SkyNews Astronomical events for Indian observers

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## Sun, Planets and Transitions

The **Sun** moves from Gemini, the Twins (*Mithuna*) to Cancer, the Crab (*Karka*) on 21 July. Its angular diameter will decrease from 0°31'27.77" on 1 July to 0°31'27.71" on 4 July when it will be farthest from the Sun. The angular diameter of the Sun will then start increasing after the Earth crosses the aphelion point. On 31 July the angular diameter will have increased by nearly 3 seconds of arc to 0°31'30.49".

**Mercury** will move from Taurus, the Bull (*Vrushabh*) to Gemini, the Twins (*Mithuna*) on 5 July; then to Cancer, the Crab (*Karka*) on 18 July; and then to Leo, the Lion (*Simha*) on 28 July.

**Venus** will move from Taurus to Gemini on 18 July.

**Mars** moves from Pisces, the Fishes (*Meena*) to Aries, the Ram (*Mesha*) on 9 July.

**Jupiter** remains in Cetus, the Whale.

**Saturn** remains in Capricornus, the Sea-Goat (*Makar*).

Saturn now rises above the western horizon soon after midnight and can be seen well above the western horizon at sunrise. All the other planets are above the eastern horizon in the pre-dawn sky. Starting from the eastern horizon we have Mercury, Venus, Mars, Jupiter and of course, Saturn. Interestingly, they are in the same order as their distances from the Sun. Mercury will be too close to the Sun and therefore not visible by the end of the first week of July.

*(Disclaimer: we categorically mention here that we do not believe in astrology and believe that the only influence a planet has on us is to give us the viewing pleasure of its beauty. The sole purpose of giving the transition of planets and the Sun is to acquaint the reader with the Indian nomenclature of planets and constellations and also to show that the actual positions of the Sun and planets, which are based on modern computing, are very different from those given in astrology tables.)*

**List of Events in July 2022**

| Dt | Dy | Time | Event |
|---|---|---|---|
| 01 | Fr | 08:15 | Venus-Aldebaran: 4.1° N |
| 01 | Fr | 18:51 | Moon-Beehive: 3.9° S |
| 03 | Su | 18:24 | Regulus 4.6° S of Moon |
| 04 | Mo | 12:40 | Aphelion: 1.0167 AU or 15,20,98,455 km |
| 07 | Th | 00:57 | Spica 4.4° S of Moon |
| 07 | Th | 07:44 | First quarter |
| 09 | Sa | 22:58 | Moon descending node |
| 11 | Mo | 05:20 | Moon-Antares: 3° S |
| 13 | We | 02:46 | Moon south declination: 26.9° S |
| 13 | We | 14:38 | Moon perigee: 3,57,300 km |
| 14 | Th | 00:07 | Full Moon |
| 16 | Sa | 01:46 | Moon-Saturn: 4° N |
| 16 | Sa | 19:13 | Mercury 5.2° S of Pollux |
| 17 | Su | 01:00 | Mercury superior conjunction |
| 19 | Tu | 06:25 | Moon-Jupiter: 2.3° N |
| 20 | We | 19:48 | Last quarter |
| 21 | Th | 22:16 | Moon-Mars: 1.1° S |
| 22 | Fr | 14:51 | Moon ascending node |
| 22 | Fr | 11:39 | Uranus 0.2° S of Moon, occultation |
| 23 | Sa | 08:59 | Moon-Pleiades: 3.7° N |
| 26 | Tu | 14:49 | Moon north declination: 26.9° N |
| 26 | Tu | 15:52 | Moon apogee: 4,06,300 km |
| 26 | Tu | 19:42 | Moon-Venus: 4.6° S |
| 27 | We | 23:13 | Pollux 2.2° N of Moon |
| 28 | Th | 14:56 | Delta-Aquarid Shower: ZHR = 20 |
| 28 | Th | 23:25 | New Moon |
| 29 | Fr | 17:16 | Jupiter stationary |
| 29 | Fr | 05:17 | Mercury 3.4° S of Moon |
| 31 | Mo | 18:35 | Regulus 4.4° S of Moon |

## March of the Moon

On 1 July the thin lunar crescent can be seen above the western horizon soon after sunset. The Moon will be less than 4° north of the famous Beehive cluster. It is also known as Praesepe (Latin for "manger" or "crib"). It is a

beautiful cluster of about 1000 stars. This cluster can be seen with the naked eye under clear, dark skies. If you consult a *panchang* you will find the *nakshatra* of the day is *Pushya*.

On 3 July the Moon will be 4.6° north of Regulus (*Magha*). It should be a good sight to look at. Only 17.5 % of the Moon will be illuminated. Then on 7 July, the Moon will be seen less than 5° north of Spica (*Chitra*).

On 12 July the nearly Full Moon passes very close to the centre of the Milky Way. On 15 July, the Moon and Saturn will rise almost together about three hours after sunset; the next day they can be seen above the western horizon in the morning.

On 19 July the Moon will be less than 3° south of Jupiter. The next day on 20 July it will be halfway between Jupiter and Mars. Then on 21 July the Moon will be seen west of Mars; and on 22 July it will have moved to the East of Mars.

On 23 July the Moon will be about 4° south of the Pleiades. On 25 July the Moon will be less than 3° from Elnath, the second brightest star in Taurus. Though Elnath lies in the constellation Taurus, we most often associate it with the four stars of Auriga to its north, making a nice pentagon.

A day later, on 26 July, the thin lunar crescent can be seen northwest, that is above and to the right of, Venus.

After the New Moon on 28 July, the thin lunar crescent will appear above the western horizon.

If the sky over the western horizon is clear, then you have a chance to witness a star (Regulus, *Magha*), a planet (Venus) and the satellite of the Earth, the Moon, making a right-angled triangle. The Moon will be just about 3.3% illuminated.

## Occultation Watch

We have two bright star lunar occultations this month. The first one takes place on the night of 8 July when the Moon occults Lambda Virginis. After that, early in the morning on 23 July, the Moon will occult Upsilon Tauri.

Timings of disappearances and reappearance are given in the tables below. The legend gives the lunar percentage of illumination. The + or - sign indicates a waxing or a waning Moon respectively. The altitude of the Moon at the time of the event is given in the last column.

The diagram following the table is a lunar map showing where the disappearance and reappearance will take place. The numbers correspond to the station numbers mentioned in the corresponding table.

## Happy Skywatching!

For notes on stargazing click here.

Or visit https://skytonight.wordpress.com/monthly-sky-notes-and-links/

**Acknowledgements:**

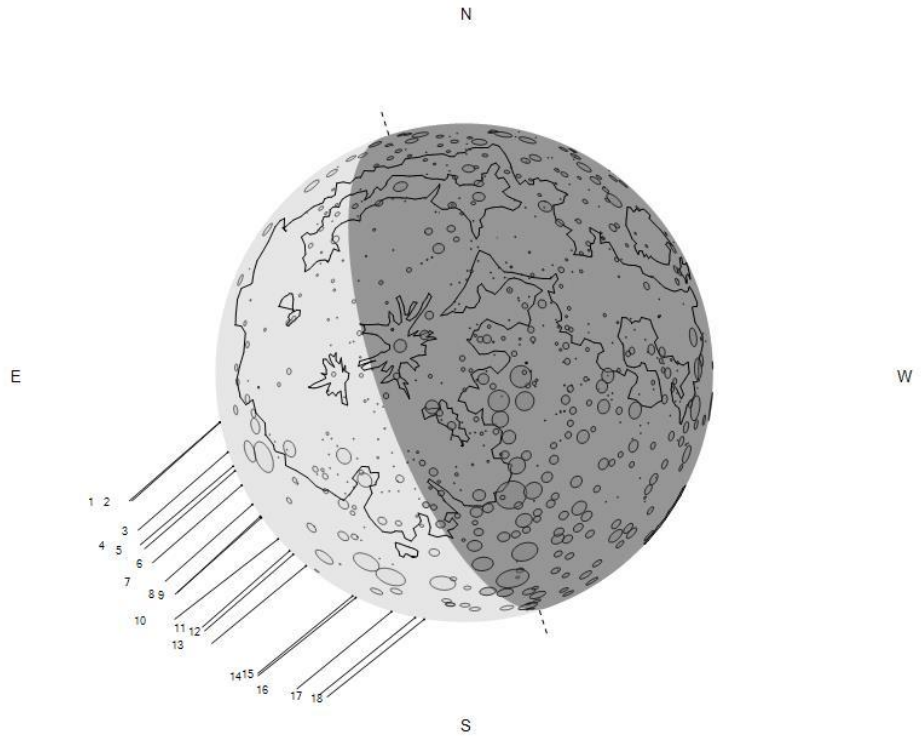
http://www.lunar-occultations.com/iota/occult4.htm
by Dave Herald for International Occultation Timing Association.
https://eclipse.gsfc.nasa.gov/SKYCAL/SKYCAL.html by Fred Espenak and Sumit Dutta.
Graphics using GNU Image Manipulation Program (GIMP) a cross-platform image editor.
https://www.gimp.org/

# ▼Occultation Predictions of Lambda Virginis, Magnitude 4.5

Date: 8 July 2022

Moon% illumination = 67+; solar elongation = 110

| Disappearance | | | Reappearance | | |
|---|---|---|---|---|---|
| City | Time (IST) | Moon Alt | City | Time (IST) | Moon Alt |
| 1 Leh | 23:56:59 | 11 | 1 Leh | -- | Below horizon |
| 2 Srinagar | 23:54:40 | 14 | 2 Srinagar | -- | Below horizon |
| 3 Chandigarh | 23:59:57 | 13 | 3 Chandigarh | -- | Below horizon |
| 4 Naini Tal | 00:03:34 | 11 | 4 Naini Tal | -- | Below horizon |
| 5 New Delhi | 00:02:41 | 13 | 5 New Delhi | -- | Below horizon |
| 6 Jaipur | 00:03:32 | 15 | 6 Jaipur | -- | Below horizon |
| 7 Udaipur | 00:04:24 | 17 | 7 Udaipur | -- | Below horizon |
| 8 Bhuj | 00:01:53 | 21 | 8 Bhuj | -- | Below horizon |
| 9 Ahmedabad | 00:05:21 | 18 | 9 Ahmedabad | -- | Below horizon |
| 10 Kolkata | 00:16:59 | 2 | 10 Kolkata | -- | Below horizon |
| 11 Mumbai | 00:11:22 | 18 | 11 Mumbai | -- | Below horizon |
| 12 Pune | 00:13:00 | 17 | 12 Pune | -- | Below horizon |
| 13 Hyderabad | 00:18:35 | 12 | 13 Hyderabad | -- | Below horizon |
| 14 Chennai | 00:27:20 | 10 | 14 Chennai | -- | Below horizon |
| 15 Bengaluru | 00:25:29 | 13 | 15 Bengaluru | -- | Below horizon |
| 16 Kochi | 00:30:30 | 14 | 16 Kochi | -- | Below horizon |
| 17 Trivandrum | 00:34:20 | 13 | 17 Trivandrum | -- | Below horizon |
| 18 Kanyakumari | 00:35:57 | 12 | 18 Kanyakumari | -- | Below horizon |

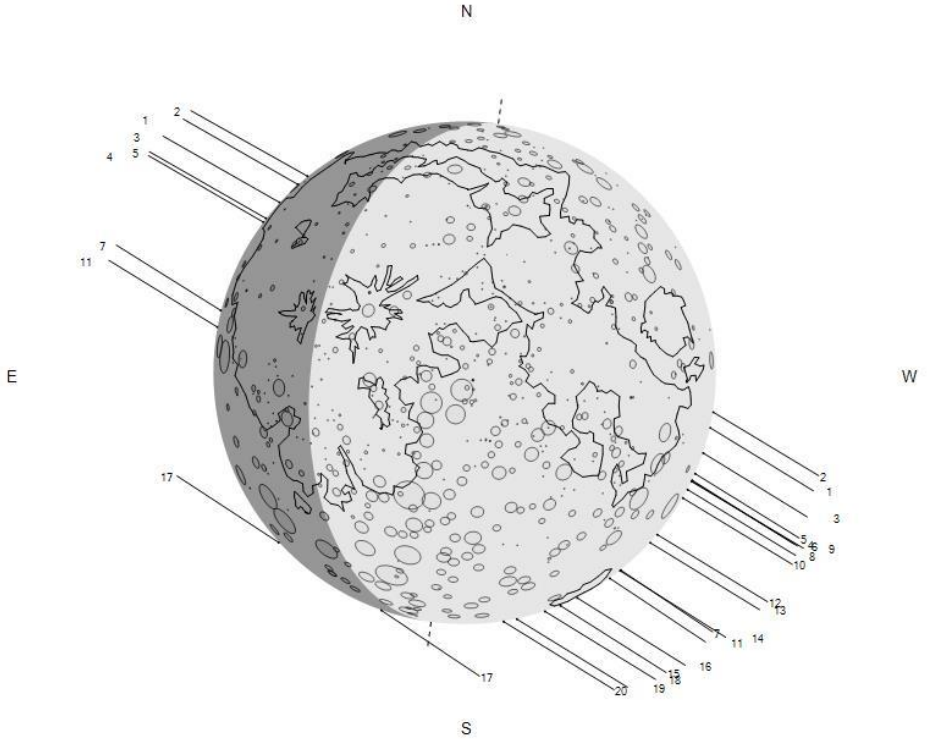


# Occultation Predictions of Upsilon Tauri, Magnitude 4.3

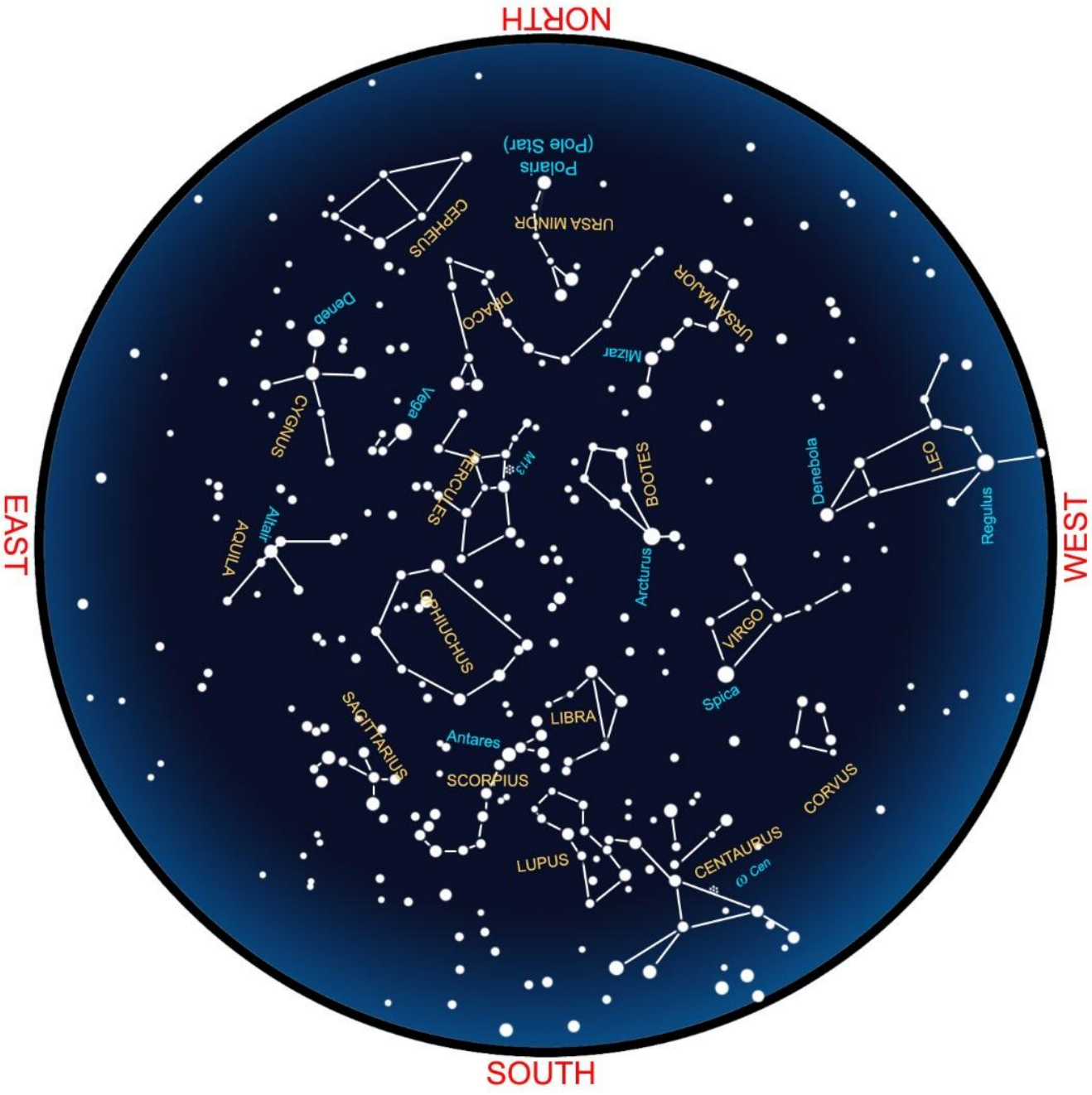
Date: 23 July 2022

Moon% illumination = 19-; solar elongation = 52

| Disappearance | | | Reappearance | | |
|---|---|---|---|---|---|
| City | Time (IST) | Moon Alt | City | Time (IST) | Moon Alt |
| 1 Leh | 02:37:56 | 12 | 1 Leh | 03:34:20 | 23 |
| 2 Srinagar | 02:39:05 | 10 | 2 Srinagar | 03:33:24 | 21 |
| 3 Chandigarh | 02:32:36 | 9 | 3 Chandigarh | 03:29:43 | 21 |
| 4 Naini Tal | 02:29:29 | 10 | 4 Naini Tal | 03:28:24 | 22 |
| 5 New Delhi | 02:29:14 | 8 | 5 New Delhi | 03:27:02 | 20 |
| 6 Jaipur | | | 6 Jaipur | 03:24:35 | 18 |
| 7 Guwahati | 02:24:26 | 18 | 7 Guwahati | 03:25:08 | 32 |
| 8 Udaipur | | | 8 Udaipur | 03:21:33 | 15 |
| 9 Bhuj | | | 9 Bhuj | 03:20:17 | 10 |
| 10 Ahmedabad | | | 10 Ahmedabad | 03:19:37 | 13 |
| 11 Kolkata | 02:20:17 | 13 | 11 Kolkata | 03:17:35 | 26 |
| 12 Mumbai | | | 12 Mumbai | 03:14:07 | 10 |
| 13 Pune | | | 13 Pune | 03:13:14 | 11 |
| 14 Hyderabad | | | 14 Hyderabad | 03:10:10 | 14 |
| 15 Chennai | | | 15 Chennai | 03:01:12 | 12 |
| 16 Bengaluru | | | 16 Bengaluru | 03:02:33 | 10 |
| 17 Port Blair | 02:26:49 | 15 | 17 Port Blair | 02:42:00 | 19 |
| 18 Kochi | 02:37:56 | 12 | 18 Kochi Ind | 02:57:20 | 6 |
| 18 Trivandrum | 02:39:05 | 10 | 19 Trivandrum | 02:53:35 | 6 |
| 20 Kanyakumari | 02:32:36 | 9 | 20 Kanyakumari | 02:51:55 | 6 |



**This sky map for July is drawn for mid-northern latitudes, to be used around 9:30 p.m. local time**

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