



Sun, Planets and Transitions

The Sun will be in Capricornus, The Sea Goat (*Makara*) on 1 February. Its angular diameter will be 32'28.4". The Sun moves to Aquarius, the Water Bearer (*Kumbha*) on 17 February. On 29 February, the Sun's angular diameter decreases by 10 arc-seconds to 32'17.6'.

Mercury is in Sagittarius, the Archer (*Dhanu*) on 1 February. It moves to Capricornus on 5 February and to Aquarius on 21 February.

Venus is in Sagittarius on 1 February and moves to Capricornus on 16 February. **Mars** too is in Sagittarius on 1 February. It moves to Capricornus on 13 February.

Jupiter and **Saturn** are in Aries, The Ram (*Mesha*) and Aquarius respectively.

(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.)

March of the Moon

The Moon is visible in the morning sky in early February. On 1 February, the nearly 70% illuminated Moon can be seen less than

List of Events in February 2024

Dt	Dy	Time	Event
01	Th	01:47	Moon descending node (Ketu)
01	Th	12:34	Moon-Spica: 1.9° S
03	Sa	04:48	Last quarter
05	Mo	05:45	Moon-Antares: 0.6° S
06	Tu	22:36	Moon south declination: 28.3° S
08	Th	00:22	Moon-Venus: 5.4° N
08	Th	12:00	Moon-Mars: 4.2° N
09	Fr	05:03	Moon-Mercury: 3.1° N
10	Sa	04:29	New Moon
11	Su	00:19	Moon perigee: 358100 km
13	Tu	22:31	Moon ascending node (Rahu)
15	Th	13:45	Moon-Jupiter: 3.2° S
16	Fr	20:31	First quarter
17	Sa	00:43	Moon-Pleiades: 0.6° N
19	Mo	14:17	Moon north declination: 28.4° N
21	We	06:24	Moon-Pollux: 1.8° N
22	Th	07:43	Moon-Beehive: 3.7° S
22	Th	14:31	Venus-Mars: 0.6° N
24	Sa	18:00	Full Moon
25	Su	20:30	Moon apogee: 406300 km
28	We	04:23	Moon descending node (Ketu)
28	We	13:49	Mercury superior conjunction
28	We	19:11	Moon-Spica: 1.6° S
29	Th	02:31	Saturn conjunction

2° from Spica (*Chitra*). On 3 February, the Moon will be in third quarter and will be south of Zubenelgenubi, the star at the apex of Libra, the Scales (*Tula*). On 5 February, the Moon will occult the first magnitude red supergiant star Antares (*Jyestha*). This event is very favourable to watch from most locations in India. See the details below.

On 7 February, the Moon will be inside the 'tea pot' asterism of Sagittarius. On 8

February, the Moon and Mars will rise together about an hour and a half before sunrise. Look for the nice equilateral triangle above the eastern horizon just before dawn breaks in. The next day on 9 February, the Moon will be just about 3° south of Mercury. It may not be easy to spot them together. After New Moon on 10 February, the Moon will appear above the western horizon after sunset.

On 15 February, the Moon will be south east of Jupiter. The first quarter Moon of 16 February will be seen right below the Pleiades cluster (*Krutika*). It will occult many stars of the Pleiades that night, but these events will not be visible from India. Both the Moon and the Pleiades will set before the occultations begin.

On 18 February, the Moon will rise in the Gateway of Heaven. Later, half an hour past midnight, it will be less than 6° south of Castor. A brightly shining Moon can be seen west of the 'sickle' or 'mane' of Leo, the Lion (*Simha*) on 23 February. Full Moon is on 24 February. The Moon will be seen east of Regulus (*Magha*). On 29 February, it can be seen east of Spica.

Occultation of Antares by the Moon

On 5 February 2024, Antares (*Jyestha*), the brightest star in the constellation Scorpius, will be occulted by the Moon. The event will take place in the pre-dawn sky and the star will be occulted by the bright limb of the Moon. Reappearance will be at the dark limb.

Is this a rare event?

The Moon regularly comes between the Earth and Antares. This happens in a particular sequence. During a period of about five years, the Moon occults Antares more than 55 times. Following this there is a gap of about 14 years; and after this time the Moon again comes between the Earth and Antares about 55 times.

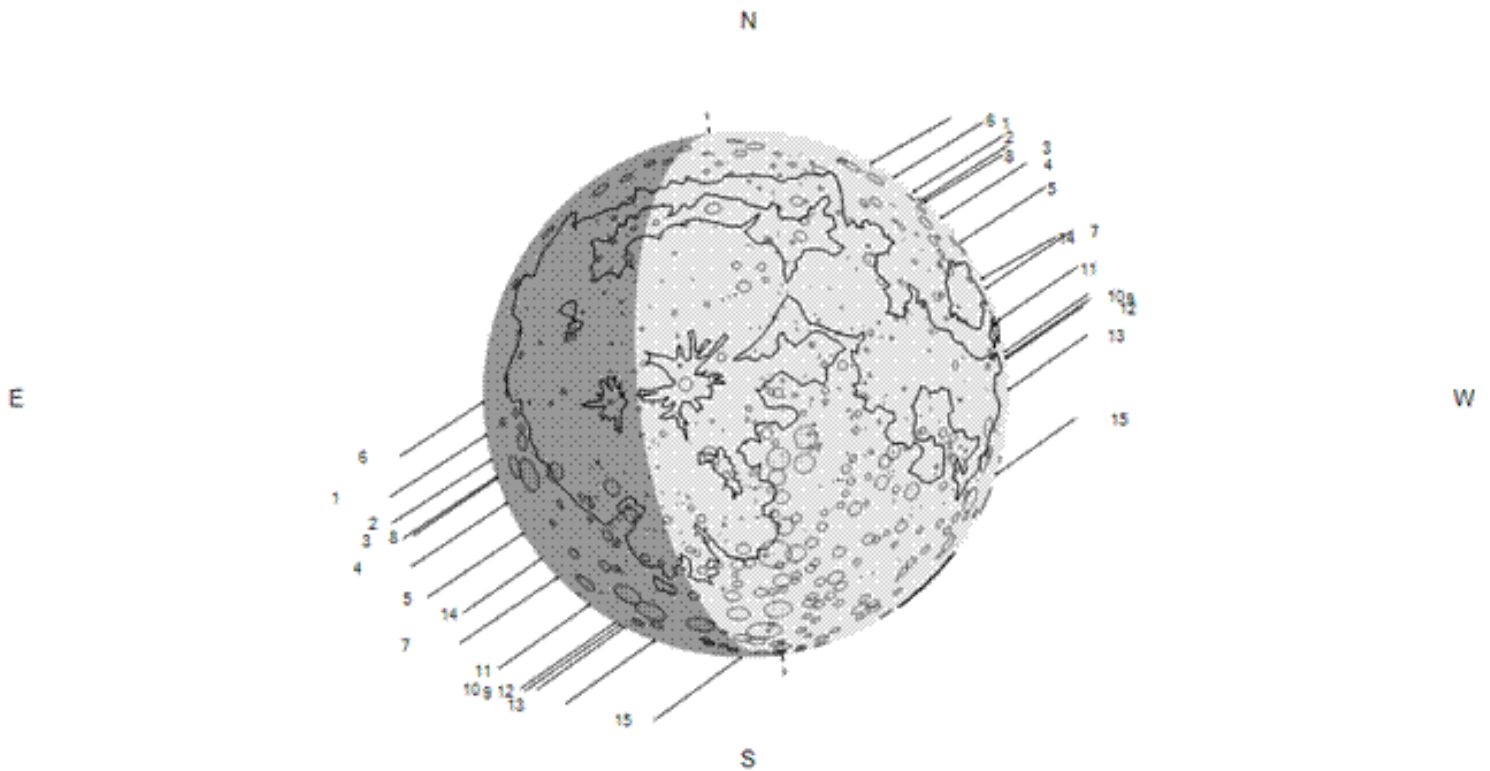
Yet, these occasions are very rare for any given location. The present series of 2023 to 2028 will see 56 such events globally. Most of the events take place in the Arctic or Antarctic regions. Only five events take place over India, of which two are visible at night; the remaining three occur during the day.

The next series will commence in 2042.

▼ Occultation Prediction of Antares (*Jyestha*), Magnitude 1.09

Date: 5 February 2024

No.	Location	Disappearance			Reappearance		
		IST	Sun's Altitude (°)	Moon's Altitude (°)	IST	Sun's Altitude (°)	Moon's Altitude (°)
1	Bengaluru	04:56:01		32	06:03:18	-11	43
2	Chennai	04:56:44		34	06:11:08	-6	45
3	Delhi	04:45:52		19	06:02:20		29
4	Guwahati	05:10:59		32	06:27:36	4	37
5	Hyderabad	04:50:06		28	06:06:59	-10	40
6	Jaipur	04:44:03		19	06:00:44		30
7	Kanyakumari	05:08:07		37	05:57:29	-11	46
8	Kolkata	05:01:21		32	06:26:04	2	40
9	Leh	04:49:56		16	06:00:00		24
10	Mount Abu	04:41:52		18	05:55:50		29
11	Mumbai	04:46:03		23	05:54:21		34
12	Naini Tal	04:48:59		20	06:05:09		29
13	Port Blair	05:14:02	-8	45	06:47:42	14	52
14	Pune	04:46:48		24	05:56:32		35
15	Srinagar	04:46:16		14	05:57:14		23



Lunar map of disappearance and reappearance of Antares. The numbers on the map correspond to the stations in the table above

Events involving the moons of Jupiter

In the table below, we have listed events that can be seen from India. The table gives the timings of eclipses, occultations, transits and shadow transits of the moons of Jupiter, suitable for Indian observers. The timings are given in Indian Standard Time (IST).

The output is given as per the following abbreviations and notations:

Columns: 1 = date (given only for the first event listed for that day); 2 = time; 3 = satellite number; 4 = event type; and 5 = phase.

Satellite numbers: 1 = Io; 2 = Callisto; 3 = Europa; and 4 = Ganymede.

Event type: Ec = eclipse; Oc = occultation; Tr = transit; and Sh = shadow transit.

Phase: D = disappear; R = reappear; I = ingress; and E = egress.

Example:

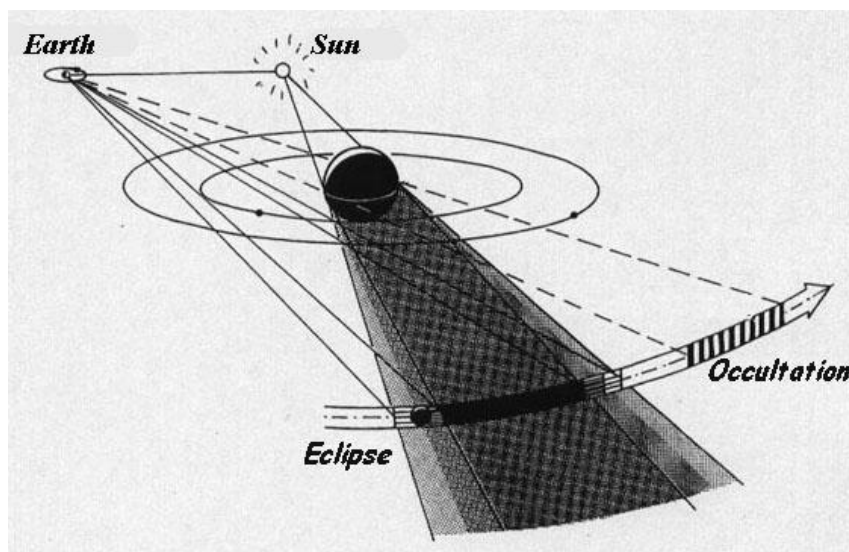
1	20:13:42	1	Tr	I
	21:34:06	1	Sh	I
	22:24:18	1	Tr	E
	23:43:42	1	Sh	E

Means that

At 20:13:42 pm on 1 February, Io (1) will transit across Jupiter. Its shadow will transit across the planet at 21:34:06 pm. Io egresses Jupiter at 22:24:18 pm. Later its shadow egresses Jupiter at 23:43:42 pm.

Satellites of Jupiter in February 2024

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
1	20:13:42	1	Tr	I	15	19:28:30	3	Ec	R
	21:34:06	1	Sh	I	16	21:19:42	1	Oc	D
	22:24:18	1	Tr	E	17	19:55:06	1	Sh	I
	23:43:42	1	Sh	E		20:49:30	1	Tr	E
2	19:18:12	2	Oc	D		22:04:48	1	Sh	E
	20:56:06	1	Ec	R	18	19:11:18	2	Tr	I
	21:43:18	2	Oc	R		19:15:42	1	Ec	R
	22:03:54	2	Ec	D		21:34:24	2	Tr	E
	00:26:30	2	Ec	R		21:42:06	2	Sh	I
4	20:24:12	3	Tr	E	20	19:03:36	2	Ec	R
	23:58:06	3	Sh	I	22	21:47:12	3	Ec	D
8	22:10:54	1	Tr	I	24	20:37:36	1	Tr	I
	23:30:06	1	Sh	I		21:51:00	1	Sh	I
9	19:22:06	1	Oc	D		22:48:36	1	Tr	E
	21:59:42	2	Oc	D	25	21:11:06	1	Ec	R
	22:51:30	1	Ec	R		21:53:30	2	Tr	I
10	20:08:48	1	Sh	E	27	19:17:18	2	Oc	R
11	19:06:06	2	Sh	I		19:19:00	2	Ec	D
	21:26:06	2	Sh	E		21:42:06	2	Ec	R
	22:30:36	3	Tr	I	29	20:50:48	3	Oc	D
						22:57:42	3	Oc	R



Eclipses occur when the satellites pass in the shadow of Jupiter.
Occultations occur when the satellites pass behind Jupiter for a terrestrial observer

(Picture courtesy: <https://promenade.imcce.fr/en/pages3/365.html#eclip>)

