

WEEKLY STARGAZERS' NEWSLETTER

by Dr. Bob

Volume 7, Issue 09

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:
02/28/23 – 03/06/23

FUN FACT OF THE WEEK:

There is a 24-year cycle for Venus-Jupiter conjunctions. Their *sidereal* revolution periods are 224.7008 days for Venus, 365.2564 days for Earth, and 4332.5894 days for Jupiter. This means that 39 revolutions of Venus are almost precisely equal to 24 revolutions of Earth and 2 revolutions for Jupiter. So, after 24 years (more precisely, 24.0175 years) the circumstances of a particular Venus-Jupiter conjunction will appear to repeat under almost identical conditions. March 1st is a Venus-Jupiter conjunction. The next conjunction will be March 8, 2047.

MOON FOR THE WEEK:

This is one of those unusual times when the quarter moon straddles the week we have the program. The Third Quarter fell yesterday (Monday) 2/27 and the Full Moon falls on next Tuesday, 3/7. Our reporting week is 2/28 to 3/06. None the less, the Moon will be waxing all week long, rising in the evening sky later and later until by next Tuesday, it will rise at sunset. More about the Full Moon in next week's program. It is fair to say that on March 3rd the Moon will be at Apogee, its furthest distance from Earth. Currently, the Moon's range is 401,426 kms from Earth while on March 3rd it will be 405,889 kms away.



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

HORIZON TO HORIZON PLANET VIEW

The sun rises at 7:12 a.m. and sets at 6:35 p.m. This means that there are 11 hours, 23 minutes of daylight compared to 10 hours and 54 minutes daylight last week.

The Sun is still in the **constellation Aquarius**. The Water Carrier, in astrology, is a zodiac constellation.

The is Earth 0.9904 AUs from the Sun compared to 0.989 AUs from the Sun last week. It is 47.5 degrees altitude at the meridian compared to 44.9 degrees last week.

The Planets:

Mercury rises about 30 minutes before the Sun. It rises at 6:36 a.m. This is the best time to view Mercury. The planet can be seen if you have a low clear eastern horizon and dark skies, it is not quite as good as it was last week. If you see it, you will be in the minority of stargazers so give it a try.

Venus sets at 8:53 p.m. which is 2.0 hrs after sunset. This planet is the easiest planet to see. It is almost bright enough to read a newspaper from its light at night (not quite ☺) Venus, like Mercury does not have any moons. Venus is covered by a thick layer of CO₂ making it even hotter than Mercury, even though it is further away from the Sun than Mercury. Venus is well over 830 degrees Fahrenheit.

Mars rises up in the eastern horizon in the early afternoon and crosses the meridian at 12:21 p.m. The planet sets at 2:36 a.m. Look for its amber (redish) hue. It will be to the left of Jupiter and Venus. If you look at it through a telescope, you will see its two moons: Phobos and Deimos.

Jupiter sets at 9:03 p.m. At sunset, it will be a bit higher and to the left of Venus in the evening sky. If you have been watching Jupiter and Venus, you have noticed that the two planets are getting closer together by the night. On March 1st the two planets will be in conjunction. This means they are close together by line of sight. When you are watching Venus and Jupiter, look for the four Galilean moons: Io, Callisto, Ganymede, and Europa.

You can identify the moons by name if you go to https://skyandtelescope.org/wp-content/plugins/observing-tools/jupiter_moons/jupiter.html. This is a great interactive tool to identify the four Galilean moons of Jupiter.

Saturn is still too close to the Sun this week to see it. It will be a couple weeks before we see Saturn again in the evening sky.

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)

Unfortunately, there are no high, bright passes of the ISS this week.

STAR PATTERNS IN THE SKY

Canis Minor (Little Dog)

This is a small constellation in the northern celestial hemisphere. In the second century, it was included as an asterism, or pattern, of two stars in Ptolemy's 48 constellations, and it is counted among the 88 modern constellations. Its name is Latin for "lesser dog", in contrast to Canis Major, the "greater dog"; both figures are commonly represented as following the constellation of Orion the hunter.

Canis Minor contains only two stars brighter than the fourth magnitude, Procyon (Alpha Canis Minoris), with a magnitude of 0.34, and Gomeisa (Beta Canis Minoris), with a magnitude of 2.9. The constellation's dimmer stars were noted by Johann Bayer, who named eight stars including Alpha and Beta, and John Flamsteed, who numbered fourteen.

Procyon is the seventh-brightest star in the night sky (magnitude 0.34) , as well as one of the closest. It is only 11.5 ly from Earth. It is a yellow-white main sequence star and has a white dwarf companion. When going to schools, I love to use Procyon as a way to get boys and girls in the 4th grade excited by stars. I tell them about star distances and how astronomers measure distance in lightyears, the distance that light travels in a year (6 trillion miles). As Procyon is 11.5 light years away, it takes 11.5 years for the light from Procyon to reach Earth. Since the boys and girls in the 4th grade are about 11 yrs old, the light

they see from Procyon started on its journey to Earth about the time they were born. In a way, Procyon is their “Birthday Star!”

The other bright star in Canis Minor is Gomeisa, is a blue-white main sequence star. Although apparently close to Procyon, it is 161.8 light years from Earth and has an apparent magnitude of 2.5. That makes Procyon have an apparent brightness 7.4 times brighter than Gomesia.

Luyten's Star is a ninth-magnitude red dwarf and the Solar System's next closest stellar neighbor in the constellation after Procyon. The fourth-magnitude HD 66141, which has evolved into an orange giant towards the end of its life cycle, was discovered to have a planet in 2012. There are two faint deep sky objects within the constellation's borders. The 11 Canis-Minorids are a meteor shower that can be seen in early December.

SPACE HISTORY OF THE WEEK

Mar 1, 1927; George Abell born:

An astronomer at UCLA. He worked as a research astronomer, teacher, administrator, popularizer of science and education, and skeptic. Abell received his B.S. (1951), M.S. (1952) and Ph.D. (1957) from the California Institute of Technology under Donald Osterbrock. He began his astronomical career as a tour guide at the Griffith Observatory in Los Angeles.

His best known work was his catalogue of clusters of galaxies collected during the Palomar Sky Survey. He analyzed their formation and evolution. He demonstrated that second-order clustering existed, disproving the hierarchical model of Carl Charlier. He also discovered how cluster luminosity could be used as a distance scale. He also collated a famous list of 86 planetary nebulae in 1966 which includes Abell 39.

March 4, 1979; Jupiter's rings were discovered:

The planet Jupiter has a system of rings known as the rings of Jupiter or the Jovian ring system. It was the third ring system to be discovered in the Solar System, after those of Saturn and Uranus. It was first observed in 1979 by the Voyager 1 space probe and thoroughly investigated in the 1990s by the Galileo orbiter. It has also been observed by the Hubble Space Telescope and from

Earth for the past 23 years. Ground-based observations of the rings require the largest available telescopes.

The Jovian ring system is faint and consists mainly of dust. It has four main components: a thick inner torus of particles known as the "halo ring"; a relatively bright, exceptionally thin "main ring"; and two wide, thick and faint outer "gossamer rings", named for the moons of whose material they are composed: Amalthea and Thebe.

Mar. 5, 1986; Vega 1 flies by Halley's Comet:

Images started to be returned on March 4, 1986, and were used to help pinpoint Giotto's close flyby of the comet. The early images from Vega showed two bright areas on the comet, which were initially interpreted as a double nucleus. The bright areas would later turn out to be two jets emitting from the comet. The images also showed the nucleus to be dark, and the infrared spectrometer readings measured a nucleus temperature of 300 K to 400 K, much warmer than expected for an ice body. The conclusion was that the comet had a thin layer on its surface covering an icy body.

Vega 1 made its closest approach on March 6 at around 8,889 kilometers (at 07:20:06 UT) of the nucleus. It took more than 500 pictures via different filters as it flew through the gas cloud around the coma. Although the spacecraft was battered by dust, none of the instruments were disabled during the encounter.

QUESTION OF THE WEEK:

My boyfriend said he saw a "sun dog" last week. I did not want to seem dumb so I just said, cool. Dr. Bob, what are sun dogs? Nancy M.

A sun dog (or sundog) or mock sun, meteorological name parhelion, is an atmospheric phenomenon that consists of a bright spot to the left and/or right of the Sun. They often occur in pairs, one on each side of the Sun.

Sun dogs are a member of a large family of halos, created by light interacting with ice crystals in the atmosphere. Sun dogs typically appear as two subtly colored patches of light to the left and right of the Sun, approximately 22° distant and at the same elevation above the horizon as the Sun. They can be seen

anywhere in the world during any season, but they are not always obvious or bright. Sun dogs are best seen and are most conspicuous when the Sun is close to the horizon.