A S T R O G A T E R

Volume 1 Number 3

May 2023

Grand Strand Astronomy Club
Monthly Events

General Membership Meeting:
Every 1st Thursday @ 7:00 pm
Meeting: VIA Zoom. Please see email or Facebook for link

Observing Session: May 20 @ 8:00 pm
Location: Hampton Plantation
Gates open @ 6:00 pm

Newsletter Contents

Grand Strand Astronomer's Social Media

Grand Strand Astronomers Web Site

Grand Stand Astronomers Facebook

Insights From Ian

I hope everyone has been enjoying the parade of planets in the evening and morning skies this spring. If you have not been able to see Mercury, there are several good opportunities this year. With a low western horizon, it's easy to see with the naked eye (it will look pink) Although we did not get good weather for our Messier marathon in March, we are still hoping to get some observing for galaxy season. We are continuing to work with Hampton State Park to get their Dark Sky Park status and are scheduling some outreach events. I hope everyone will come out to join us in one of our outreach or observing sessions! Clear Skies. -I

Hammpton Plantation - Dark Sky

Grand Stand Astronomers Club has partnered with Lower Country Stargazers Club of Charleston. Both clubs are assisting with making Hampton Plantation South Carolina's first Dark Sky Park. Hampton Plantation is not only an officially a state historic site, but also a historic plantation. The plantation was established in 1735. In 1970 it was declared a Historic National Landmark.

This achievement will be accomplished by meeting the requirements of the International Dark-Sky Association (IDA). The IDA promotes win-win solutions that allow people to appreciate dark, star-filled skies while enjoying the benefits of responsible outdoor lighting. The IDA is an organization that fights against world wide light pollution and its effect on plants, animals and man. This is an on-going effort. For more information see darksky.org.

An IDA International Dark Sky Park (IDSP) is a land possessing an exceptional or distinguished quality of starry nights and a nocturnal environment that is specifically protected for its scientific, natural, educational, cultural heritage, and/or public enjoyment. The land may be publicly owned, or privately owned provided that the landowner(s) consent to the right of permanent, ongoing public access to specific areas included in the IDA designation.

April Meeting

April 6, 2023 at 7:00 EDT

The meeting began via Zoom with Ian leading with a few club meeting activities. The observing session planned for April 15th at Hampton Plantation was cancelled due to cloud overcast. The gate is normally opened at 6:00 pm. Ian stressed to ensure you wear long pants and long sweat shirt to keep the mosquitoes from eating you alive. Using Off, Cutter or Repel are just a few sprays to help keep mosquitoes away.

Brookgreen Gardens has once more requested GSAC to support Earth Day activities in providing Solar Viewing to the children. Ian said he would cover this event and knows a few others will show up to help support the event.

Denise also mentioned that her school Ocean Bay Middle School is also holding its annual Earth Day activities between 10:00 am and 2:00 pm. Tim Kelly volunteered to help with solar viewing. More are welcomed.

Ian discussed that membership dues are overdue. For those who have not paid, please do so immediately.

Ian then started the live streaming and began discussing the presentation of Annular and Solar Eclipses. The presentation can be found on YouTube**.**

After closing the live stream there was an open forum to discuss an upcoming informal dinner for the betterment of the club. Also discussed were several opportunities of reaching out to the public for star parties and making known light pollution and it effect on planet Earth.

Upcoming events discussed were:

1. A telescope clinic where individuals can bring their telescope and learn how to set them up, align the view finder to telescope and aligning the telescope to the night sky and then start viewing.

2. Star parties at Myrtle Beach State Park and Huntington Beach State Park. Communication must be set up with State Park representatives and permission be granted to use the parks. Then dates need to be set up on nights that are not too hot. Fall time seems to be the best outlook.

3. A social club gathering (dinner) is in the works. Since our meetings are held via Zoom to accommodate long distance driving by some, it has been decided for the best interest of club members to meet for direct contact to discuss anything astronomy over a dinner. More to come on date, location and time.

Membership

Join Grand Strand Astronomy Club

Membership in the Grand Strand Astronomers is only $25.00 per year. When you join our group of intrepid astronomers, you get the following benefits:

→ Meeting local astronomers who have a wide range of expertise in observing and astrophotography
→ Participating in events and discussions about astronomical topics
→ Membership in the Astronomical League which includes a subscription to the Reflector magazine
→ Finally, knowing you are helping to promote astronomy in the Greater Myrtle Beach area

We hope you will choose to join our group. You can either join immediately using this form.
Or contact treasurer@gsa.org for other forms of payment.

New Members

There were no new members this month

What's In The Sky

May 2023

Tim Kelly

May 5 - Full Flower Moon will occur at 12:34 pm EDT. As the Moon concludes it 's Waxing Gibbous phase, it will become a Full Flower Moon. Waxing means getting bigger. The Full Flower Moon will technically last for but a moment before beginning its Waning phase. Waning means getting smaller. “Flower Moon” has been attributed to Algonquin native people. As the name implies May is the month of growth and blooming of plant and flower.

May13 – Moon - Saturn Conjunction will happen at 09:04 am EDT in the constellation Aquarius. The planet Saturn at a magnitude of 0.08 will be close to the 23 day old Moon. Separation between the two objects will be 3.17 degrees. Naked eye and binoculars will be a great way to observe this event.

May 17 - Lunar Occultation of Jupiter will occur at 08:40 am in the constellation Pisces. Jupiter with a magnitude of -2.1 will disappear behind the Moon. The Moon will have a magnitude of a –9.4. The Lunar Occultation will be visible from parts of the Americas and Europe. Both objects can be seen with the naked eye, however the use of binoculars or a telescope can be used for better enjoyment.

May 19 - New Moon will occur at 11:53 am EDT. Our only natal satellite will position its self between Earth and the Sun. During this stay its bright side will be facing away from the Earth. This is the best time to be stargazing as the Moon's light will not hinder and viewing sited.

May 23 - Moon Venus Conjunction will occur at 8:00 am EDT. Venus being in the constellation Gemini, with a magnitude of -4.2 will meet the 4-day old Moon. The two objects will be 2 degrees and 12 inches apart, They will be too far apart to view with a telescope , but a good pair of binoculars or the naked eyes will fit the need.

May 29 - Mercury at the Greatest Western Elongation will occur at 12:59 am EDT. Mercury with its magnitude of 0.4 will appear at its furthest distance from then Sun. These two celestial objects will be separation by only 23.9 degrees. It is called the greatest elongation and considerate the best time to observe Mercury.

Taking Astrophotography To A New Height

Chris Taylor

I have had some of my Astro-pics printed on Canvas for my office. Leanne and a few of my friends have been suggesting that I sell the astronomy pictures that I have been printing on canvas for some time now. A few weeks ago Leanne and I drove down to Seacoast Artists Guild and Gallery at 3032 Nevers Street. Market Common. The gallery advised that I would need to join the artists guild and rent a small area to present my 'art'.

Prior to the wall space being available they were holding a Spring Art Show - $30 entry for 2 pictures, so I thought it may be worth a shot before my wall space became available. When dropping the two pictures off (one of Orion Nebula and the other, a shot of the Rosette Nebula) I was advised that there was a Luau themed award ceremony on April 8. I had also been introduced to others in the gallery as "one of our artists" which was pretty novel.

Dusting off my Hawaiian shirt, Leanne and I headed down to the show which had a small complimentary buffet and tiki-bar offering wine. I heard my name being called. A complete shock to see someone standing with my Rosette Nebula print and calling me again. I had won second-prize in the Photography category! A complete honor to be recognized by established artists. Or was it beginners luck?

The two pictures remained on display at the gallery until the end of the April. In the future, I should be getting enough space to display six to eight pictures. Any possible sales will be used to fund more Astro-gear. A potential virtuous cycle…

Creating a Custom Block Horizon in Stellarium - Part 1

Ian Hewitt

Creating a Custom Block Horizon in Stellarium

Stellarium is great tool for planning when your astronomical target(s) will be visible. This will depend on date and time, but it also depends on your local horizon when or if some object or event is observable. Stellarium comes with a number of built-in landscapes you can select, but they will usually not match your conditions. An easy solution for this is to create your own landscape file. Even better, if you are doing astrophotography, programs like NINA (and others) will also be able to use these block files to accurately plan your sessions.

There are two types of landscapes that can be created, a block landscape or a photographic landscape. This article covers how to make a block landscape. A block landscape will simply adjust the horizon values in Stellarium and block out the portions of the sky that are not visible. In other words, it will extend the ground color from an altitude of zero degrees to number of degrees you specify at various points on the horizon. It will then connect these points with straight line segments. Anything below this barrier will be blocked out in Stellarium. There are two steps to creating this file: taking your local horizon measurements and creating the horizon files in Stellarium.

Taking horizon measurements

Horizon measurements can be taken for any location using a Theodolite, which is a surveyor's instrument. Don't have one of these? No problem, all you need is a smart phone. There are multiple apps for iPhone (like the Theodolite app) or Android (Dioptra app) that will allow you to do this. These apps use your camera and let you point it at a target, and it will give you the azimuth (compass heading in degrees) and the altitude (in degrees). The trick is to take a series of points all the way around the horizon. How many points is up to you but remember that Stellarium will connect each point together with a straight line, so take as many points as needed to accurately trace the horizon. For each point, note the azimuth and the corresponding lowest altitude visible at that azimuth.

Creatin the data files

Landscapes consist of two files. The first is a text file. Create a text file and give it a description name (e.g., my_house.txt). In this file list the azimuth and altitude (separated by a space), with each pair being on a separate line. Make sure the azimuth values appear in ascending order. After you have done that and saved the file, create a file called landscape.ini file. It is easiest to copy this from another Stellarium landscape directory (you can find all the landscape directories in C:\Program Files\Stellarium\landscapes\ [Windows] or ~/Library/Application Support/Stellarium/landscapes/ [Mac OS]). Make the following changes to the file:

1. Change the name field to something unique
2. Change the author name
3. Change the polygonal_horizon_list to be the name of the text file you created with the azimuth/altitude pairs
4. Make sure the polygonal_angle_rotatez is set to 0.00001 (This is needed because setting it to zero can sometimes cause the landscape to not map correctly)

If you want, you can change the values for the color of the ground and the horizon line. Once that is done, you have your landscape package. Put both these files into a directory with a unique name and create a ZIP file of that directory and it's contents.

Installing thew ZIP landscape package into Stellarium

Installing the landscape file is easy to do using the following steps:'
1. Once you start Stellarium, mouse over to the lower left side of the screen and pick Sky and Viewing options Window
2. Select the Landscape tab
3. Click Add/remove landscapes
4. Click Install a new landscape from a ZIP archive…
5. Exit all the windows are you landscape is installed

You can then select the landscape in the Sky and Viewing Options Window under the Landscape tab.

It's that time of the year – Galaxy Season

Chris Taylor

During Spring the visible portions of the Milky Way set with the evening sun. With this comes a general lack of nebulae, which are mostly associated with the abundance of stars and dust in the arms of our galaxy. Consequently with the lack of our galaxy's spiral arms blocking the view of the rest of the universe; we get to see more galaxies.

Despite the huge physical size of Galaxies, their distance makes them observationally fairly small - excepting the biggies – M31, M33 and perhaps M81 (in the northern hemisphere at least – in the south the Antipodeans have SMC & LMC). With most galaxies being distant taking up so little field of view, longer focal lengths are required to capture detail. Longer focal lengths; equate to magnification (sort of) and higher magnification also magnifies mount tracking errors, errors in the optical train and poor atmospheric seeing. Mostly these magnified errors can be seen in bloated stars, which compared to wide field/short focal length images tend to be less pleasing to the eye. There are ways to overcome some of these limitations and that discussion can wait for another day.

For this month we'll focus on some of the larger galaxies. Unfortunately in the case of the two largest galaxies we can capture, they are both a little unkind during Galaxy Season, inconsiderately ignoring the season completely and arriving in the fall.

So, what can we see, and what can we capture?

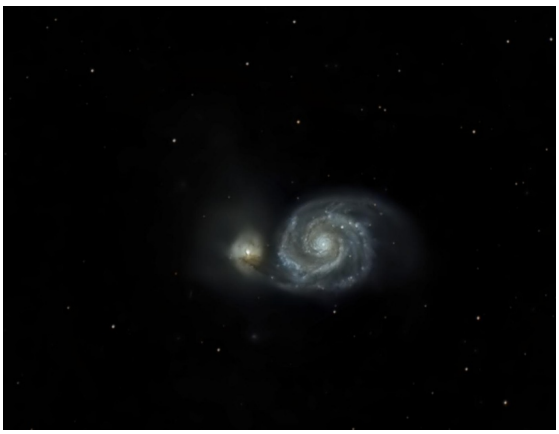
Modern SCT's - for example the Celestron C8 with a 6.3 optical reducer will get your focal length down to 1260mm, which offers great magnification and if you don't mind the bloated stars on limited equipment they will do just fine. There are people who have mastered imaging at these focal lengths. I'm not one of them. While I've managed to capture a few deep-sky images at these focal lengths, I'm no master and have a lot to learn before I try this again.

For Galaxy season a telescope with a focal length of between 500mm and 800mm with a fast focal ratio (say between F/6 and F/2) should get you some of the easiest galaxies. As a note, the faster the focal ratio (F/6 being the slower example and F/2 being the faster), the shorter your exposure time. Short exposures offer less exposure again to mount tracking errors and poor atmospheric seeing.

The easiest objects, not exhaustive and in no particular order are:

M81 & M82 - Bodes Galaxy and The Cigar Galaxy. With its high surface brightness, M81 is an easy optical target. Taken with a 115mm Refractor @ F/5.6 (644mm Focal Length)

M101 - The Pinwheel Galaxy. Taken with a C9.25 at F/6.3 (1456mm focal length)

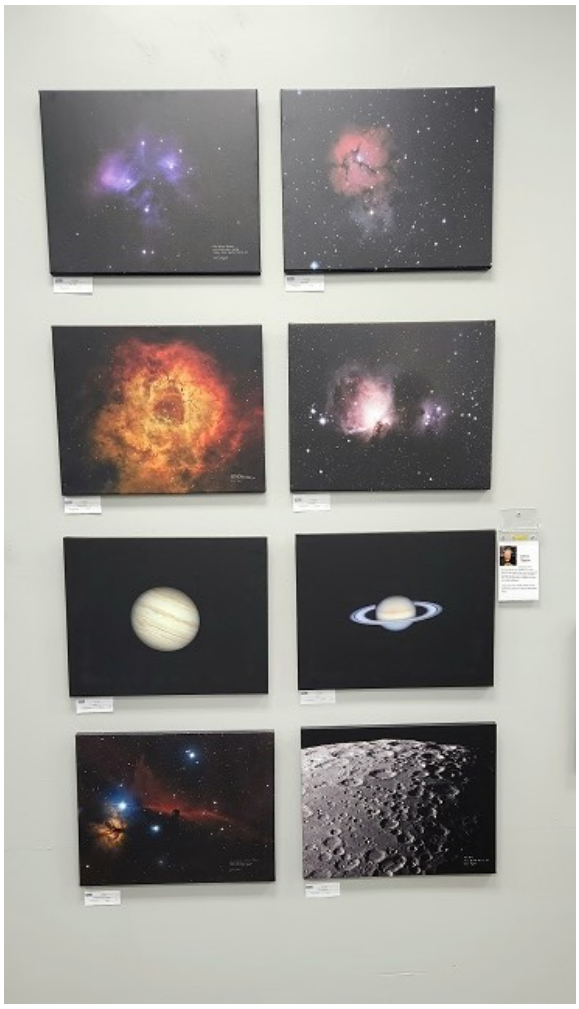


M51 - The Whirlpool Galaxy. This is also a fairly easy object to see with visual astronomy. Taken with a C9.25 at F/2.2 (525mm Focal Length)

M106 - Despite it being scientifically interesting, this galaxy doesn't get it's own cool name. It has a water vapor 'MegaMaser' – perhaps some boffin in the group can write a piece on this (otherwise some boff on google will have already done so for you). Taken with a 115mm Refractor @ F/5.6 (644mm Focal Length)

An Award Winning Photographer

Tim Kelly



At the beginning of April 2023, our own Chris Taylor decided to enter a few of his astro-photography photographs as an exhibit at the Seacoast Artists Gallery located in the Market Commons at 3032 Nevers Street.

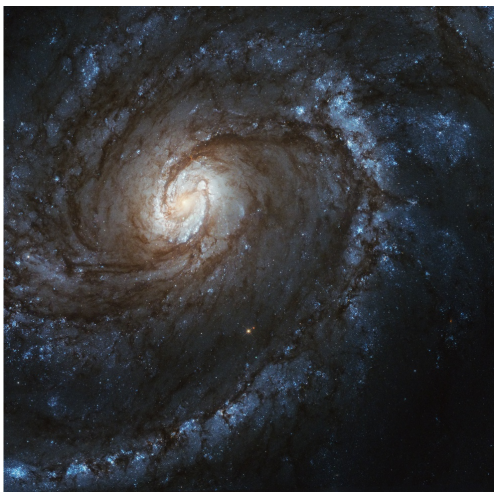
One April 8th the Art Gallery held its judging contest for all art displayed by the local talent. To Chris's surprise, he won 2nd place for the astro-photography category. The winning photograph was the Rosette Nebula, which he has shared with us.

There were a total of 8 photographs that were exhibited in the Art gallery by Chris: M45 - the Pleiades star cluster, M20 - the Trifid Nebula, NGC2237 - the Rosette Nebula, M42 - the Orion Nebula, Jupiter, Saturn, IC434 - the Horsehead Nebula and finally the Moon.

One of the Judges was Dr. Louis Keiner, Professor at Coastal Carolina University, who is also an astro-photographer.

Congratulations Chris from all of us at Grand Strand

NASA Picture Of The Day



Majestic on a truly cosmic scale, M100 is appropriately known as a grand design spiral galaxy. It is a large galaxy of over 100 billion stars with well-defined spiral arms that is similar to our own Milky Way Galaxy. One of the brightest members of the Virgo Cluster of galaxies, M100 (alias NGC 4321) is 56 million light-years distant toward the constellation of Berenice's Hair (Coma Berenices). This Hubble Space Telescope image of M100 was taken with the Wide Field Camera 3 and accentuates bright blue star clusters and intricate winding dust laneswhich are hallmarks of this class of galaxies. Studies of variable stars in M100 have played an important role in determining the size and age of the Universe.

Our Club Is Expanding

Grand Strand Astronomy Club is looking for volunteers to help with the social media platforms such as Facebook, YouTube and Twitter if the need arises. Presently Facebook needs a new face lift and be brought up to present time activities.

Our website can also use some TLC and someone responsible to keep it updated with club activities and astronomy related items.

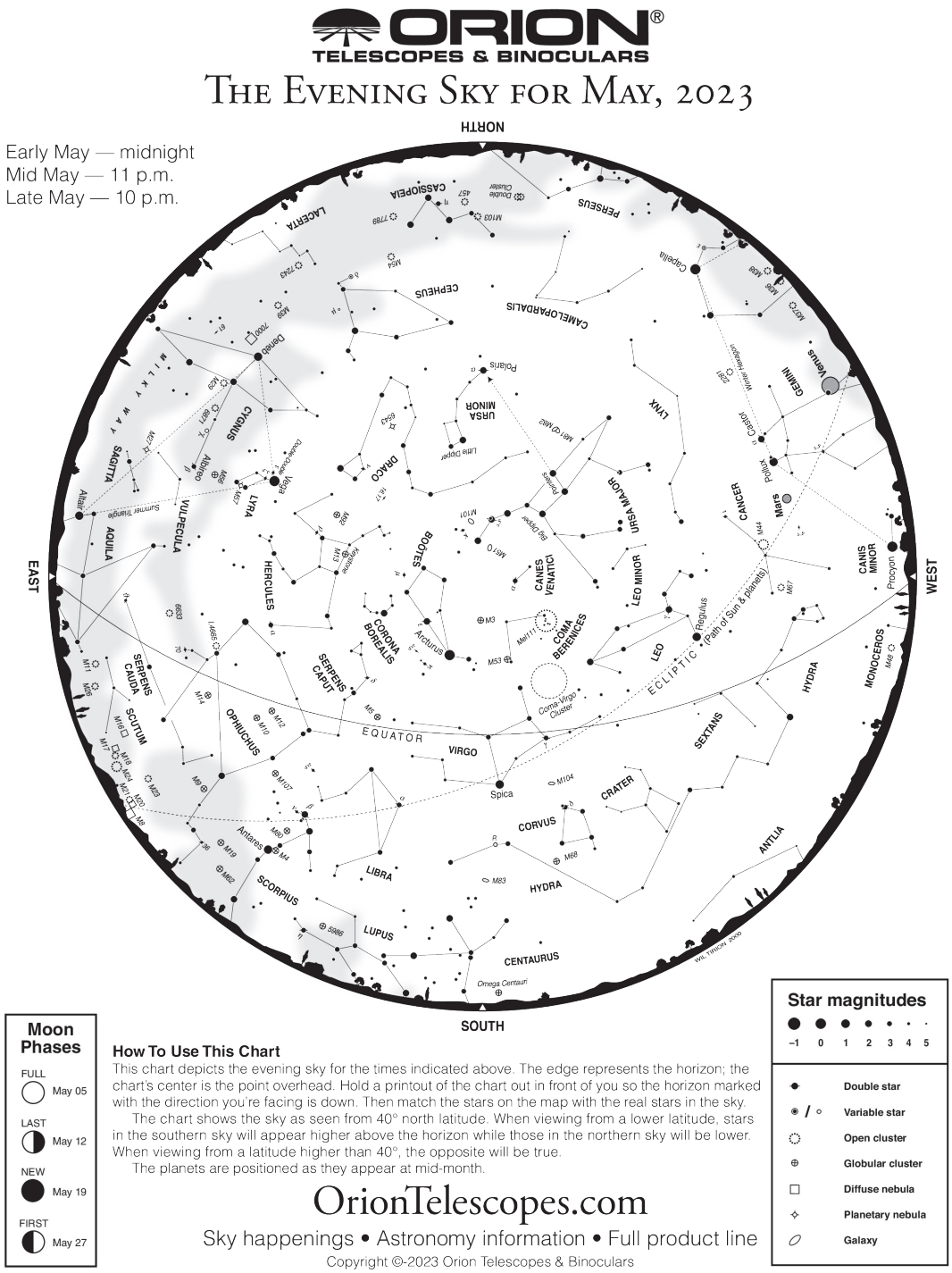
The more members who volunteer, makes the club that more efficient and easier to maintain and more time for everyone to view the heavens!

If anyone would like to help in these categories, please contact Ian Hewitt at the email address below.

Comments and suggestions are welcomed. Send comments to gsastro.org/contact/.

Clear skies to all and remember to always look up!

Orion's Sky Chart



Newsletter Front Photograph:

Courtesy of Chris Taylor

Horsehead Nebula (also known as Barnard 33 in emission nebula IC 434) is a dark nebula in the constellation Orion.