WHAT'S UP IN MARCH

By Bernie Reim

The month of March is named after the Roman god of war, Mars. It also used to be the first month of the year and many cultures still celebrate the beginning of the New Year in March.

March also marks the beginning of spring for us in the northern hemisphere. This year that will happen at exactly 11:33 A.M. EDT on Sunday, March 20. That is a unique time on Earth along with the autumnal equinox in September. Those are the only two days each year when the sun rises due east and sets due west and the days are within a few minutes of 12 hours long for everyone on Earth except for the poles. The sun on its ecliptic path will cross over the celestial equator on this day. It is still ascending a little each day and the days will continue to lengthen until the summer solstice on June 21.

The sun will get continually higher and stronger each day this month, so try to get outside and enjoy the warmer and shorter nights as our hemisphere of Earth slowly tilts towards the sun once again. There will be plenty of interesting highlights to look for as we watch the spring constellations slowly rotate into view even as the bright winter constellations in the Winter hexagon start to sink below our western horizon by 10 pm by the end of this month, which is a sure celestial sign that spring is here along with the myriad terrestrial signs that will start to appear by then.

We just lost Jupiter late last month and it will reappear in our morning sky towards the end of this month. That means that all of the planetary action will take place in the morning sky and that will be true right through the beginning of summer and a little beyond. The only exception will be a brief evening appearance of Mercury in April and part of this May. Then keep watching as the great morning planetary alignment of all five of our brightest planets in order from Mercury to Saturn will set itself up for the last 2 weeks in June.

Venus will rise first, heralding the string of morning planets over the next several months. Our sister planet will rise more than 2 hours before the sun. It is still dazzling at -4.7 magnitude, even though it was even brighter last month. Mars rises shortly thereafter as an amber-colored gem compared to the starker white glow of Venus, which is just over 100 times brighter than our other neighboring planet. The pair will be less than 4 degrees apart on March 15th as they drift eastward together in direct motion against the fixed background of stars in Sagittarius and then Capricorn. Then Saturn will join the pair and form a nice, ever-shifting triangle with Mars with Venus at the apex.

Look for a very close conjunction of Saturn and Mercury low in the southeastern morning sky half an hour before sunrise during the first week of March. Then look for Venus and Mars just above the pair. Mercury will drop out soon after that as Mars climbs higher and Venus sinks lower.

Venus will reach its greatest western elongation from the sun on March 20 right at the start of spring. It will be exactly half illuminated by the sun at that time, but you would need a telescope to see that for yourself. Then watch this dancing celestial triangle become equidistant by the 24th and 25th. It will still be low in the sky, only 8.5 degrees, less than one fist at arm's length, so you would need a good eastern horizon one hour before sunrise to witness this show.

Then keep watching for the best part of this scene as Jupiter and a slender waning crescent moon join this close planetary triangle on Monday the 28th, forming some creative shapes in the sky. Use your imagination. Try to get some photographs of this rare event and place some terrestrial objects in front of it such as trees or an interesting building or a coastline to anchor it

and give it more interest and perspective. Now half of the 8 planets in our solar system plus Earth's only natural satellite will be all bunched together low in our morning sky just half an hour before sunrise, a truly rare and spectacular sight.

Another important highlight that now takes place on the last Saturday in March every year is the International Earth Hour. It will happen on March 26 from 8:30 to 9:30 pm local time. It started in 2007 in Sydney, Australia with 35 countries and a few million people participating. Now, just 15 years later, 192 of Earth's 195 countries participate along with billions of individuals.

The goal is simple; have more people become aware of the larger problems facing the earth and all of its inhabitants and to empower them to act in meaningful ways to change that. There are many different and creative ways for everyone to participate, but the easiest one would be to turn off all non essential lights for that one hour, 8:30 to 9:30 pm local time. Many cities around the world will do that on a massive scale for that one hour. That would obviously save some energy, but you could also go outside and look at a darker night sky for that hour and maybe even take some pictures of it and reflect on how each one of us is responsible to some extent for our collective problems and how we can help solve them. There is a different theme each year for this Earth Hour. Last year it was climate change and this year it will be nature loss and biodiversity. There are many virtual and actual events you can participate in to shine a figurative spotlight on our planet and to discover new and ongoing solutions to our human created planetary problems.

Our largest asteroid, Ceres, is still tracking between the Pleiades and the Hyades star clusters in Taurus this month. It will reach about 8th magnitude, so you would need at least a pair of binoculars to see this dwarf planet which is 600 miles across, or the size of Texas.

You can look for the zodiacal light again this month about an hour after sunset on moonless nights far away from any city or town lights. This light will create a very subtle pyramid-shaped glow stretching up from the horizon into Taurus low in the western sky. It is caused by sunlight reflecting off trillions of tiny pieces of comet and asteroid dust trapped in the ecliptic plane of our solar system.

The best comet this month is still Comet 19P/Borrelly. It will only reach about 10th magnitude, or 100 times fainter than a 5th magnitude star in the Little Dipper, so you would need a telescope to see it. This comet can be found just above Ceres tracking eastward through Aries and into Perseus. It will track about the same distance above the Pleiades as Ceres will track below this nice open star cluster of about 500 stars located about 400 light years away.

As you look at the Pleiades next time, also known as the 7 sisters, remember that the actual photons of light entering your eyes then will have left that iconic little open star cluster shaped like a miniature Little Dipper about the same time that Galileo first turned the first telescope in all of our 200,000 year history of modern humans on Earth to the skies. He then began to make many earth-shaking discoveries that changed and improved our view of the local universe forever.

Now we are on another threshold of much greater discoveries as the James Webb Space Telescope is right on schedule to begin to unveil much more of the universe by looking even farther back to the very beginning of time itself than the Hubble Space Telescope. It will be 100 times as powerful as the HST. The JWST will see in infrared light so it will look deeper into star-forming regions. It will also be able to see much deeper into the universe itself since it is more and more red shifted the farther out you go. It has already taken some images of a star in

Ursa Major, near the familiar asterism of the Big Dipper. Now there are 18 images, one for each of the 18 mirror segments, but within another 3 or 4 months they will all be perfectly focused and work together as a single 21-foot mirror. The instruments also need to continue to cool to just above absolute zero to function well since they see in the infrared wavelengths.
March 2. Mercury passes less than one degree south of Saturn this morning. New moon is at 12:35 p.m. EST.
March 9. The moon passes near Ceres this morning.
March 10. First quarter moon is at 5:45 a.m. EST.
March 12. Venus passes 4 degrees north of Mars this morning.
March 13. On this day in 1781 Sir William Herschel discovered the planet Uranus. He first named it George in honor of King George III, the same king that we declared independence from in 1776. Then it was renamed to Uranus, who is the Greek father of the Titans and whose name also means “the heavens”. His planet is now in Aries the Ram and is the only evening planet, but you would need a pair of binoculars to see it. Since it only orbits the sun once every 84 years, it will spend 7 years in each constellation and it hasn’t quite completed 3 orbits yet since it was discovered 241 years ago. Daylight saving time begins at 2 a.m.
March 14. Albert Einstein was born on this day in 1879.
March 16. Caroline Herschel was born on this day in 1750. She discovered 8 comets and worked closely with her brother William throughout their brilliant careers. They were both accomplished musicians. William built the biggest telescope in the world at the time in 1785. It had a 48 inch mirror and it was 40 feet long.
March 18. Full moon is at 3:18 a.m. EDT. This is also known as the Worm, Crow, or Lenten moon.
March 20. Venus is at greatest western elongation, 47 degrees west of the sun and exactly half lit. The Vernal equinox is at 11:33 a.m. EDT.
March 25. Last quarter moon is at 1:37 a.m.
March 27. The moon passes 4 degrees south of Mars this morning.
March 28. The moon passes 7 degrees south of Venus and 4 degrees south of Saturn this morning.
March 30. The moon passes 4 degrees south of Jupiter this morning.