothly in a just a few seconds.

You're probably asking, "What does this have to do with Jupiter?" I'm getting there, I'm getting there. Having a scope that I can quickly set up and start imaging has meant I've spent a lot more time observing and taking note of Jupiter's Great Red Spot, White Spots, belts, zones, and Galilean Moons than ever before.





Using the Neximage 5 is easy, along with the processing programs [Autostakkert](#) and [Registax](#), both of which are freeware. There are a ton of videos on Youtube to help learn the programs and processing tricks, so you'd never be in a spot that there isn't an answer somewhere. I've seen other images produced with the camera, but they tend to be smaller in size. My images tend to fill the frame more simply because of necessity. Used on its own, the Neximage does not come to focus in the Cave. There isn't enough rack-in travel on the focuser, and no way am I drilling holes in this vintage fiberglass tube to move the primary mirror forward! So my solution is a plain plossl eyepiece, some bicycle inner tube, and the camera. Up until recently I used a 25mm plossl, but have just changed to a new 20mm in the last few days, hoping to give me that extra bump of magnification. Typically, I'll add a 1.8X barlow to increase the focal length and sharpen it up more, but that cuts down on

light transmission, hence why I use a plossl eyepiece.

Okay, okay, here's the real point about Jupiter—catch it before it's gone. I've become keenly aware that Jupiter will soon be gone from the evening sky. For years now I'd shrug, say "oh, well" and wait until it came back without a wisp of concern. Things have changed. Back in late June, I'd have to wait until midnight before it passed my oak tree and into the open sky; now by 10:30 it's gone behind my neighbor's tree. Jupiter can offer a tremendous amount of detail to the observer, which changes rapidly due to its moons and high rotational spin. I use [Sky and Telescope's GRS calculator](#) to see when the Great Red Spot will be visible, and an app called "Moons of Jupiter" on my phone for tracking when shadow transits occur. In next month's issue, I go into more detail on the Neximage 5 and how to image the planets.

Now, as Jupiter gets ready to depart the evening sky, I look a bit to the west, see Saturn, and let out an audible sigh.



SPAC Mirror Lab Report

BRAD PERRYMAN

★ While we no longer have a central lab to meet at anymore, most of us are still able to work on astronomical projects.



Ralph helped Dimitri finish the telescope around the mirror Casey started a few years ago. It is a 10" f/5 that Dimitri will deliver to his son In Colorado.



Mike Partain is refiguring the 16" mirror he won at the mirror lab auction earlier this year. We measured the surface curvature to be around 1/2 .5 wave at the lab. The outer three zones of the six measured were a little long. That's okay for a large 16" mirror, but with the experience we have in the club, Mike decided it was worth his time to make

it an exceptional mirror. Under Ron's tutelage, Mike is learning the advanced skill of using a sub-diameter tool to figure a mirror.



Like Mike, I am figuring my 16" mirror with a sub-diameter tool. I finished my first mirror with a full sized tool, so I wanted to expand my knowledge of mirror making by learning a new technique. Yes, it does take a little longer, but the process is easier and can be used to focus on specific areas of the glass.

This year at Stellafane, Allen and Ralph partook in the many classes offered to attendees. Bath Interferometry is the one test we in the mirror lab have been trying to perfect. While our current Foucault tester has saved many hours over the years and afforded exceptional data, it cannot create a 3D model of the mirror surface. They learned how to perform, measure, and analyze the data. One company offered 3D printed interferometry kits, so they each purchased one.



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>

For Sale

★ A collection of eyepieces are for sale, comprising of 8mm and 13mm Hyperions, a 40mm Meade 2", an 18mm, and a 25mm 2", along with a laser collimator and case for \$200. Please contact Mark Anderson at 727-215-6730 for more information and availability.



SPAC October Meeting 10/25/19: Annual elections and Pot Luck Dinner 7PM

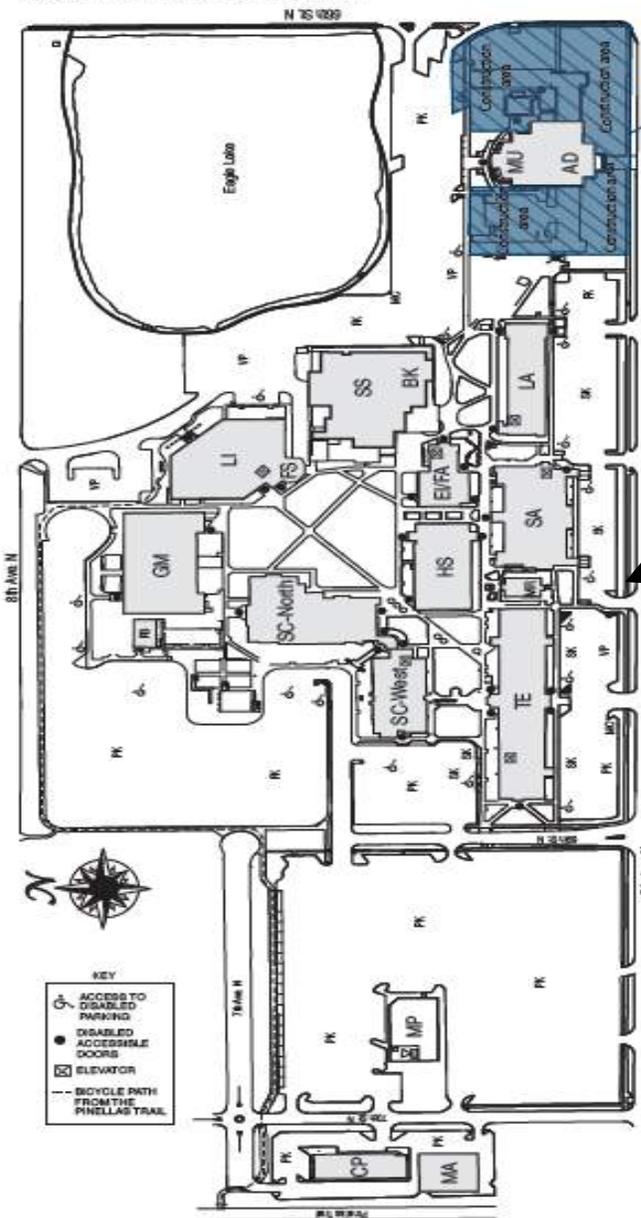
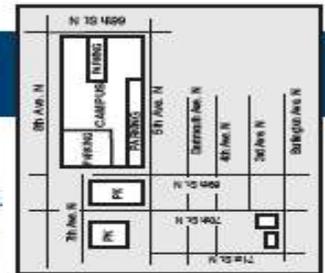
Location: Philip Benjamin Social Arts Building - Room 114

Barbecue Pork provided by SPAC. Please bring a dish to share.

Park on the south side of the building. It is ok to park in several Staff Parking spaces during this time. The only unlocked door to the building will be the Room 114 outside access door facing the south parking lot. The rest of the building's outside doors will be locked.

St. Petersburg/Gibbs Campus

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



New Student Success Center under construction. All services have been moved to the TE building.

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 SC 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.
- EI - ETHICS
Applied Ethics
Music
- GM - GYMNASIUM
- HS - HUMANITIES
Humanities and Fine Arts
- LA - LANGUAGE ARTS
Communications
- LI - LIBRARY
Cafe
Library
Writing Studio
- MA - MAINTENANCE
Facilities/Receiving
- MC - MUSIC CENTER
- MR - MIRA
Music Industry/Recording Arts Shop
- PB - PORTABLE 201
GED Program
- RT - RUNNING TRACK
- SA - SOCIAL ARTS
Career Services (Rm 137)
CROP (College Reach Out Program (Rm 101))
International Programs/International Student Center (Rm 111)
Mathematics
Social and Behavioral Science
Special Programs (Rm 101)
Student Support Services (Rm 101)
Veteran's Services (Rm 139)
WOW Women on the Way (Rm 124)
- SC - NATURAL SCIENCE
Planetarium
Provost Office (Rm 231)
Science
- SS - STUDENT SERVICES
Bookstore
St. Petersburg Collegiate High School
Student Life and Leadership
- TE - TECHNICAL BUILDING
Accessibility Services (Rm 126)
Associate Provost (Rm 128)
Admissions and Registration (Rm 100)
Business Office (Rm 128)
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)
Teeling (Rm 103)
- WE - WELLNESS CENTER

Outside access door to Room 114

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SPAC Business Meeting 

Our next business meeting is Wednesday, October 9th, 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	Kyle Brinkman	727 455-6931
Vice Pres.	John O'Neill	727 637-5945
Secretary	Shirley Vuille	727 864-2624
Treasurer	Jim Hunter	813 507-8415
Dir.-at-Large	Paul Krahrmer	727 535-5827
Dir.-at-Large	David Pearson	727 215-1526
Dir.-at-Large	David Richmond	727 692-9831
SPACE Editor	Guy Earle	813 785-1972
Public Relations	John O'Neill	727 637-5945
Membership Chair	Shirley Vuille	727 864-2624
Outreach Chair	Jim Hunter	813 507-8415
Star Party Chair	Mike Partain	859 339-0828
Librarian	Ralph Craig	727 384-2086
Club Webmaster	Jack Fritz	813 508-5680

Click on the name to send email

Recognition of Patrons & Benefactors:

Clifford B. Benham	Benefactor
Andy Demartini	Benefactor
Jack & Roni Fritz	Benefactor
David & Tara Pearson	Benefactor
John Stepanov	Benefactor
Gus Waffan	Benefactor
Ronald & Sterling Algieri	Patron
Joe Bradley & Diane Ortiz	Patron
Kyle Brinkman	Patron
Peter & Jaclynn Dimmit	Patron
Charlie & Linda Hoffman	Patron
Scott & Beth Irwin	Patron
Matt Labadie	Patron
Robert Myers	Patron
Brad & Lisa Perryman	Patron
David & Rusty Richmond	Patron
Anthony Staiano	Patron
Wally & Ramona Vazquez	Patron

Examiner Staff

Editor	Guy Earle	813 785-1972
Reporter	Kelly Anderson	813 672-2751
In the News	Steve Robbins	386 736-9123

Mirror Lab

[Ralph Craig](#)

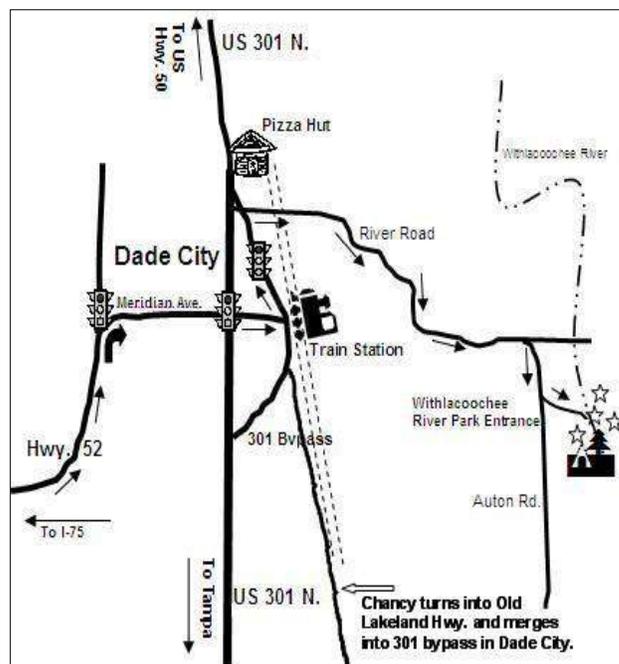
727 384-2086

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.