WEEKLY STARGAZERS' NEWSLETTER

by Dr. Bob

Volume 6, Issue 37

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:
09/20/22 – 09/26/22

FUN FACT of the Week:
Vanguard 1 is an American satellite that was the fourth artificial Earth-orbiting satellite to be successfully launched. It followed Sputnik 1, Sputnik 2, and Explorer 1. It was launched March 17, 1958 and was the first satellite to have solar electric power. Although communications with the satellite were lost in 1964, it remains the oldest human-made object still in orbit.

MOON FOR THE WEEK:
The Moon will be New on Sunday, 9/25.


New Moon

The Moon was at Apogee yesterday, it furthest distance, 404,556 kms away. To convert kms to miles, multiply kms by 0.62 miles/km.

HORIZON TO HORIZON PLANET VIEW
The sun rises at 7:27 a.m. (EDT) and sets at 7:42 p.m. (EDT). The Sun is now in the constellation Virgo, the Maiden. The Earth is now 1.0045 AUs from the Sun, which is much closer than last week, 1.0063 AUs away! One Astronomical Unit is about 93 million miles.

The Sun will reach an altitude of 57.0 degrees altitude while last week it was 59.7 degrees above the horizon.

The first day of Fall is September 22nd, the Autumnal Equinox. This is when the Sun is directly over the equator as it gets lower and lower into the sky due to the tilt of the Earth's axis.

The Planets:

Mercury rises and sets with the Sun so it is too close to the sun to be seen this week.

Venus rises at 6:46 a.m. which is an hour before the Sun. Venus is about as far from the Sun as Mercury but it rises before the Sun while Mercury set after the Sun. Since Venus is so bright, you have a chance to see it in the morning sky, while Mercury is too dim to spot it in the evening sky.

Mars, with its two moons, rises at 11:39 p.m.. The Red Planet can be seen crossing the meridian at 6:44 a.m. Mars will be a good late night object for those of you who are out after midnight.

Jupiter rises in the East at 8:03 p.m. By midnight it will be high in the eastern sky. It will cross the meridian at 2:08 a.m. If you get up before sunrise, it will be to the right of the meridian and very bright. Jupiter is an easy planet to view, all you need is clear skies. If you have a pair of binoculars, you can easily see the four Galilean Moons. In all, Jupiter has 79 moons. With a small telescope you might also be able to see the Great Red Spot in its surface.

Saturn rises at 6:00 p.m. and can be seen all night long. The Saturn is a great evening sky object once the skies get dark enough to see the first stars. The Ringed Planet crosses the meridian at 11:13 a.m. It takes a small telescope with a magnification of at least 40x to see the rings of the rings.

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):

There are no visible ISS passes this week.

CELESTIAL FEATURE OF THE WEEK:
STAR PATTERN IN THE SKY
September 22 is First day of Autumn… Autumnal Equinox: 9:03 pm EDT.
At this instant, the Sun is directly over the equator of the Earth. Of course, the Earth continues to orbit the Sun so the Sun drops below the equator quickly.

SPACE HISTORY OF THE WEEK
September 21, 1866: HG Wells was Born
He was a prolific English writer in many genres, including the novel, history, politics, social commentary, and textbooks and rules for war games.
Wells is now best remembered for his science fiction novels and is called a "father of science fiction", along with Jules Verne.

His most notable science fiction works include The Time Machine (1895), The Island of Doctor Moreau (1896), The Invisible Man (1897), and The War of the Worlds (1898).

He was nominated for the Nobel Prize in Literature four times.

September 22, 1990: Pioneer 10 reaches 50 AUs from Sun
Pioneer 10 (originally designated Pioneer F) is an American space probe, weighing 258 kilograms (569 pounds), that completed the first mission to the planet Jupiter.

Pioneer 10 became the first spacecraft to achieve escape velocity from the Solar System. This space exploration project was conducted by the NASA Ames Research Center in California, and the space probe was manufactured by TRW Inc.

Pioneer 10 was assembled around a hexagonal bus with a 2.74 meters (9 ft 0 in) diameter parabolic dish high-gain antenna, and the spacecraft was spin stabilized around the axis of the antenna. Its electric power was supplied by four

radioisotope thermoelectric generators that provided a combined 155 watts at launch.

It was launched on March 3, 1972, by an Atlas-Centaur expendable vehicle from Cape Canaveral, Florida.

Currently it is 131.9 AUs from the sun, in the constellation Taurus, the Bull. It is 18.27 light hours from the earth.

September 23, 1846: JG Galle discovers Neptune..
Neptune is one of the four Gas Giants in our solar system and is the 7th planet from the sun.

September 23, 1962: The TV program The Jetsons" premiered.
For TV buffs, we can report that the animated futuristic program Jetsons made their premier. The Jetsons is an American animated sitcom produced by Hanna-Barbera Productions. The program aired from September 23, 1962, to March 17, 1963, on ABC. This Space Age program was, in a way, the counterpart to the Flintstones, which depicted as family in the Stone Age.

QUESTION OF THE WEEK
You keep talking about how on the equinoxes and that is when there is equal daylight and night time. Is this really true? If so, why are the sunrise and sunset times not exactly the same, 12 hrs apart? Peggy G.

You are very astute, congratulations!

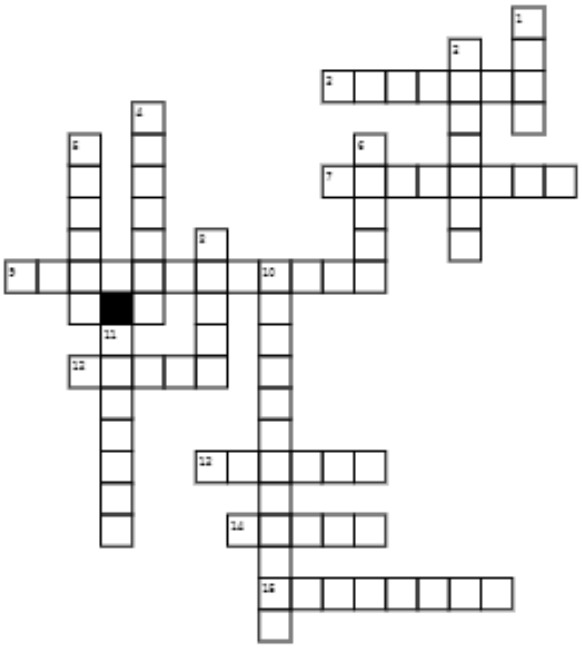
When we say equal day and night, we are generalizing. It is true that on September 22nd, the sun will be directly over the equator, thus causing equal day and night time… however, it does not stay there all day long, it will be there precisely at 9:03 p.m. EDT!

In fact, to give you an idea how much the sun moves north and south each day, look at the maximum altitude the sun reaches each week and thus each day. Last week the maximum altitude was 59.7 degrees and his week it is 57.0 degrees. I ran a few dates for this week and found that the maximum altitude changes by as much as 0.4 degrees per day.

That means, over a 12 hour period of time, the sun will have moved by 0.2 degees altitude, thus changing the sunrise and sunset time by several minutes. Now for most of us, the difference is not appreciable. For astronomers and those discerning enough, like you, it does make a difference.

Great question, thanks

The Stargazers' Newsletter : 9/20/22



Down:

1. The planet that is along the meridian at sunrise.
2. The planet that is currently closest to the Sun, by line of sight.
4. The planet that is very bright on the western horizon at sunrise.
5. The first planet to rise in the East each day.
6. The astronomer who discovered Neptune.
8. The author who wrote War of the Worlds and was born this week in 1866.
10. The unit that is a measure of distances in the solar system.
11. The futuristic Space Age program that was first aired in 1962.

Across:

3. The spacecraft that is currently furthest from Earth at 131 AUs away.
7. First solar powered American satellite that was launched in 1958 and is still in orbit.
9. The Martian rover that is currently moving across the Martian surface.
12. The planet that is low on the Eastern horizon at sunrise.
13. The location of an Earth-bound satellite orbit where the satellite is at its most distant position.
14. The constellation that the Sun is currently in as seen from the Earth.
15. Another name for the Fall Equinox.