SkyNews

Astronomical events for Indian observers

November 2019

Sun and Planets:

As November 2019 begins three will be Jupiter and Saturn above the western horizon at sunset. Neptune well above the eastern horizon whereas Uranus just making its appearance over the eastern horizon. Both these planets are available for observations during the clear crisp skies of winter.

By the month end Venus will be seen above the western horizon soon after the sunset.

No planets in the morning skies. Mars makes its appearance above the eastern horizon at the sunrise by end of November.

Transitions of the Sun and planets:

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

Sun moves from Libra (Tula) to Scorpio (Vrischik) on Nov. 25

Mercury remains in Libra all through the month

Venus moves from Libra (Tula) to Scorpio on Nov. 1 then enters the boundary of Ophiuchus, the Serpent Bearer (Bhujangadhari or Sarpdhar);on 8th and then to Sagittarius on 24th.

Mars is in Virgo (Kanya) and move towards Libra.

Jupiter moves from Ophiuchus to Sagittarius on 16th

Saturn is in Sagittarius this month.

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March of the Moon:

The Moon is half way between Jupiter and Saturn on 1 November. Next day it is just half a degree from Saturn. It passes above and a bit to south (i.e. left) of Saturn. On 7th it is just about 5 degrees from Neptune. If you have not yet located Uranus then this is good time to locate it. It is then about 6 degrees from Uranus but at that time the moon will be 98.9 % illuminated.

On 13th Moon will be nearly half way between Hyades cluster, with Aldebaran (Rohini) at one end of the cluster and Pleiades (Kruttika). On 18th it passes within 2 degrees of Beehive cluster. Two days later on 20th It will pass within 3.5 degrees from Regulus (Magha). On 24th it is 4.4 degrees south of Mars.

List of Events

Dt	Dy	Time	Event
02	Sa	06:03	Moon South Dec.: 23° S
02	Sa	13:01	Moon-Saturn: 0.6° N
04	Mo	15:53	First Quarter
06	We	05:11	South Taurid Shower: ZHR = 10
07	Th	12:51	Moon-Neptune: 3.6° S
07	Th	14:07	Moon Apogee: 405100 km
10	Su	00:48	Venus-Antares: 3.9° N
10	Su	04:35	Mars-Spica: 2.8° N
11	Mo	12:59	Moon-Uranus: 4.1° S
11	Mo	20:47	Mercury Inferior Conj.
12	Tu	19:04	Full Moon
13	We	04:27	North Taurid Shower: ZHR = 15
14	Fr	08:39	Moon- Aldebaran 3.0N
16	Sa	14:18	Moon Ascending Node
16	Sa	19:22	Moon North Dec.: 23.2° N
18	Mo	10:45	Leonid Shower: ZHR = 15
18	Mo	15:41	Moon-Beehive: 0.9° S
20	We	02:41	Last Quarter
23	Sa	13:24	Moon Perigee: 366700 km
24	Su	14:32	Moon-Mars: 4.4° S
24	Su	17:47	Venus-Jupiter: 1.4° N
25	Mo	09:26	Moon - Mercury 1.8N
26	Tu	20:36	New Moon
27	Th	01:30	Neptune stationary
28	Th	15:29	Mercury Elongation: 20.1° W
28	Th	16:19	Moon-Jupiter: 0.8° S (Occ. see below)
29	Fr	00:20	Moon-Venus: 2° S
29	Fr	09:43	Moon Descending Node
29	Fr	16:06	Moon South Dec.: 23.2° S

On 27 Nov thin lunar crescent might be visible right above the Sun at sunset. Then on 28 Nov Moon occults Jupiter. On this day the Moon will come directly between the planet and us. See below for more information about the event.

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Leonid Meteor Shower:

Year regular meteor shower Leonid is expected to be active from 6 to 30 Nov. November 6th to November 30th, 2019. The shower is expected to peak on the night of 16/17 Nov 2019. The ZHR (Zenithal Hourly Rate) this year is expected to be 15 meteors. Add to this the Moon will be nearly 80% illuminated and would be just about 40 degrees from the radiant. The shower will be

literally 'damn squib' but without any explosion or hissing sound.

The parent comet of this shower is 55P/Tempel-Tuttle, whose period is 33 years. These meteors enter the Earth's atmosphere with a velocity of about 70 km/sec.

Though the current rate of the shower is low, this shower is known to produce a 'storm'. The shower was so intense in 1999 that at close to the sunrise people simply stopped taking observations and just enjoyed the 'firework'.

For more on observing meteor shower visit https://skytonight.wordpress.com/wish-upon-a-shooting-star/

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Occultaton of Jupiter by the Moon on 28 Nov 2019:

An interesting event is coming up on November 28, 2019 for Indian observers. Just before the sunset Jupiter will be occulted (or eclipsed) by the Moon. The occultation will take place by about 4:50 p.m. for those in the western part of India and as the Moon continues its eastwards march the event will take place by about 5:25 p.m. for those in the eastern part.

This will be a challenging event as the disappearance of Jupiter behind the dark limb of the Moon will take place when the Sun will still be above the horizon. Even then should be possible for one to locate Jupiter. It should be possible for one to find Jupiter using a pair of binoculars. Thought a telescope with 100 mm (4 inch) primary or more will be of great help.

On 23 April 1998 a double occultation of Jupiter and Venus took place. On that day at about 1:33 p.m. Jupiter disappeared behind the brighter limb of the Moon. Many people reported sightings of Jupiter with naked eyes when it was close to the Moon.

Angular dia of Jupiter will be about 30 seconds of arc and it would take about 45 second for the disk to completely disappear or reappear. As the event will take place near sunset, the atmosphere will be quite turbulent and at higher magnification one will not be able to see a sharp image of the Moon or Jupiter. All four moons of Jupiter are following it but are not likely to be visible at disappearance phase. Brightest of them Io will be 5.9 mag.

Angle between the Moon and the Sun will be 23 degrees and the Moon will be just about 4 % illuminated. You may start the exercise for about an hour and a half before the local sunset. In Mumbai, on 28 Nov 19 the Sun will set at 6:00 p.m. that evening and so Mumbaikars may consider starting their observational exercise by about 4:30 p.m.

First try looking for the lunar crescent above the western horizon. If the sky is clear then you should be able to see the upper part of the Moon illuminated by reflected sunlight from the Earth. Check slightly to the south east, that is above the upper limb of the Moon. If the sky is clear you should be able to see Jupiter.

Angular diameter of Jupiter on the day of the event will be about 30 seconds of arc and it would take about 45 second for the disk to completely disappear or reappear.

All four Galilean moons of Jupiter will be to its east. But these are not likely to be visible, at least at time of disappearance. Brightest of them Io will be 5.9 mag.

But at reappearance time one might be able to see them.

If you consider participating in observation of this event you are invited for discussion about this event at skytonight.wordprss.com and/or Facebook page -> https://www.facebook.com/groups/454928701784412/. You may submit your observations at the following link https://docs.google.com/forms/d/e/1FAIpQLSfpUk8SPVN8cLrbdyup7iEkMGObDd0-jV5eiSzEp-huxdOAnA/viewform <or click here>.

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Upcoming star parties:

Organizer: Stargazing Mumbai

Dates: Saturday, 23 November 2019 and Saturday, 21 December 2019

Place: Mahuli, Asangaon, Maharashtra (about 80 km north of Mumbai on the Mumbai-Nasik highway)

Details: Overnight programs with constellation and night sky tour, observation of planets and deep sky objects.

Fee: Rs 300/= per person

Contact: Ms Pooja Tolia, +919112662662,

Organizer: Big Bang Astronomy Club, Rajkot

Dates: Saturday, 23 November 2019

Details: Overnight programs with constellation and night sky tour, observation of planets and deep sky objects.

Contact: mail@rcscrajkot.org,

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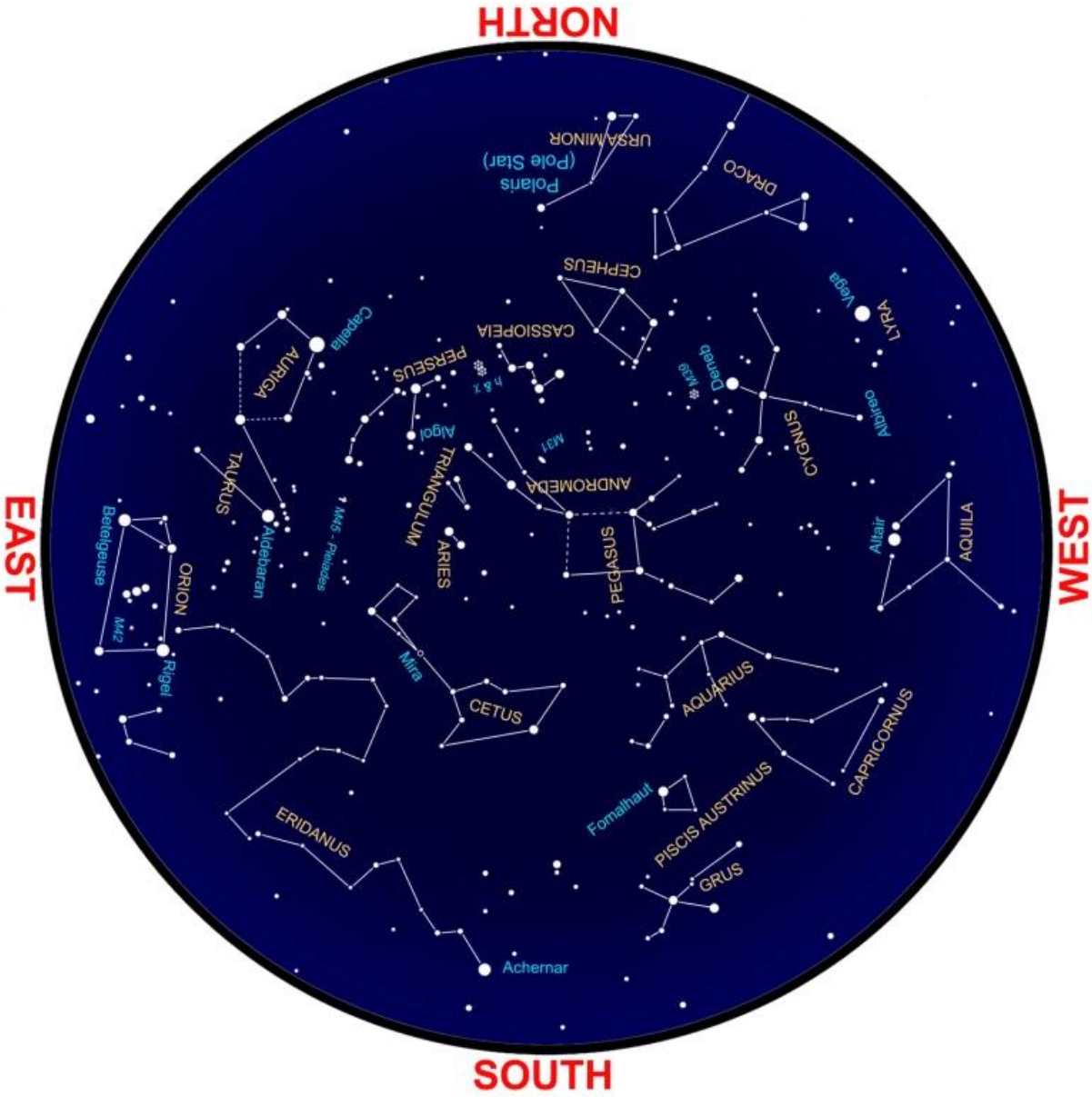
https://eclipse.gsfc.nasa.gov/SKYCAL/SKYCAL.html by Fred Espenak and Sumit Dutta.

Graphics using GNU Image Manipulation Program (GIMP) a cross-platform image editor.
https://www.gimp.org/

The sky map for the month of November, drawn for mid northern latitude to be used around 9:30 p.m. local time.



You may visit ASI – POEC link below for the maps for other months
http://astron-soc.in/outreach/resources/sky-maps/

Jupiter occultation event : 28 Nov 2019

The table below gives the information about the event – time (disappearance and reappearance), altitude (above the horizon) of the Sun and of the Moon at the time of event.

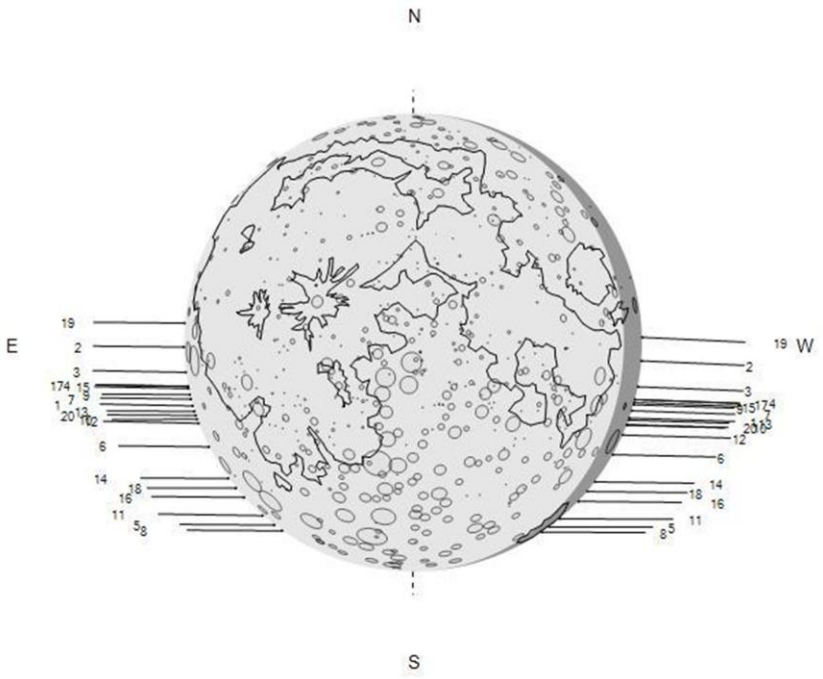
Note #4 below is dropped because of duplication of a location.

Disappearance

Location	I.S.T. h m s	Sun Alt	Moon Alt
1 Agra	5:02:15 PM	4	21
2 Amritsar	4:52:10 PM	6	21
3 Dehra Dun	4:58:24 PM	3	19
5 Hyderabad	5:22:23 PM	3	23
6 Indore	5:04:56 PM	7	25
7 Jaipur	4:58:48 PM	6	23
8 Japal	5:24:05 PM	3	23
9 Jodhpur	4:54:33 PM	9	26
10 Kandla	4:52:49 PM	14	30
11 Kolkatta	5:27:51 PM	-9	11
12 Lucknow	5:07:24 PM	0	18
13 Mt. Abu	4:56:06 PM	10	27
14 Mumbai	5:05:33 PM	11	29
15 Naini Tal	5:01:41 PM	2	18
16 Nanded	5:15:03 PM	5	24
17 New Delhi	4:59:04 PM	4	21
18 Pune	5:08:47 PM	9	28
19 Srinigar	4:49:50 PM	5	20
20 Udaipur	4:57:55 PM	9	26

Reappearance

Location	I.S.T. h m s	Sun Alt	Moon Alt
1 Agra	6:11:37 PM	-11	8
2 Amritsar	6:06:53 PM	-9	9
3 Dehra Dun	6:10:08 PM	-11	7
5 Hyderabad	6:05:45 PM	-7	14
6 Indore	6:10:38 PM	-7	13
7 Jaipur	6:10:28 PM	-9	10
8 Japal	6:04:54 PM	-7	14
9 Jodhpur	6:08:48 PM	-6	13
10 Kandla	6:07:04 PM	-2	17
11 Kolkatta	6:10:14 PM		3
12 Lucknow	6:12:52 PM		6
13 Mt. Abu	6:09:02 PM	-5	14
14 Mumbai	6:07:11 PM	-2	18
15 Naini Tal	6:11:30 PM		6
16 Nanded	6:08:31 PM	-7	14
17 NEW DELHI	6:10:39 PM	-10	8
18 Pune	6:07:11 PM	-3	17
19 Srinigar	6:04:14 PM	-9	8
20 Udaipur	6:09:36 PM	-6	13



The diagram above gives the position of Jupiter for different locations at the time of disappearance and reappearance at east and west of the Moon.
The numbers corresponds to the names of locations given in the tables above.