

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:
01/10/23 – 01/16/23

FUN FACT OF THE WEEK:

There are five named Dwarf Planets but some astronomers feel that there are 50 or more, not yet named. Named by size, largest to smallest: Eris, Pluto, Haumea, Makemake, and Ceres. Haumea, with a diameter of 1,400 kms, spins once every 3.9 hours, making it the fastest spinning known body, larger than 100 km in diameter, in the solar system.

MOON FOR THE WEEK:

The Moon is Third Quarter on Saturday, January 14th.

The Moon is 404,500 kms from the Earth today. This is a little closer to the Earth than it was last week, when it was at apogee. If you look closely, because the Moon is getting a little closer to the Earth, you might notice that the Moon will be looking a little larger over the next 2 weeks.



Third Quarter

To convert kms to miles, multiply kms by 0.62 miles/km.

HORIZON TO HORIZON PLANET VIEW

The sun rises at 7:47 a.m. and sets at 5:49 p.m. Last week the sunrise sunset times were 7:47 a.m. (EDT) and 5:45 p.m. (EDT). This means that there are 10 hrs. 2 minutes this week compared to 9 hrs. 58 mins of daylight hours last week.

The Sun is still in the **constellation Sagittarius**. Sagittarius is a southern hemisphere constellation which can be seen low on the horizon from the mid-northern hemisphere latitudes.

Sagittarius is one of the constellations of the zodiac and is located in the Southern celestial hemisphere. It is one of the 48 constellations listed by the 2nd-century astronomer Ptolemy and remains one of the 88 modern constellations. Its name is Latin for "archer". Sagittarius is commonly represented as a centaur pulling back a bow. It lies between Scorpius and Ophiuchus to the west and Capricornus and Microscopium to the east.

The is Earth 0.9834 AUs from the Sun. It is 33.8 degrees altitude when it crosses the meridian, the highest point in the sky as it crosses from East to West. We will see that the Sun will continually get higher and will remain up longer each day as the seasons change.

The Planets:

Mercury rises at 7:12 a.m. This is about 30 minutes before the Sun. This means that you might be able to see the elusive planet low on the eastern horizon at sunrise. The planet will be getting higher in the morning each week.

Venus rises at 9:05 a.m. which is about 90 minutes after sunrise. Venus sets at 7:14 p.m. which is 1.5 hrs after sunset. You will begin to see it high in the evening sky.

Mars rises up in the eastern horizon at 2:31 p.m. and will be up all night long, The Red Planet crosses the meridian at 9:41 p.m. It will be easy to see this planet with its amber hue. Mars has two moons, Phobos and Demos.

Jupiter crosses the **meridian at 5:30 p.m.** Jupiter is the largest planet in the solar system by far, more than 1,000 times larger than the Earth. This huge planet is very bright and easy to spot with the naked eye. The four Galilean Moon are visible with nothing more than a pair of binoculars: Io, Callisto Ganymede, and Europa. This planet sets at 11:28 p.m. This planet is like a small solar system with its 79 moons.

Saturn crosses the meridian at 3:04 p.m. as the sun begins to head toward the western horizon. As the skies darken, it will become much easier to spot to the right (west) of Jupiter. While Saturn is not as large as Jupiter, Saturn, **Ringed Planet**, has 82 moons, the most moons of any planet in the solar system. The planet sets in the west at 8:21 p.m.

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)

10 Jan	-0.5	05:23:14	11°	SE	05:23:14	11°	SE	05:23:23	10°	SE	visible
13 Jan	-2.4	19:31:14	10°	SSW	19:33:23	29°	S	19:33:23	29°	S	visible
14 Jan	-2.0	18:43:26	10°	S	18:45:55	19°	SE	18:47:18	15°	E	visible
14 Jan	-0.7	20:19:25	10°	WSW	20:20:13	15°	W	20:20:13	15°	W	visible
15 Jan	-3.5	19:30:29	10°	WSW	19:33:48	60°	NW	19:34:02	57°	NNW	visible
16 Jan	-3.7	18:41:52	10°	SW	18:45:11	68°	SE	18:47:44	16°	NE	visible

CELESTIAL FEATURE OF THE WEEK:

Gemini the Twins

Gemini is one of the constellations of the zodiac.

It was one of the 48 constellations described by the 2nd century AD astronomer Ptolemy and it remains one of the 88 modern constellations today.

Its name is Latin for "twins," and it is associated with the twins Castor and Pollux in Greek mythology.

Gemini lies between Taurus to the west and Cancer to the east, with Auriga and Lynx to the north and Monoceros and Canis Minor to the south.

The Sun resides in the astrological sign of Gemini from June 20 to July 20 each year (though the zodiac dates it May 21 - June 21).

The easiest way to locate the constellation is to find its two brightest stars Castor and Pollux eastward from the familiar "V" shaped asterism of Taurus and the three stars of Orion's belt.

The sky area of Gemini is directed away from the Milky Way, there are comparatively few deep-sky objects of note.

M35 (NGC 2168) is a large, elongated open cluster of magnitude 5, discovered in the year 1745 by Swiss astronomer Philippe Loys de Chéseaux. It is about the same size as the full Moon.

Its high magnitude means that M35 is visible to the unaided eye under dark skies; under brighter skies it is discernible in binoculars. The 200 stars of M35 are arranged in chains that curve throughout the cluster; it is 2800 light-years from Earth.

The Eskimo Nebula or Clown Face Nebula (NGC 2392) is a planetary nebula with an overall magnitude of 9.2, located 4000 light-years from Earth.

SPACE HISTORY OF THE WEEK

January 10, 1946: US Army bounced a radar signal off the surface of the moon.

Project Diana, named for the Roman moon goddess Diana, was an experimental project of the US Army Signal Corps in 1946 to bounce radar signals off the Moon and receive the reflected signals.

This was the first experiment in radar astronomy and the first active attempt to probe another celestial body. It was the inspiration for later EME (Earth-Moon-Earth) communication techniques.

Project Diana demonstrated the feasibility of using the Moon as a passive reflector to transmit radio signals from one point on the Earth to the other, around the curve of the Earth. This Earth-Moon-Earth (EME) or "moonbounce" path has been used in a few communication systems. One of the first was the secret US military espionage PAMOR (Passive Moon Relay) program in 1950, which sought to eavesdrop on Soviet Russian military radio communication by picking up stray signals reflected from the Moon. The return signals were extremely faint,

and the US began secret construction of the largest parabolic antenna in the world at Sugar Grove, West Virginia, until the project was abandoned in 1962 as too expensive.

A more successful spinoff was the US Navy Communication Moon Relay or Operation Moonbounce communication system, which used the EME path for US military communication. In January 1960 the system was inaugurated with a lunar relay link between Hawaii and Washington DC.

Moonbounce communication was abandoned by the military with the advent of communications satellites in the early 1960s.

However it was used by amateur radio operators beginning in the 1960s and is still used by them today.

January 13, 1610: Galileo discovered the moon Ganymede of Jupiter.

He actually discovered all four Galilean moons in a span of time less than 2 months.

On January 7, 1610, Galileo Galilei observed what he thought were three stars near Jupiter, including what turned out to be Ganymede, Callisto, and one body that turned out to be the combined light from Io and Europa.

On January 13, Galileo saw all four at once for the first time, but had seen each of the moons before this date at least once.

By January 15, Galileo came to the conclusion that the stars were actually bodies orbiting Jupiter.

Ganymede is the largest moon in the solar system with a diameter of 5,268 km. Its diameter is 1.51 times the Moon's, 1.08 times Mercury's, and 0.41 times that of Earth.

QUESTION OF THE WEEK:

I know that a year is the time for one revolution of the Earth around the Sun.... what is a week? Lucy T.

A day is the time it takes for the Earth to rotate once. The concept of a month derived from the amount of time it takes for the moon to cycle from new moon to new moon (which is roughly 29.5 days).

The modern month has experienced changes from this original concept due to trying to fit a standard number of months within a solar year. If you divide the lunar month into quarters, each quarter is approximately 7 days long. This is believed to be the origin of the seven-day week.

The 7 day week is older than the Hebrews, having been used by the Sumerians and Babylonians. Historian, Kerry Farmer, remarked that "Some Historians believe that around 2350 BC Sargon I, King of Akkad, having conquered Ur and the other cities of Sumeria, instituted a seven-day week, the first to be recorded."