

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

OBSERVATION PERIOD:
01/03/23 – 01/09/23

Etowah GYSTC
Website QR code



FUN FACT OF THE WEEK:

A planet's day is the time it takes the planet to rotate or spin once on its axis. Mercury rotates very slowly compared to Earth so a day on Mercury is much longer than a day on Earth. A day on Mercury is 58.646 Earth days or 1407.5 hours long while a day on Earth is 23.934 hours long.

MOON FOR THE WEEK:

The Moon is Full on Friday, January 6th.

This week the Moon is at apogee on Sunday, January 8th, in its orbit about the Earth. The Moon will be 406,458 kms from the Earth.



The January Moon is the Full Wolf Moon. This full Moon appeared when wolves howled in hunger outside the villages. It is also known as the Old Moon. To some Native American tribes, this was the Snow Moon, but most applied that name to the next full Moon, in February.

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 5:45 p.m. Last week the sunrise sunset times were 7:46 a.m. (EDT) and 5:39 p.m. (EDT). This means that there are 9

hrs. 58 minutes this week compared to 9 hrs. 53 mins of daylight hours last week.

The Earth will be at perihelion on Wednesday, January 4th. This is when the Earth will be as close to the Sun as it gets during the year.

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 Planets:

Mercury sets at 6:30 p.m. This is about 45 minutes after sunset. This means that you might be able to see the elusive planet low on the western horizon at sunset. The planet will be getting higher each week.

Venus sets at 7:03 p.m. which is about 90 minutes after sunset. Venus is getting higher in the western horizon and will continue to do so as the weeks proceed.

Mars rises up in the eastern horizon at 2:52 p.m. and will be up all night long, The Red Planet crosses the meridian at 10:02 p.m. It will be easy to see this planet. You will be able to see its amber hue and with a telescope see its two moons: Phobos and Deimos.

Jupiter crosses the **meridian at 5:47 p.m.** This huge planet is very bright and easy to spot with the naked eye. If you have a pair of binoculars, you can see four of the brightest moons: Io, Callisto, Ganymede, and Europa. This planet sets at 11:45 p.m. With its 79 moons it is like a small solar system in itself. Jupiter is more than 1,000 times larger than the Earth.

Saturn crosses the meridian at 3:21 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. The **Ringed Planet** has 82 moons, the most moons of any planet in the solar system. The planet sets in the west at 8:38 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)

06 Jan	-3.7	06:54:25	16°	NW	06:56:58	66°	SW	07:00:16	10°	SE	visible
07 Jan	-3.6	06:08:19	58°	N	06:08:37	62°	NE	06:11:56	10°	ESE	visible

CELESTIAL FEATURE OF THE WEEK:

The seventh planet Uranus.

We are choosing Uranus this week because we can pick it out in the night sky using the moon as a pointer. On Thursday, January 5th, the moon will be next to Uranus making it possible to find its location.

A problem of seeing it, other than it is very faint, is the background glow from the first quarter moon drowning out the glow of the fainter Uranus.

To attempt to spot it, around 8: p.m., go out and look for the moon. It will be high in the sky due south so an easy target to spot. Now, look up and to the right of the moon for a very faint "star". Look about the distance equal to the thickness of 3 fingers held at arm's length. Your chance of seeing this planet are greatly increased if you use a pair of binoculars.

A way to tell if you are seeing Uranus is, ask yourself if it is twinkling. If it is, it is NOT Uranus. Planets do not twinkle but stars do. If you see a star like point of light that does not seem to twinkle, you probably have found Uranus.

Uranus is the seventh planet from the Sun.

It has the third-largest planetary radius and fourth-largest planetary mass in the Solar System.

Uranus is similar in composition to Neptune, and both have different bulk chemical composition from that of the larger gas giants Jupiter and Saturn. For this reason, scientists often classify Uranus and Neptune as "ice giants" to distinguish them from the gas giants.

It is the coldest planetary atmosphere in the Solar System, with a minimum temperature of 49 K (-224.2 °C). The interior of Uranus is mainly composed of ices and rock.

Uranus is the only planet whose name is derived from a figure from Greek mythology, from the Latinised version of the Greek god of the sky Ouranos.

Like the other giant planets, Uranus has a ring system, a magnetosphere, and numerous moons.

The Uranian system has a unique configuration among those of the planets because its axis of rotation is tilted sideways, nearly into the plane of its solar orbit. Its north and south poles, therefore, lie where most other planets have their equators.

Observations from Earth have shown seasonal change and increased weather activity as Uranus approached its equinox in 2007. Wind speeds can reach 560 mph.

SPACE HISTORY OF THE WEEK

January 5, 1972: President Nixon announces the approval of the Space Shuttle Program. The Enterprise was the first mock up model of the program.

The first flight was off the back of the shuttle carrier (a 747) and glided back down to Edwards Air Force Base in August of 1977.

The Space Shuttle Program flights lasted between April 12, 1981 (STS 1) through July 21, 2011 (STS 135).

January 8, 1942: Stephen Hawking was born.

an English theoretical physicist, cosmologist, author and Director of Research at the Centre for Theoretical Cosmology within the University of Cambridge.

To try to list his achievements would take too long in this program. Enough to say, he is the recipient of the Presidential Medal of Freedom, the highest civilian award in the US. In 2002, Hawking was ranked number 25 in the BBC's poll of the 100 Greatest Britons.

Hawking has a rare early-onset, slow-progressing form of amyotrophic lateral sclerosis (ALS) that has gradually paralysed him over the decades. He now communicates using a single cheek muscle attached to a speech-generating device.

QUESTION OF THE WEEK:

I have a pair of 11 x 50 binoculars. They have a power of 11x. When I look out in the night sky I can see a lot of stars I normally cannot see. Why does only 11 power help so much? Tony M.

I am glad you are using the binoculars, Tony. Yes, the 11x power does help but it is not the primary assistance that your binoculars give you in stargazing. With stargazing it is the objective size that does the job more than power. Your 11x50s have an objective size of 50 mms. Your eye has an exit pupil size of about 5 mms depending on the brightness of your surroundings.

If we take the area of light coming into your eye from your exit pupil (5mms) and compare it to the light gathered by your binoculars (50mms) we will see that the binoculars collect a little more than 100 times more light than your eye. Pie time radius squared gives the area. Eye exit pupil = $2.5 \text{ mm squared times pie}$ equals about 6. Binoculars = $25 \text{ mm squared times pie}$ equals about 625. Comparing them the binoculars are more than 100 times light gathering.

THAT is why you see so much more. It isn't so much that the objects are small... it is more that they are dim. Gather more light and you see more objects.