Important Astronomical Events 2022

January

2 New Moon.

3, 4 Quadrantids Meteor Shower. The Quadrantids is an above average shower, with up to 40 meteors per hour at its peak. It is thought to be produced by dust grains left behind by an extinct comet known as 2003 EH1, which was discovered in 2003. The shower runs annually from January 1-5. It peaks this year on the night of the 3rd and morning of the 4th. The thin, crescent moon will set early in the evening leaving dark skies for what should be an excellent show. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Bootes, but can appear anywhere in the sky.

7 Mercury at Greatest Eastern Elongation. The planet Mercury reaches greatest eastern elongation of 19.2 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the evening sky. Look for the planet low in the western sky just after sunset.

17 Full Moon.

February

1 New Moon.

16 Full Moon.

16 Mercury at Greatest Western Elongation. The planet Mercury reaches greatest western elongation of 26.3 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise.

March

2 New Moon.

18 Full Moon.

20 March Equinox. The Sun will shine directly on the equator and there will be nearly equal amounts of day and night throughout the world.

April

1 New Moon.

5 Conjunction of the planets Saturn and Mars. Early in the morning we can spot these two planets at about 0.3 degrees apart in the eastern sky.

17 Full Moon.

22, 23 Lyrids Meteor Shower. The Lyrids is an average shower, usually producing about 20 meteors per hour at its peak. It is produced by dust particles left behind by comet C/1861 G1 Thatcher, which was discovered in 1861. The shower runs annually from April 16-25. It peaks this year on the night of the night of the 22nd and morning of the 23rd. These meteors can sometimes produce bright dust trails that last for several seconds. The waning gibbous moon may block some of the fainter meteors this year, but there is still potential for a good show.

Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Lyra, but can appear anywhere in the sky.

29 Mercury at Greatest Eastern Elongation. The planet Mercury reaches greatest eastern elongation of 20.6 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the evening sky. Look for the planet low in the western sky just after sunset.

30 New Moon.

April 30/**May** 1 –Partial Solar Eclipse. A partial solar eclipse occurs when the Moon covers only a part of the Sun The first eclipse of the year, this partial solar eclipse is visible from southern South America, parts of Antarctica, and over the Pacific and Atlantic Oceans. It will be best seen from Argentina with 53% coverage. Globally eclipse begins at 00:16 hrs (1 May 2022) and ends at 04:07 hrs IST (NOT VISIBLE IN INDIA.

May

1 Conjunction of the planets Venus and Jupiter. Early in the morning we can spot these two planets at about 0.2 degrees apart in the eastern sky.

6,7 Eta Aquarids Meteor Shower. The Eta Aquarids is an above average shower, capable of producing up to 60 meteors per hour at its peak. Most of the activity is seen in the Southern Hemisphere. In the Northern Hemisphere, the rate can reach about 30 meteors per hour. It is produced by dust particles left behind by comet Halley, which has been observed since ancient times. The shower runs annually from April 19 to May 28. It peaks this year on the night of May 6 and the morning of the May 7. The waxing crescent moon will set early in the evening, leaving dark skies for what should be an excellent show. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Aquarius, but can appear anywhere in the sky.

16 Full Moon.

16 Total Lunar Eclipse. A total lunar eclipse occurs when the Moon passes completely through the Earth's dark shadow, or umbra. During this type of eclipse, the Moon will gradually get darker and then take on a rusty or blood red color. The eclipse will be visible throughout all of North America, Greenland, the Atlantic Ocean, and parts of western Europe and western Africa. NOT VISIBLE IN INDIA

29 Conjunction of the planets Jupiter and Mars. Early in the morning we can spot these two planets at about 0.6 degrees apart in the eastern sky.

30 New Moon.

June

14 Full Moon, Supermoon. This is also the first of three supermoons for 2022. The Moon will be near its closest approach to the Earth and may look slightly larger and brighter than usual.

16 Mercury at Greatest Western Elongation. The planet Mercury reaches greatest western elongation of 23.2 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise.

21 June Solstice. The North Pole of the earth will be tilted toward the Sun, which will have eached its northernmost position in the sky and will be directly over the Tropic of Cancer at 23.44 degrees north latitude.

29 New Moon.

July

13 Full Moon, Supermoon. This is also the second of three supermoons for 2022. The Moon will be near its closest approach to the Earth and may look slightly larger and brighter than usual.

28 New Moon.

28, 29 Delta Aquarids Meteor Shower. The Delta Aquarids is an average shower that can produce up to 20 meteors per hour at its peak. It is produced by debris left behind by comets Marsden and Kracht. The shower runs annually from July 12 to August 23. It peaks this year on the night of July 28 and morning of July 29. This is a great year for this shower because the new moon means dark skies for what should be an excellent. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Aquarius, but can appear anywhere in the sky.

August

12 Full Moon, Supermoon. This is also the last of three supermoons for 2022. The Moon will be near its closest approach to the Earth and may look slightly larger and brighter than usual.

12, 13 Perseids Meteor Shower. The Perseids is one of the best meteor showers to observe, producing up to 60 meteors per hour at its peak. It is produced by comet Swift-Tuttle, which was discovered in 1862. The Perseids are famous for producing a large number of bright meteors. The shower runs annually from July 17 to August 24. It peaks this year on the night of August 12 and the morning of August 13. Unfortunately the nearly full moon this year will block out all but the brightest meteors. But the Perseids are so bright and numerous that it could still be a decent show. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Perseus, but can appear anywhere in the sky.

14 Saturn at Opposition. The ringed planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It will be brighter than any other time of the year and will be visible all night long. This is the best time to view and photograph Saturn and its moons.

27 New Moon.

27 Mercury at Greatest Eastern Elongation. The planet Mercury reaches greatest eastern elongation of 27.3 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the evening sky. Look for the planet low in the western sky just after sunset.

September

10 Full Moon.

23 September Equinox. The Sun will shine directly on the equator and there will be nearly equal amounts of day and night throughout the world.

26 New Moon.

26 Jupiter at Opposition. The giant planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It will be brighter than any other time of the year and will be visible all night long. This is the best time to view and photograph Jupiter and its moons.

October

7 Draconids Meteor Shower. The Draconids is a minor meteor shower producing only about 10 meteors per hour. It is produced by dust grains left behind by comet 21P Giacobini-Zinner, which was first discovered in 1900. The Draconids is an unusual shower in that the best viewing is in the early evening instead of early morning like most other showers. The shower runs annually from October 6-10 and peaks this year on the night of the 7th. Best viewing will be in the early evening from a dark location far away from city lights. Meteors will radiate from the constellation Draco, but can appear anywhere in the sky.

8 Mercury at Greatest Western Elongation. The planet Mercury reaches greatest western elongation of 18 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise.

10 Full Moon.

21, 22 Orionids Meteor Shower. The Orionids is an average shower producing up to 20 meteors per hour at its peak. It is produced by dust grains left behind by comet Halley, which has been known and observed since ancient times. The shower runs annually from October 2 to November 7. It peaks this year on the night of October 21 and the morning of October 22. The thin, crescent moon will leave mostly dark skies for what should be a good show. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Orion, but can appear anywhere in the sky.

25 New Moon.

25 Partial Solar Eclipse. A partial solar eclipse occurs when the Moon covers only a part of the Sun. A partial solar eclipse can only be safely observed with a special solar filter or by looking at the Sun's reflection. This partial eclipse will be best seen in parts of western Russia and Kazakhstan. It will be best seen from central Russia with over 80% coverage.

In Chennai the eclipse begins at 17:14 hrs (IST) and ends at 17:44 hrs on that day in Chennai Sun sets at 17:45 hrs. Hence the event can be viewed very low in the horizon.

November

4, 5 Taurids Meteor Shower. The Taurids is a long-running minor meteor shower producing only about 5-10 meteors per hour. It is unusual in that it consists of two separate streams. The first is produced by dust grains left behind by Asteroid 2004 TG10. The second stream is produced by debris left behind by Comet 2P Encke. The shower runs annually from September 7 to December 10. It peaks this year on the the night of November 4. This year the nearly full moon will block out all but the brightest meteors. But if you are patient, you may still be able to catch a few good ones. Best viewing will be just after midnight from a dark location far away from city lights. Meteors will radiate from the constellation Taurus, but can appear anywhere in the sky.

8 Full Moon.

8 Total Lunar Eclipse. A total lunar eclipse occurs when the Moon passes completely through the Earth's dark shadow, or umbra. During this type of eclipse, the Moon will gradually get darker and then take on a rusty or blood red color. The eclipse will be visible throughout eastern Russia, Japan, Australia, the Pacific Ocean, and parts of western and central North America. The eclipse begins at 14:39 IST and ends at 18:19 IST. Total eclipse begins at 15:46 IST and ends at 17:11 IST. In Chennai Moonrises at 17:38 hrs IST. So the totality cannot be seen. The partial phase also will end within few minutes after the Moonrise. So one can attempt viewing the eclipse at horizon as the Moon rises.

17, 18 Leonids Meteor Shower. The Leonids is an average shower, producing an average of up to 15 meteors per hour at its peak. This shower is unique in that it has a cyclonic peak about every 33 years where hundreds of meteors per hour can be seen. That last of these occurred in 2001. The Leonids is produced by dust grains left behind by comet Tempel-Tuttle, which was discovered in 1865. The shower runs annually from November 6-30. It peaks this year on the night of the 17th and morning of the 18th. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Leo, but can appear anywhere in the sky.

24 New Moon.

December

8 Full Moon.

8 Mars at Opposition. The red planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It will be brighter than any other time of the year and will be visible all night long. This is the best time to view and photograph Mars.

13, 14 Geminids Meteor Shower. The Geminids is the king of the meteor showers. It is considered by many to be the best shower in the heavens, producing up to 120 multicolored meteors per hour at its peak. It is produced by debris left behind by an asteroid known as 3200 Phaethon, which was discovered in 1982. The shower runs annually from December 7-17. It peaks this year on the night of the 13th and morning of the 14th. The Geminids are so numerous and bright that this should still be a good show. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Gemini, but can appear anywhere in the sky.

22 December Solstice. The South Pole of the earth will be tilted toward the Sun, which will have reached its southernmost position in the sky and will be directly over the Tropic of Capricorn at 23.44 degrees south latitude.

21 Mercury at Greatest Eastern Elongation. The planet Mercury reaches greatest eastern elongation of 20.1 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the evening sky. Look for the planet low in the western sky just after sunset.

21, 22 Ursids Meteor Shower. The Ursids is a minor meteor shower producing about 5-10 meteors per hour. It is produced by dust grains left behind by comet Tuttle, which was first discovered in 1790. The shower runs annually from December 17-25. It peaks this year on the the night of the 21st and morning of the 22nd. This year, the nearly new moon will leave dark skies for what should be a really good show. Best viewing will be just after midnight from a dark location far away from city lights. Meteors will radiate from the constellation Ursa Minor, but can appear anywhere in the sky.

23 New Moon.