

WEEKLY STARGAZERS' NEWSLETTER

by Dr. Bob

Volume 6, Issue 21

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:

05/31/22 – 06/06/22

FUN FACT of the Week:

The average distance to the Sun in Light-Minutes is 8.317 minutes. This means when we look at the Sun, we see it as it WAS 8.317 minutes ago, NOT as it is now.

MOON FOR THE WEEK:

The Moon will be New on Monday, May 30th. The Moon will be First Quarter next Tuesday, June 7th.

This means that the Moon will be waxing from New to First Quarter during the week.

As the Moon orbits the Earth, it goes in an elliptical orbit, where is sometimes is close and sometime further way from the Earth. On Wednesday, June 1st, it will be at apogee, its furthest distance from the Earth, 406,192 kms (249,289 miles).



To see the Moon, look low on the Western horizon at sunset. It will be trailing the Sun each day as the Sun seems to rise in the East and set in the West. By, June 7th, the Moon will be high due South (meridian) at sunset.

HORIZON TO HORIZON PLANET VIEW

The sun rises at 6:30 a.m. (EDT) and sets at 8:46 p.m. (EDT). The Sun is still in the constellation Taurus the Bull and it is still increasing its distance from the Sun

in its orbit. Currently the Earth is 1.014 AUs (94,257,189 miles) which is further away than last week 1.0125 AUs (94,117,755 miles) which is 139,434 miles further away than last week.

This week, the Sun is 77.6 degrees above the horizon at the meridian, which is higher than last week (76.4 degrees). The seasons are really changing, which is caused by the tilt of the Earth's axis, 23.5 degrees. The days are getting longer and the Sun is getting higher in the sky as it crosses the Meridian.

The Planets:

In the pre-dawn sky all the naked-eye planets rise before the Sun. As a result, it will be possible to see all the naked-eye planets, once Mercury has another couple weeks to move further in its orbit about the Sun. More about that in a couple weeks.

The first planet to rise in the early morning is Saturn at 1:40 a.m. By sunrise, Saturn is very high in the sky, to the West of the meridian. The next object to rise in the eastern pre-dawn sky is actually a pair of planets, Mars and Jupiter. Hopefully you remember that these two planets just went through a conjunction on May 29th. Conjunction is when planets or celestial objects seem to overlap as you look at them.

Other than Mercury, which rises at 6:03 a.m., the last planet to rise in the pre-dawn sky is Venus. Venus rises at 4:42 a.m and is the brightest planet in the 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):

31 May	-2.8	22:02:16	10°	NNW	22:05:26	38°	NE	22:06:56	24°	E	visible
01 Jun	-2.0	21:14:23	10°	NNW	21:17:08	23°	NE	21:19:52	10°	E	visible
01 Jun	-2.3	22:50:56	10°	WNW	22:53:33	28°	WSW	22:53:33	28°	WSW	visible
02 Jun	-3.5	22:02:27	10°	NW	22:05:45	59°	SW	22:07:18	27°	SSE	visible

03 Jun	-3.7	21:14:11	10°	NW	21:17:32	69°	NE	21:20:50	10°	SE	visible
04 Jun	-1.4	22:03:31	10°	W	22:05:44	17°	SW	22:07:53	10°	S	visible
05 Jun	-2.3	21:14:35	10°	WNW	21:17:36	31°	SW	21:20:35	10°	SSE	visible

STAR PATTERNS IN THE SKY

Draco is a constellation in the far northern sky. Its name is Latin for dragon. It was one of the 48 constellations listed by the 2nd century astronomer Ptolemy and remains one of the 88 modern constellations today. The north pole of the ecliptic is in Draco. Draco is circumpolar (that is, never setting), and can be seen all year from northern latitudes.

Due to the effects of precession, the north pole star changes over thousands of years. Currently, as you know, the north pole star for us is Polaris. From 3942 BC to 1793 BC the north pole star was Thuban (α Draconis).

The Egyptian Pyramids were designed to have one side facing north, with an entrance passage geometrically aligned so that Thuban would be visible at night. As precession continues its slow trek throughout the heavens, Thuban it will again be the pole star around the year AD 21000.

Thuban is a blue-white giant star of magnitude 3.7, 309 light-years from Earth. The traditional name of Alpha Draconis, Thuban, means "head of the serpent".

SPACE HISTORY OF THE WEEK

June 2nd : 1930 Charles Pete Conrad was born

Charles "Pete" Conrad, Jr. (June 2, 1930 – July 8, 1999), (Capt, USN), was an American naval officer and aviator, aeronautical engineer, test pilot, and NASA astronaut, and during the Apollo 12 mission became the third man to walk on the Moon. He set an eight-day space endurance record along with his Command Pilot Gordon Cooper on the Gemini 5 mission, and commanded the Gemini 11 mission. After Apollo, he commanded the Skylab 2 mission (the first manned one), on which he and his crewmates repaired significant launch damage to the Skylab space station. For this, President Jimmy Carter awarded him the Congressional Space Medal of Honor in 1978.

June 3rd : 1948 Hale 200-inch telescope was dedicated

The Hale Telescope is a 200-inch (5.1 m), f/3.3 reflecting telescope at the Palomar Observatory in California, US, named after astronomer George Ellery

Hale. With funding from the Rockefeller Foundation, he orchestrated the planning, design, and construction of the observatory, but did not live to see its commissioning. The Hale was groundbreaking for its time, with double the diameter of the next largest telescope and pioneering the use of many technologies such as vapor deposited aluminum and low thermal expansion glass. It is still in active use.

It was the largest optical telescope in the world from its completion in 1948 until the BTA-6 was built in 1976, and the second largest until the construction of the Keck 1 in 1993.

June 3rd, 1965: Ed White took America's first space walk

Edward Higgins "Ed" White, II (November 14, 1930 – January 27, 1967), (Lt Col, USAF), was an American aeronautical engineer, U.S. Air Force officer, test pilot, and NASA astronaut. On June 3, 1965, aboard Gemini IV, he became the first American to "walk" in space. White died along with his fellow astronauts Virgil "Gus" Grissom and Roger B. Chaffee during prelaunch testing for the first manned Apollo mission at Cape Canaveral. He was awarded the NASA Distinguished Service Medal for his flight in Gemini 4 and then awarded the Congressional Space Medal of Honor posthumously.

June 4th: 1974 Construction of space shuttle Enterprise began

The Space Shuttle Enterprise (NASA Orbiter Vehicle Designation: OV-101) was the first Space Shuttle. It was built for NASA as part of the Space Shuttle program to perform test flights in the atmosphere, aided by a modified Boeing 747. It was constructed without engines or a functional heat shield, and was therefore not capable of spaceflight. It was unveiled on September 17, 1976.

Originally, Enterprise had been intended to be refitted for orbital flight to become the second space-rated orbiter in service. However, during the construction of Columbia, details of the final design changed, particularly with regard to the weight of the fuselage and wings. Refitting Enterprise for spaceflight would have involved dismantling the orbiter and returning the sections to subcontractors across the country. As this was an expensive proposition, it was determined to be less costly to build Challenger around a body frame (STA-099) that had been built as a test article. Similarly, Enterprise was considered for refit to replace

Challenger after the latter was destroyed, but Endeavour was built from structural spares instead.

QUESTION OF THE WEEK

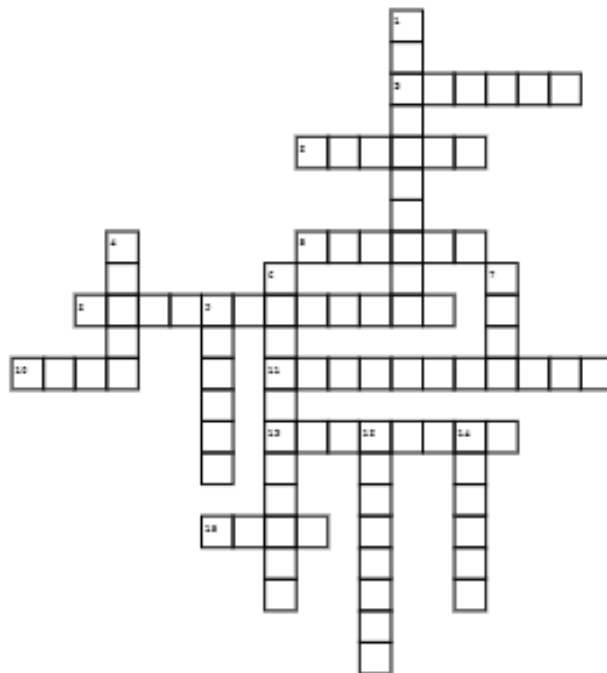
What does the term “greatest elongation” mean? Andy M.

The planet's “elongation” is the angle between the Sun and the planet, with Earth as the reference point. This is when the inner planet is as high in the sky as possible for the current orbit around the sun relative to the Earth.

When an inferior planet (Mercury and Venus) is visible after sunset, it is near its greatest eastern elongation. When an inferior planet is visible before sunrise, it is near its greatest western elongation. The value of the greatest elongation (west or east), for Mercury, is between 18° and 28° ; and for Venus between 45° and 47° . This value varies because the orbits of the planets are elliptical, rather than perfect circles.

Refer to astronomical tables and websites such as heavens-above to see when the planets reach their next maximum elongations.

The Stargazers' Newsletter: 22/05/31



Down:

1. The name given to the prototype or first version of the Space Shuttle.
4. The first astronaut to "Walk in Space."
6. A constellation that never sets in the North due to its position near the North Star.
7. The condition of the Earth's axis that causes the seasons on Earth.
9. The former North Star to Earth 2000 BC, 4,000 years ago.
13. Name given to planets in our Solar System that have an orbit smaller than Earth's.
14. The position of a satellite going around the Earth, its furthest distance.

Across:

2. The constellation that the Sun is currently in.
3. The third man to walk on the Moon.
5. The name given to the Moon changing phases from New to First Quarter.
8. The unit that we use to measure the distance between Sun and Earth.
10. The number of naked-eye planets that rise before the Sun in the early mornings.
11. The condition of Mars and Jupiter in the sky on May 29, 2022.
12. The position that is due South to an observer.
15. The 200-inch land-based telescope that was dedicated on June 3, 1948.

