

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:
12/27/22 – 01/02/23

Etowah GYSTC
Website QR code



FUN FACT OF THE WEEK:

Earth is slowing down in spinning.

In the days of the dinosaur, a day was only 23 hours long. That's due to the slowing of the Earth's rotation each century by roughly two milliseconds. In 1820, the Earth's rotation was 24 hours on the dot, notes NASA. Now, the Earth's rotation is off by 2.5 milliseconds. This slowing down it caused by the gravitational resistance do to the Moon.

MOON FOR THE WEEK:

The Moon will be First Quarter on Thursday, December 29th. This means that the Moon will be rising higher in the western sky each day in the early evening. On Thursday, it will be on the meridian, due south, at sunset (5:39 p.m.).

This week the Moon is increasing its distance from the Earth as it heads toward apogee on January 8th in it orbit about the Earth. The Moon will be 406,458 kms from the Earth.

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

HORIZON TO HORIZON PLANET VIEW

The sun rises at 7:46 a.m. (EDT) and sets at 5:39 p.m. (EDT). This means that there are 9 hrs. 53 mins of daylight hours compared to 9 hrs. 59 min 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.

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 center of the Milky Way lies in the westernmost part of Sagittarius.

The Earth is now 0.9834 AUs from the Sun. Last week it was 0.984 AUs from the Sun. The Earth reaches perihelion, its closest approach to the Sun, on January 4th.

As a review, one Astronomical Unit is about 93 million miles. Thus, the current distance to the Sun is 1.49×10^8 kms or 0.92×10^8 miles.

The Sun will reach an altitude of 32.3 degrees altitude as it crosses the meridian around noon. Last week it was at an altitude of 33.3 degrees.

The Planets:

Mercury sets at 6:53 p.m. This is about 70 minutes after sunset. This means that you can begin to see the planet low in western sky after sunset. The planet will be getting higher each week.

Venus sets at 6:46 p.m. which is about 70 minutes after sunset. Venus is also very low in the western horizon at sunset and you might get a brief glimpse of it before it sets.

Mars rises up in the eastern horizon at 3:28 p.m. and will be up all night long, The Red Planet crosses the meridian at 10:39 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 Demos.

Jupiter crosses the **meridian at 6:15 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. 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 3:50 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. By 9:06 p.m., Saturn will set in the western horizon.

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)

02 Jan	-1.3	06:54:10	10°	N	06:56:13	15°	NNE	06:58:16	10°	ENE	visible
03 Jan	-1.0	06:07:03	10°	NNE	06:07:40	10°	NNE	06:08:17	10°	NE	visible
04 Jan	-2.5	06:53:34	11°	NNW	06:56:34	35°	NE	06:59:40	10°	ESE	visible
05 Jan	-1.8	06:07:17	20°	NNE	06:08:04	22°	NE	06:10:43	10°	E	visible
06 Jan	-0.5	05:21:03	11°	ENE	05:21:03	11°	ENE	05:21:22	10°	ENE	visible
06 Jan	-3.7	06:53:58	16°	NW	06:56:29	66°	SW	06:59:48	10°	SE	visible

CELESTIAL FEATURE OF THE WEEK:

Perseus the Hero

Son of Zeus and mortal Danae
Married to Andromeda after saving her from the Gorgon.

The constellation looks like an upside-down “Y”
It is located between Cassiopeia and Auriga along the Milky Way.

The brightest star is Mirfak at the cross point of the “Y” shape. It is the center of a beautiful open cluster visible with a small pair of binoculars

The second brightest star is Algol and is located down the eastern branch of the “Y”. Algol is an eclipsing binary pair of stars that dims for 10 hrs every 2.87 days as the dimmer star passes between the brighter one and us. The pair is 105 ly from us.

There is a beautiful open cluster along the western branch of the “Y”. It is M34. It is about 1,400 ly from us. This is a beautiful cluster in a pair of binoculars.

SPACE HISTORY OF THE WEEK

1957 December 30: Wernher von Braun proposes the Saturn-class launch vehicle

a German (and later American) aerospace engineer and space architect credited with inventing the V-2 rocket for Nazi Germany and the Saturn V for the United States.

He was one of the leading figures in the development of rocket technology in Nazi Germany, where he was a member of the Nazi Party and the SS. Following World War II he, as well as about 1500 other scientists, technicians, and engineers, were moved to the United States as part of Operation Paperclip, where he developed the rockets that launched America's first space satellite and first series of moon missions.

1864 December 31: Robert Aiken was born

An American astronomer. During his career, Aitken measured positions and computed orbits for comets and natural satellites of planets.

1801 January 1: Giuseppe Piazzi discovered asteroid Ceres

was an Italian Catholic priest, mathematician, and astronomer.

He established an observatory at Palermo
Perhaps his most famous discovery was the first dwarf planet, Ceres.

1920 January 2: Issac Asimov was born

an American author and professor of biochemistry at Boston University, best known for his works of science fiction and for his popular science books.

Asimov was prolific and wrote or edited more than 500 books and an estimated 90,000 letters and postcards. His books have been published in 9 of the 10 major categories of the Dewey Decimal Classification.

Asimov wrote hard science fiction and, along with Robert A. Heinlein and Arthur C. Clarke, he was considered one of the "Big Three" science fiction writers during his lifetime.

Asimov's most famous work is the Foundation Series;^[6] his other major series are the Galactic Empire series and the Robot series.

QUESTION OF THE WEEK

What is a Black Hole? Barbara T.

A Black Hole is an object that has so much gravity that its escape velocity is greater than the speed of light. Therefore, light cannot leave it so we can't see it by ordinary means.

The first way we detect black holes is by their gravitational influence. For example, at the center of the Milky Way, we see an empty spot where all of the stars are circling around as if they were orbiting a really dense mass. That's where the black hole is.

The second way is by observing the matter falling into the black hole. As matter falls in, it settles in a disk around the black hole that can get very hot. Some of the energy liberated from falling in is turned into light, which we can then see, for example, in X-rays.

Black Holes are formed by the collapse of certain large stars during their lifecycle.

