WEEKLY STARGAZERS' NEWSLETTER

by Dr. Bob

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These are the notes that I use for the weekly radio broadcast on Rome Radio Station WLAQ AM 1410 and FM 96.9. The program airs at 7:50 a.m. each Tuesday morning. The radio station also has a live FaceBook broadcast at the same time: WLAQ-Rome. Send questions to: ryoung@highlands.edu

Etowah GYSTC Website QR code

OBSERVATION PERIOD:
10/04/22 – 10/10/22

FUN FACT OF THE WEEK:

Do you want to look into the past? Well, the stars we look at in the night sky are so far away that it takes light hundreds, thousands, even millions of years to get to us. That means that when we look into the night sky, we are look at the stars as they were long ago. For example, Procyon, brightest star in Canis Minor, is 11.45 lys away. So when you look at it, you are seeing it as it was 11.45 years ago, NOT as it is now. You are looking into its past. Even the Sun is 8.5 light minutes away.

MOON FOR THE WEEK:


Full Moon

The Moon will be Full October 9th.
October's Full Moon is the Hunter's Moon or Full Harvest Moon. Long ago, Native Americans named this bright moon for obvious reasons. The leaves are falling from trees, the deer are fattened, and it's time to begin storing up meat for the long winter ahead. Because the fields were traditionally reaped in late September or early October, hunters could easily see fox and other animals that come out to glean from the fallen grains.

The Harvest Moon and the Hunter's Moon are unique in that they are not directly related to this folklore, nor necessarily restricted to a single month. Instead, they are tied to an astronomical event: the autumnal equinox!

The Harvest Moon is the full Moon which occurs nearest to the date of the autumnal equinox (September 22, 2022). This means that either September or October's full Moon may take on the name "Harvest Moon" instead of its traditional name. Similarly, the Hunter's Moon is the first full Moon to follow the Harvest Moon, meaning that it can occur in either October or November.

This year, the Harvest Moon occurred on September 10, so the Hunter's Moon will follow it one lunar cycle later, on October 9th.

The earliest use of the term "Hunter's Moon," cited in the Oxford English Dictionary, is from 1710. Some sources suggest that other names for the Hunter's Moon are the Sanguine or Blood Moon, either associated with the blood from hunting or the color of the changing autumn leaves.

The Moon is at perigee today, 369,325 kms (238,235 mi) from Earth. To convert kms to miles, multiply kms by 0.62 miles/km.

HORIZON TO HORIZON PLANET VIEW

The sun rises at 7:37 a.m. (EDT) and sets at 7:22 p.m. (EDT). The Sun is still in the constellation Virgo, the Maiden. The Earth is now 1.0005 AUs from the Sun. This is closer than it was last week when it was 1.003 AUs from the Sun. As a review, one Astronomical Unit is about 93 million miles.

The Sun will reach an altitude of 51.6 degrees altitude which is lower than it was last week when it was 54.7 degrees above the horizon.

The Planets:

Mercury rises at 6:23 a.m., before the Sun. Look for it low on the Eastern horizon.

Venus (Earth's Twin) rises at 7:14 a.m. which is 20 minutes before the Sun. Venus is too close to the horizon at sunrise to view.

Mars rises in the East a little before midnight so if you are one who stays up late, you might get a glimpse of it before you go to sleep. If you get up early in the morning, you should be able to see it close to the meridian at sunrise. The Red

Planet can be seen crossing the meridian at 6:11 a.m. Mars is best seen an hor or so before sunrise.

Jupiter rises in the East at 7:03 p.m. Jupiter crosses the meridian at 1:05 a.m. If you get up before sunrise, Jupiter will be lower toward the western horizon and very bright. This Gas Giant is the largest planet in the Solar System. It is larger than all of the other planets put together. If you have a pair of binoculars, you can easily see the four Galilean Moons. Jupiter with it big red spot has a total of 79 moons, last count.

Saturn rises at 5:03 p.m. and can be seen all night long. The Saturn is one of the best objects to be seen with a small telescope. The Ringed Planet crosses the meridian at 11:15 p.m. making this planet in a perfect location to study. Saturn with its beautiful rings has the most moons of any planet in the solar system.

MARS ROVER PERSEVERANCE

To get regular and current updates on the progress of NASA's Perseverance rover on Mars, go to the website:
https://www.space.com/news/live/mars-perseverance-rover-update

SATELLITES FOR THE WEEK (ISS PASSES):

05 Oct	-2.6	20:47:51	10°	WNW	20:51:03	40°	SW	20:52:06	30°	S	visible
06 Oct	-3.7	20:00:18	10°	NW	20:03:41	80°	SW	20:07:04	10°	SE	visible
07 Oct	-0.6	20:51:38	10°	WSW	20:52:49	11°	SW	20:54:00	10°	SSW	visible
08 Oct	-1.1	20:03:10	10°	WNW	20:05:48	21°	SW	20:08:26	10°	S	visible

Best day to see ISS is on Thursday, October 6th.

CELESTIAL FEATURE OF THE WEEK:

Capricornus is one of the constellations of the zodiac. Its name is Latin for "horned goat" or "goat horn", and it is commonly represented in the form of a sea-goat: a mythical creature that is half goat, half fish.

Capricornus is one of the 88 modern constellations, and was also one of the 48 constellations listed by the 2nd century astronomer Ptolemy.

The constellation is located *in an area of sky called the Sea or the Water*, consisting of many water-related constellations such as Capricornus, the Sea-Goat; Aquarius, the Water Bearer; Pisces, the Fishes; Piscis Austrinus, the Southern Fish; Cetus, the Whale; and finally Eridanus, the River. These constellations may have commemorated a great flood of long ago.

It is the smallest constellation in the zodiac.

Due to the precession of the equinoxes the December solstice no longer takes place while the sun is in the constellation Capricornus, as it did until 130 BCE, but the astrological sign called Capricorn begins with the solstice.

The solstice now takes place when the Sun is in Sagittarius.

The sun's most southerly position, which is attained at the northern hemisphere's winter solstice, is now called the Tropic of Capricorn, a term which also applies to the line on the Earth at which the sun is directly overhead at noon on that solstice.

The Sun is now in Capricorn from late January through mid-February.

There is one galaxy group located in Capricornus is HCG 87, a group of at least three galaxies located 400 million light-years from Earth.

SPACE HISTORY OF THE WEEK

1957, October 4: Sputnik 1 was launched

It was a 58 cm (23 in) diameter polished metal sphere, with four external radio antennas to broadcast radio pulses. It was visible all around the Earth and its radio pulses were detectable. This surprise 1957 success precipitated the

American Sputnik crisis and triggered the Space Race, a part of the larger Cold War.

Sputnik itself provided scientists with valuable information. The density of the upper atmosphere could be deduced from its drag on the orbit, and the propagation of its radio signals gave information about the ionosphere.

The satellite travelled at about 29,000 kilometres per hour (18,000 mph; 8,100 m/s), taking 96.2 minutes to complete each orbit.

The signals continued from the satellite continued for 21 days until the transmitter batteries ran out on 26 October 1957. Sputnik 1 burned up on 4 January 1958, as it fell from orbit upon reentering Earth's atmosphere, after travelling about 70 million km (43.5 million miles) and spending 3 months in orbit.

1882, October 5: Robert Goddard was born.
an American engineer, professor, physicist, and inventor who is credited with creating and building the world's first liquid-fueled rocket,[1][2] which he successfully launched on March 16, 1926. Goddard and his team launched 34 rockets[3] between 1926 and 1941, achieving altitudes as high as 2.6 km (1.6 mi) and speeds as high as 885 km/h (550 mph)

Although his work in the field was revolutionary, Goddard received very little public support for his research and development work. The press sometimes ridiculed his theories of spaceflight. As a result, he became protective of his privacy and his work. Years after his death, at the dawn of the Space Age, he came to be recognized as the founding father of modern rocketry

QUESTION OF THE WEEK
“I bought a small telescope. How do I know what it’s power is? Morgan L.

First, congratulations! We talked about what kind of telescope to buy last week, this week we will talk about its magnification.

To determine its magnification you will need to know two things, objective focal length and eyepiece focal length.

The telescope comes with a main mirror or a main lens at the front of the telescope. These are called the objectives. For most, you are looking for a number that is around 1,200 mms (millimeters). It can be found on the side of the barrel of the telescope usually.

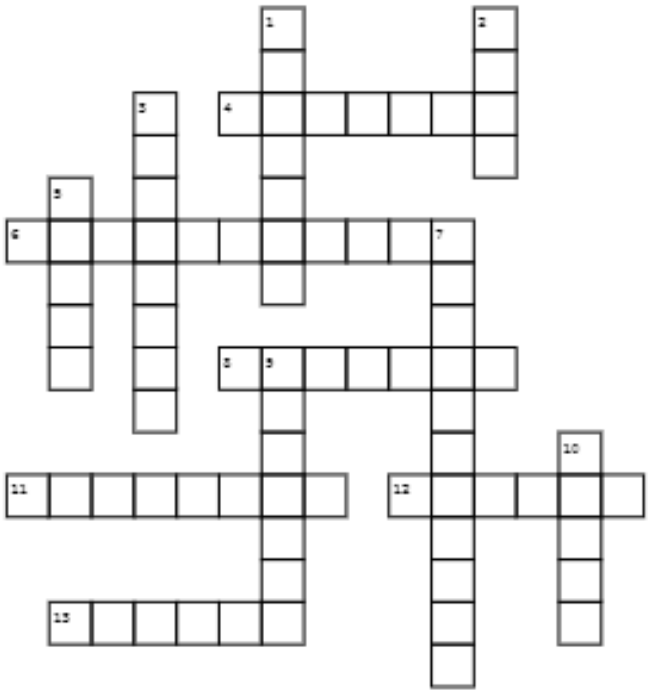
You will also have a couple eye pieces that you interchange in the part of the scope you look through. All eyepieces will have a number on the barrel. The number will range from 5 mms to up to 25 mms.

Now to determine the magnification power of your telescope given a specific eyepiece you divide the objective focal length by the eyepiece focal length. Say your telescope has an objective focal length of 1,200 mms and the eyepiece that you are using has a focal length of 12 mms.

Well 1.200 mms divided by 12 mms gives a magnification of 100 X!

This is more than enough to see rings around Saturn, for example.

The Stargazers' Newsletter



Down:

1. The astronomical condition that determines when the Harvest Moon will take place.
2. The planet with two moons; Phobos and Demos
3. The best day this week to see the International Space Station.
5. The area in the sky that Capricornus is located, Sea of _____
7. The solstice takes place in which constellation?
9. The star that is 11.45 light years from us.
10. The planet that is currently too close to the Sun to view, by line of sight.

Across:

4. The planet with the Big Red Spot in is clouds.
6. The constellation that is called the Horned Goat.
8. The Russian satellite that was launched on October 4th, 1957.
11. Magnification of a telescope is determined by dividing the objective focal length by the _____ focal length.
12. The constellation, Virgo, that the Sun is currently in.
13. The ringed planet.