

# 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:

11/08/22 – 11/14/22

## FUN FACT OF THE WEEK:

Most stars will turn into a White Dwarf once they have consumed nearly all of their nuclear fuel and fizzle out. In 5 billion years, the Sun, like most other stars with similar solar mass, will begin to cool down, radiate heat into space and fading into a black lump of carbon.

## MOON FOR THE WEEK:

The Moon is Full today, Tuesday (11/8). Today is a total lunar eclipse. The next total lunar eclipse for us on the East Coast will be March 14, 2025!



Full Moon

**November Full Moon– Full Beaver Moon** – this was the time to set beaver traps before the swamps froze, to ensure a supply of warm winter furs. Another interpretation suggests that the name Full Beaver Moon comes from the fact that the beavers are now actively preparing for winter. It is sometimes also referred to as the **Frosty Moon**.

During the week the Moon will be getting further from the Earth as it orbits in its elliptical path. Today the Moon is 388,792 kms away and by the 14<sup>th</sup>, it will be at **Apogee**, 404,921 kms away.

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

## **HORIZON TO HORIZON PLANET VIEW**

The sun rises at 7:06 a.m. (EDT) and sets at 5:42 p.m. (EDT). This means that there is 10 hrs. 36 mins of daylight hours compared to 11 hrs. 2 minutes of daylight hours last week. The Sun is in the **constellation Libra**.

The constellation of Libra is Latin for the weighing scales. It is the only constellation of the Zodiac to be named after an inanimate object rather than a character or an animal. Libra is located in the southern sky and has been a strong influence in mythology, astrology, and hard science. For our ancestors, the constellation was long associated with harmony, balance, and even justice.

The Earth is now 0.9909 AUs from the Sun. Last week it was 0.994 AUs from the sun, which is closer than last week. The Earth reaches perihelion on January 4<sup>th</sup>, its closest approach this year.

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

The Sun will reach an altitude of 39.3 degrees altitude when it crosses the **meridian** as compared to 43.8 degrees altitude last week.

### **The Planets:**

**Mercury** rises at 7:05 a.m. That is about the same time as the Sun.

**Venus** (Earth's Twin) rises at 7:27 a.m. which is about 20 minutes after the Sun, but still too close to be visible in the early morning sky.

**Mars** rises in the East at 7:58 p.m. The Red Planet with its two moons (Phobos and Demos) will be up all night long, setting in the East at 10:22 a.m. By 3:12 a.m. it crosses the meridian, so it is high in the South before sunrise.

**Jupiter** rises in the East at 3:36 p.m. Jupiter crosses the **meridian at 9:30 p.m.** You can easily see this planet to the East after sunset and virtually all night long. If you have a pair of binoculars, look at it to see the cloud belts and 4 Galilean Moons whirling about it. Of course, there are a total of 79 moons whirling about this huge giant.

**Saturn** rises at 1:45 p.m. and can be seen dimly at sunset close to the meridian. At 6:57 p.m. Saturn crosses the Meridian and as the skies darken, it will become much easier to spot. The **Ringed Planet** has the most moons of any planet in the solar system, 82 moons.

### **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):**

<a href="#">09 Nov</a>	-3.0	06:13:32	19°	WNW	06:15:28	37°	SW	06:18:35	10°	SSE	visible
<a href="#">10 Nov</a>	-3.4	05:27:46	59°	SSE	05:27:46	59°	SSE	05:30:35	10°	SE	visible

### **CELESTIAL FEATURE OF THE WEEK:**

#### **Pleiades in Taurus the Bull**

In astronomy, the Pleiades or Seven Sisters (M45), is an open star cluster containing middle-aged stars located in the constellation of Taurus. It is among the nearest star clusters to Earth and is the cluster most obvious to the naked eye in the night sky.

The cluster is dominated by hot blue and extremely luminous stars that have formed within the last 100 million years.

Dust that forms a faint reflection nebulosity around the brightest stars was thought at first to be left over from the formation of the cluster (hence the alternative name Maia Nebula after the star Maia), but is now known to be an unrelated dust cloud in the interstellar medium, through which the stars are currently passing.

Computer simulations have shown that the Pleiades was probably formed from a compact configuration that resembled the Orion Nebula.

Astronomers estimate that the cluster will survive for about another 250 million years, after which it will disperse due to gravitational interactions with its galactic neighborhood.

The distance to the Pleiades can be used as an important first step to calibrate the cosmic distance ladder. As the cluster is so close to the Earth, its distance is relatively easy to measure and has been estimated by many methods. Accurate knowledge of the distance allows astronomers to plot a Hertzsprung-Russell diagram for the cluster, which, when compared to those plotted for clusters whose distance is not known, allows their distances to be estimated.

There is some debate to the exact distance to the Pleiades but more recent results using very long baseline radio interferometry (VLBI) (August 2014) and a preliminary solution using the Gaia satellite (September 2016), determine distances of  $136.2 \pm 1.2$  pc and  $134 \pm 6$  pc,

## **SPACE HISTORY OF THE WEEK**

### **Nov 8, 1656: Edmund Halley was born.**

He was an English astronomer, geophysicist, mathematician, meteorologist, and physicist who is best known for computing the orbit of Halley's Comet. He was the second Astronomer Royal in Britain, succeeding John Flamsteed.

### **Nov 9, 1934: Carl Sagan was born.**

an American astronomer, cosmologist, astrophysicist, astrobiologist, author, science popularizer, and science communicator in astronomy and other natural sciences. He is best known for his work as a science popularizer and communicator.

His best known scientific contribution is research on extraterrestrial life, including experimental demonstration of the production of amino acids from basic chemicals by radiation. Sagan assembled the first physical messages sent into space: the Pioneer plaque and the Voyager Golden Record, universal messages that could potentially be understood by any extraterrestrial intelligence that might find them.

Sagan argued the now accepted hypothesis that the high surface temperatures of Venus can be attributed to and calculated using the greenhouse effect.

He spent most of his career as a professor of astronomy at Cornell University, where he directed the Laboratory for Planetary Studies. Sagan and his works received numerous awards and honors, including the NASA Distinguished Public Service Medal, the National Academy of Sciences Public Welfare Medal, the Pulitzer Prize, two Emmy Awards, the Peabody Award and the Hugo Award.

**Nov 14, 1971: Mariner 9 becomes the first spacecraft to orbit Mars.**

An unmanned NASA space probe that contributed greatly to the exploration of Mars and was part of the Mariner program. Mariner 9 was launched toward Mars on May 30, 1971 from Cape Canaveral Air Force Station and reached the planet on November 14 of the same year, becoming the first spacecraft to orbit another planet – only narrowly beating the Soviets' Mars 2 and Mars 3, which both arrived within a month.

After months of dust storms, it managed to send back clear pictures of the surface.

**QUESTION OF THE WEEK**

**I have heard about measuring star distances using light-years, but what is a “parsec”? Todd J.**

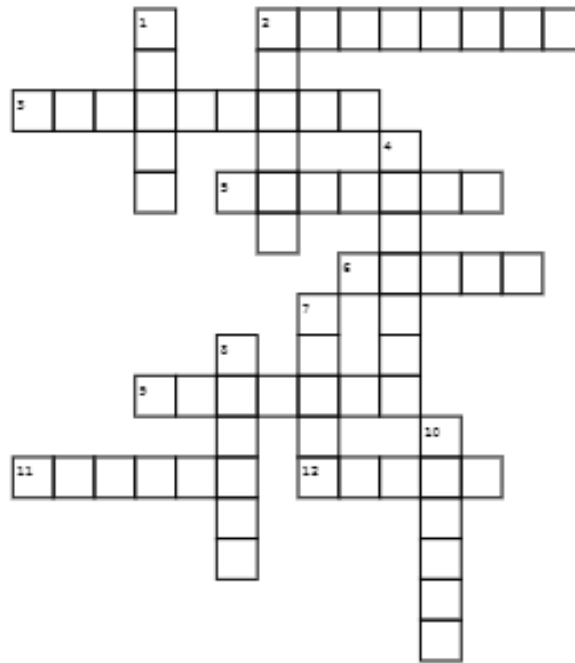
A parsec (symbol: pc) is a unit of length used to measure large distances to objects outside our Solar System.

One parsec is the distance at which one astronomical unit subtends an angle of one arcsecond.

A parsec is equal to about 3.26 light-years (31 trillion kilometres or 19 trillion miles) in length. The nearest star, Proxima Centauri, is about 1.3 parsecs (4.2 light-years) from the Sun.

Most of the stars visible to the unaided eye in the nighttime sky are within 500 parsecs of the Sun and within the Milky Way Galaxy.

# The Stargazers' Newsletter 11-09-22



## Down:

1. What do astronomers believe will be end result of the Sun when it uses up its nuclear fuel? (White \_\_\_\_\_)
2. A measure of stellar distance that when extended produces an angular measure of 1 arcsecond.
4. Which planet has 79 moons?
7. Which planet is commonly called "Earth's Twin"?
8. Another name for the Full Moon in November other than Full Beaver Moon? (Full \_\_\_\_\_ Moon)
10. Who is best known for computing the orbit of Halley's Comet? (Edmund \_\_\_\_\_)

## Across:

2. What is another name for the Seven Sisters, an open star cluster containing middle-aged stars located in the constellation of Taurus?
3. From which launch pad was Mariner 9 launched? (Cape \_\_\_\_\_)
5. Which two naked-eye planets are too close to the Sun to be seen this week? Venus and \_\_\_\_\_
6. Which Zodiac sign is represented as "Weighing Scales"?
9. First spacecraft to orbit Mars, 1971. (\_\_\_\_\_ 9)
11. Mars has two moons: \_\_\_\_\_ and Deimos.
12. Who assembled the first messages to be sent into space, Pioneer plaque and the Voyager Golden Record?