The Astrogator

Grand Strand Astronomers Club Newsletter

ISSUE #02
April 1, 2023

Contents

Insights from Ian (executive officer)

From our start in 2020, the Grand Strand Astronomers continues to grow and pursue our mission of promoting astronomy in the greater Myrtle Beach area. In addition to dark sky observing sessions, this newsletter, started by our members, is another step in that mission. We are very excited to get this started and thank all the members who have and will contribute to making this a great source of astronomy information for our community. Please join us as we continue to grow our group and astronomy in the local area!

Meeting Recap

Held on March 2, 2023

Our March 2, meeting was held via Zoom with Ian leading a very insightful discussion on how to conduct a Messier Marathon. Unfortunitly, we did not get to hold the Marathon because of weather. Rain moved out, but the clouds did not. The Messier information shared is still very useful. Even without a marathon, it will still be fun to locate as many objects as you can.

There are a few astro photographers in our club. Some of them shared their experiences and equipment they are using.

We had a lengthy discussion on the Hampton Plantation's efforts to be recognized as an official Dark Sky Park. They would be the first in South Carolina to do so.

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.*

This certification is given by the International Dark Sky Association (IDA). For more information see darksky.org.

To support this effort, our club has partnered with the Low Country Stargazers club and Hampton plantation. During previous meetings, a new Memorandum of Understanding (MOU) was drafted to make clear how each organization will participate to achieve the Dark Sky status. A steering committee is now started. Let us know if you would like to be a part of this effort.

The meeting continued with a discussion about holding more public outdoor events. Our past experiences with these have been very good. We

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have held public events at Myrtle Beach State Park, Brookgreen Garden (solar observing), and at Playcard Environmental Center. We are planning to hold similar events this year and also look for other opportunities to share astronomy with the public.

Be watching for an invite to our first social event. Since we've been meeting virtually for a while, the leadership thought it will be good to have a social gathering for some in-person interaction.

Club Announcements

Welcome New Members

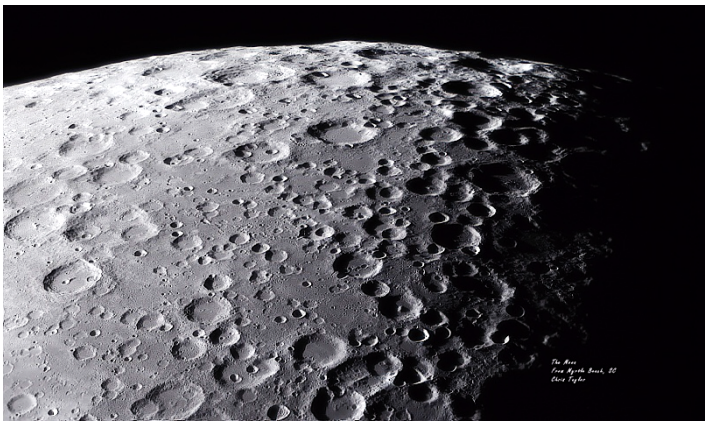
Welcome to new members Megan Eskey, Rod Martin, and James Wranock.

Club Meetings

We'll continue with Zoom meetings for now. These can be seen on YouTube if you've missed a meeting and want to catch up.

Photo of the Month

Submitted by Chris Taylor



This was taken on 6 July last year with a Celestron C9.25 SCT with a ZWO-ASI462MC imager (no barlow) with 0.00106s Exposures for 3min 34s.

The image was processed using Astrosurface stacking around 500 of the 6500 collected frames.

Articles of Interest

Solar Eclipse – Submitted by Tim Kelly

Not Too Early to Plan 2024 Solar Eclipse Trip

Even though the next cross-continent Total Solar Eclipse is not happening until April 8, 2024, amateur astronomers are already making reservations for motel/hotel rooms, camp sites, RV parks, etc. Make your plans now to venture either south or west to position yourself(s) on the center line of Totality.

If you're staying home, then mark your calendars. We here in Myrtle Beach will see a small portion of the Solar Eclipse. **See page 6 for Solar Eclipse Table and Map.**

The path of the eclipse continues from Mexico, entering the United States in Texas, and traveling through Oklahoma, Arkansas, Missouri, Illinois, Kentucky, Indiana, Ohio, Pennsylvania, New York, Vermont, New Hampshire, and Maine. The eclipse will enter Canada in Southern Ontario, and continue through Quebec, New Brunswick, Prince Edward Island, and Cape Breton. The eclipse will exit continental North America on the Atlantic coast of Newfoundland, Canada, at 5:16 p.m. NDT.

The table provides the time that totality begins in a city in each US state in the path of totality. These areas will also experience a partial eclipse before and after these times.

Moon Viewing Guide – Submitted by Tim Kelly

https://moon.nasa.gov/moon-observation/viewing-guide/

The Moon is Earth's constant companion, the first sky watching target pointed out to us as children. We watch its face change as the month progresses, and see patterns and pictures in its geological features.

It's the object in the night sky that humanity knows best — and the one that's easiest to study. Whether your tools are a telescope, a pair of binoculars, or just

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your eyes, you can find plenty of features on the Moon.

We only ever see one side of the Moon from Earth. That's because the interplay of gravity between Earth and Moon slows the Moon into a rotation that paces its own. The Moon rotates, but it rotates at the same speed that it orbits around Earth. This keeps the same side always turned toward us. We call this being "tidally locked."

The Moon has no glow of its own, but shines with the reflected light of the Sun. During its crescent phase in the twilight or dawn, you can also sometimes see the dark portion of the Moon glowing faintly in the sunlight that reflects off Earth, an effect called earthshine.

You can look at the Moon during any of its illuminated phases, but for better viewing of craters and mountains, try phases other than the full Moon. The shadows on the surface will be more pronounced, and help distinguish features you might otherwise miss.

Eyeballing the Moon

Looking at the Moon with only your eyes, you see mostly areas of white and gray. These gray patches are solidified volcanic lava flows. In the Moon's youth, its interior was still molten, and magma would erupt onto its surface. These dark areas formed when massive asteroid or meteorite impacts on the Moon's surface created basins. Because the impact basins were often the lowest places on the Moon's surface, they would begin to fill with erupting lava. The lava was similar to the basalt that erupts on Earth and, like on Earth, cooled to form a relatively dark-colored rock. We call these areas the lunar seas, or maria.

The lighter-colored areas are called the highlands, and show the earliest crust on the Moon, dominated by a type of rock called anorthosite, which is primarily made up of the white mineral anorthite or plagioclase.

What you see on the Moon with your eyes only will vary depending on your eyesight. Give yourself plenty of time for your eyes to adjust and look carefully. You may be able to see some of the larger impact craters on the Moon's surface if your vision is sharp enough; including Copernicus, Kepler, and Aristarchus and Tycho. You may even be able to see some of the bright streaks that are ray systems emanating from the Copernicus or Tycho craters, created when material was thrown outward by the force of the original impacts.

Lunar Sightseeing

With binoculars, you'll still see the entire Moon at once, but now it'll have terrain. Smooth-looking patterns of gray and white resolve into craters and large mountain ridges. You'll be able to tell where the Moon is relatively undisturbed and where it's been pockmarked by impacts. Binoculars introduce texture, especially when you look at the Moon when it's in any other phase other than full. Focus particularly along the terminator line between light and dark, where features will cast long shadows that make them clearer. Choose binoculars with a magnification of 7 at a minimum. Though a magnification of 10 or 15 will provide more detail, you may need a tripod to steady them.

Astrophotography That Doesn't Break the Bank-- Submitted by Chris Taylor

Astrophotography can be as cheap and easy, or as difficult and expensive as you want it to be.

Let's take a look at astrophotography with your smartphone. Cheap and easy.

There are a few ways to take images with a smartphone; some easy and some a little more difficult. Like many things you can spend to make it a little easier, but sometimes the fun is in the challenge.

Imaging with a telescope.
If you have a telescope, holding your smartphone to the eyepiece it's possible to capture images of the moon and the brighter planets. It takes some patience, but can be done.

Mobile phone holders can also be bought that attach to the telescope which make things easier. They can cost from $10, to $40 for the excellent Celestron

smartphone holder which has 3 axis adjustment to make things much easier.

Here's a few pictures of the moon taken with my mobile phone and a telescope:

Holding my phone to the eyepiece.

Using a smartphone holder.

Longer Exposure Astrophotography

To take pictures of fainter objects, you'll need some means of keeping your phone stationary as longer exposures are required. Any movement will be exposed while the camera shutter is open.

There's also an article in space.com that's worth a look (*https://www.space.com/smartphone-astrophotography*).

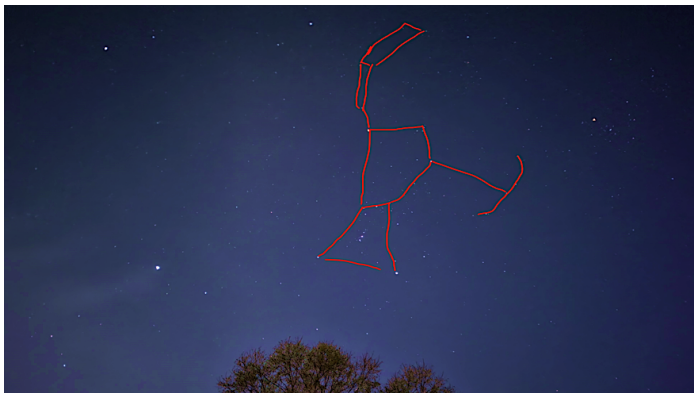
Some of the tips they offer include:

- Keeping your smartphone still
- Using 'night mode' and shoot in raw So-called 'night mode' has been in fashion for smartphone cameras for the last few years. ...
- Capturing star-trails, meteors and satellites
- Experimenting with 'Moon mode' ...
- Using your smartphone with a telescope ...

If interested, also take a look at: - *https://photoswithphones.com/complete-guide-smartphone-astrophotography/*

There is also an active group on Facebook which pursue Smartphone Astrophotography. Do a search on FB for 'Smartphone Astronomy'. You'll need to join the group before being able to view and contribute.

While writing this, I zip-tied my smartphone earlier to a tripod *(be careful you don't drop your phone)* and took this image of the constellation of Orion while using night mode to manage the exposure automatically:



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If you're looking for something safer than a ziptie solution, there are dedicated smartphone tripods available on Amazon.

There are a number of ways to get into astrophotography that don't break the bank and there are always people willing to help.

Joining a local astronomy club is a great way to meet like-minded people who are willing to share their experiences.

Events and Outings

Club Meetings:

The next club meeting is scheduled for Thursday, April 6 at 7:00 PM. Meeting link will be provided by e-mail and also on Facebook.

Club Outings:

The next club outing is scheduled for April 18 at Hampton Plantation beginning at sundown.

Comments and suggestions welcomed. Send to gsastro@info.com

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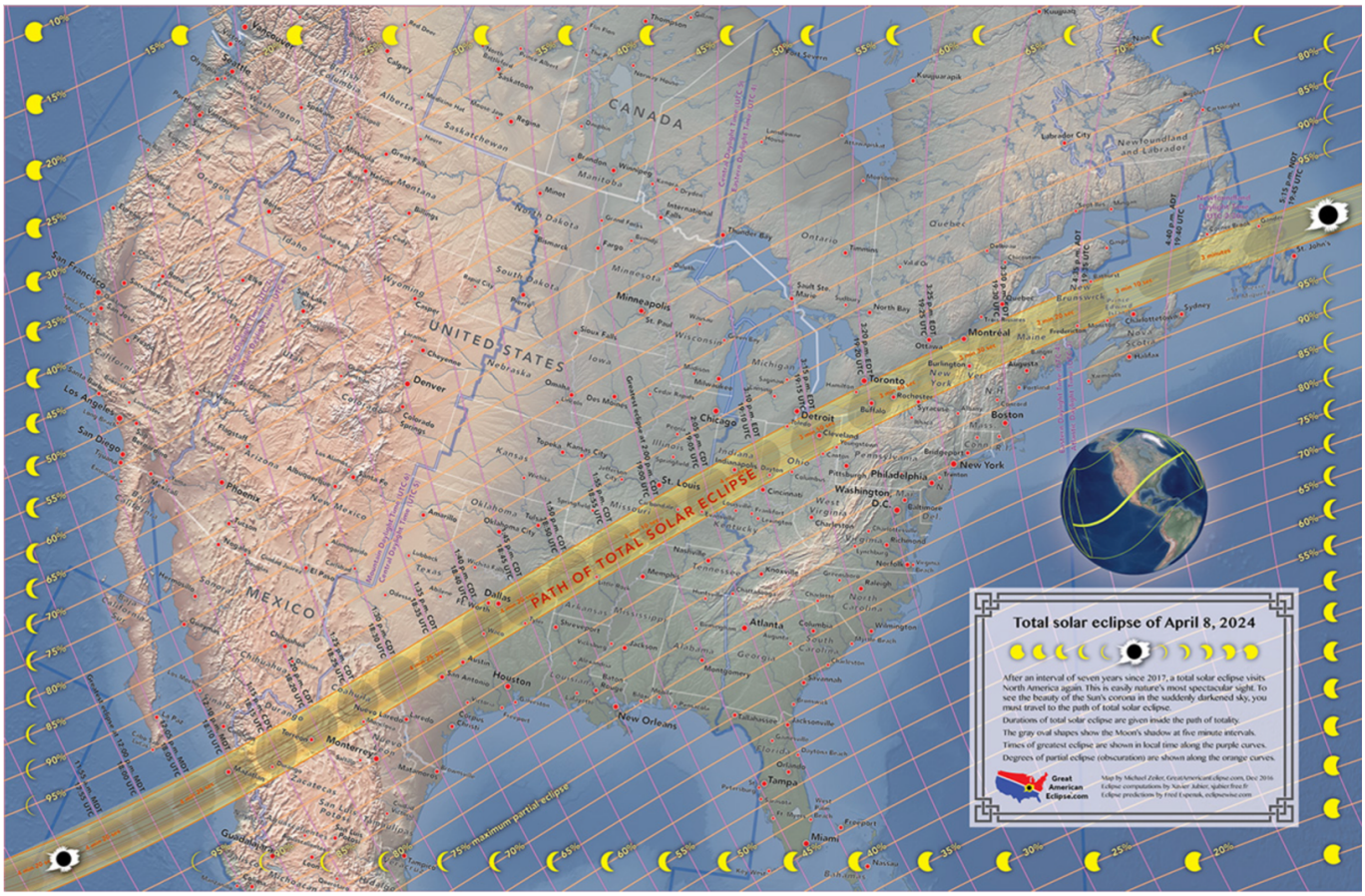
2024 Solar Eclipse data and map are taken from:
https://solarsystem.nasa.gov/eclipses/2024.

Location	Partial Begins	Totality Begins	Maximum	Totality Ends	Partial Ends
Dallas, Texas	12:23 p.m. CDT	1:40 p.m. CDT	1:42 p.m. CDT	1:44 p.m. CDT	3:02 p.m. CDT
Idabel, Oklahoma	12:28 p.m. CDT	1:45 p.m. CDT	1:47 p.m. MDT	10:49 p.m. MDT	3:06 p.m. CDT
Little Rock, Arkansas	12:33 p.m. CDT	1:51 p.m. CDT	1:52 p.m. CDT	1:54 p.m. CDT	3:11 p.m. CDT
Poplar Bluff, Missouri	12:39 p.m. CDT	1:56 p.m. CDT	1:56 p.m. CDT	2:00 p.m. CDT	3:15 p.m. CDT
Paducah, Kentucky	12:42 p.m. CDT	2:00 p.m. CDT	2:01 p.m. CDT	2:02 p.m. CDT	3:18 p.m. CDT
Evansville, Indiana	12:45 p.m. CDT	2:02 p.m. CDT	2:04 p.m. CDT	2:05 p.m. CDT	3:20 p.m. CDT
Cleveland, Ohio	1:59 p.m. EDT	3:13 p.m. EDT	3:15 p.m. EDT	3:17 p.m. EDT	4:29 p.m. EDT
Erie, Pennsylvania	2:02 p.m. EDT	3:16 p.m. EDT	3:18 p.m. EDT	3:20 p.m. EDT	4:30 p.m. EDT
Buffalo, New York	2:04 p.m. EDT	3:18 p.m. EDT	3:20 p.m. EDT	3:22 p.m. EDT	4:32 p.m. EDT
Burlington, Vermont	2:14 p.m. EDT	3:26 p.m. EDT	3:27 p.m. EDT	3:29 p.m. EDT	4:37 p.m. EDT
Lancaster, New Hampshire	2:16 p.m. EDT	3:27 p.m. EDT	3:29 p.m. EDT	3:30 p.m. EDT	4:38 p.m. EDT
Caribou, Maine	2:22 p.m. EDT	3:32 p.m. EDT	3:33 p.m. EDT	3:34 p.m. EDT	4:40 p.m. EDT



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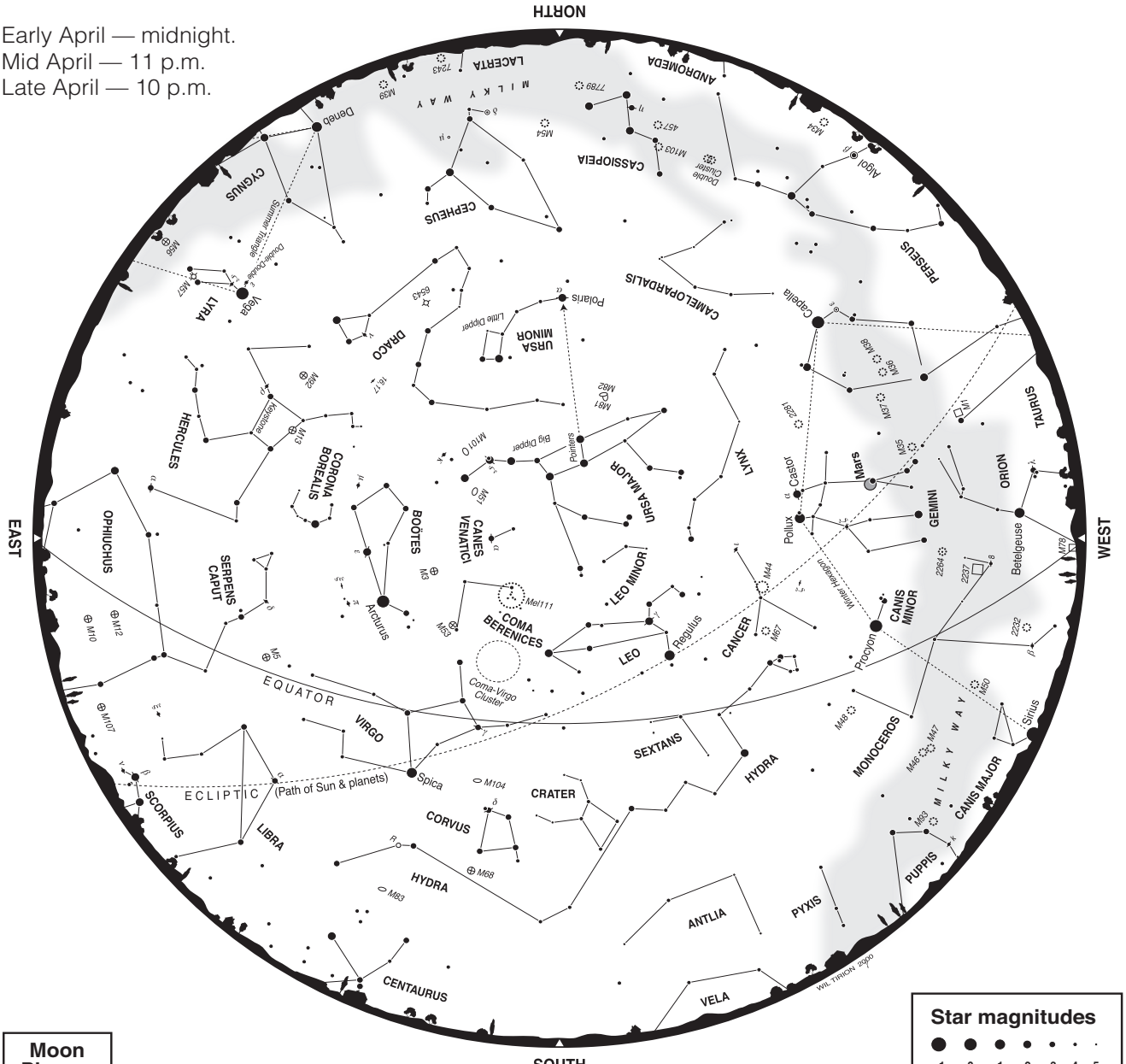
The Evening Sky for April, 2023

Early April — midnight.
Mid April — 11 p.m.
Late April — 10 p.m.



Moon Phases

FULL — Apr. 05
LAST — Apr. 13
NEW — Apr. 19
FIRST — Apr. 27

How To Use This Chart

This chart depicts the evening sky for the times indicated above. The edge represents the horizon; the chart's center is the point overhead. Hold a printout of the chart out in front of you so the horizon marked with the direction you're facing is down. Then match the stars on the map with the real stars in the sky.

The chart shows the sky as seen from 40° north latitude. When viewing from a lower latitude, stars in the southern sky will appear higher above the horizon while those in the northern sky will be lower. When viewing from a latitude higher than 40°, the opposite will be true.

The planets are positioned as they appear at mid-month.

Star magnitudes

–1 0 1 2 3 4 5

- Double star
- Variable star
- Open cluster
- Globular cluster
- Diffuse nebula
- Planetary nebula
- Galaxy

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