



## Sun, Planets and Transitions

On 1 April the angular diameter of the Sun will be 32'07", which reduces to 31'45" on 30 April.

The **Sun** is in Pisces, the Fish (*Meena*) at the beginning of the month and moves to Aries, the Ram (*Mesha*) on 18 April.

The 2021 Zero Shadow Day (ZSD) season for India begins on 11 April at Kanyakumari, where the Sun will be overhead at 12:21 hours IST.

To find out the date for the ZSD at your location, please download the ZSD app by Alok Mandavgane from the Google Play Store (for Android mobiles).

You may also visit the [skytonight](http://skytonight.com) site.

**Mercury** is in Aquarius, the Water-Bearer (*Kumbh*) and moves to Pisces on 2 April. It moves to Cetus, the Sea Whale on 8 April, then crosses back to Aquarius on 10 April. Ten days later, on 20 April, it moves to Aries, the Ram (*Mesha*). It will be difficult to observe Mercury this month.

**Venus** is in Pisces at the beginning of the month and moves to Aries on 15 April. It is still quite close to the Sun for safe observations. By the end of the month it will be possible to spot this planet.

**Mars** is in Taurus, the Bull (*Vrushabh*) at the beginning of the month and moves to Gemini, the Twins (*Mithun*) on 24 April. Observers may keep in mind that Gemini is the northernmost zodiacal constellation. For observers in the northern hemisphere, a planet is best observed when it is in Gemini. On 17 April Mars will be occulted by the Moon. See below.

**Jupiter** and **Saturn** are now well above the eastern horizon at dawn. Jupiter and Saturn rises about three hours before

### List of Events in April 2021

Dt	Dy	Time	Event
02	Fr	04:45	Antares 4.8° S of Moon
02	Fr	08:11	Moon descending node
04	Su	07:38	Moon south declination: 25.4° S
04	Su	15:32	Last quarter
06	Tu	14:04	Moon-Saturn: 4.2° N
07	We	12:45	Moon-Jupiter: 4.7° N
12	Mo	08:01	New Moon
12	Mo	17:59	Venus 2.6° N of Moon
13	Tu	19:28	Uranus 2.3° N of Moon
14	We	23:17	Moon apogee: 406100 km
16	Fr	07:37	Aldebaran 5.4° S of Moon
16	Fr	11:23	Moon ascending node
17	Sa	17:39	Moon-Mars: 0.1° N, occultation
18	Su	21:32	Moon north declination: 25.5° N
19	Mo	07:01	Mercury superior conjunction
20	Tu	12:29	First quarter
20	Tu	23:55	Moon-Beehive: 3° S
22	Th	17:46	Lyrid Shower: ZHR = 20
22	Th	18:42	Regulus 4.6° S of Moon
25	Su	22:42	Mercury and Venus 1°09'
26	Mo	13:05	Spica 5.8° S of Moon
27	Tu	09:01	Full Moon
27	Tu	20:54	Moon perigee: 357400 km
29	Th	13:56	Antares 4.6° S of Moon
29	Th	14:47	Moon descending node

sunrise, followed by Jupiter about 40 minutes later.

After their historical close conjunction in December 2020, Jupiter and Saturn are now moving away from each other. At the beginning of the month, they are in

Capricorn. Jupiter moves to Aquarius on 25 April. Saturn continues to travel within Capricorn.

*(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

On 2 April the Moon will be less than  $5^\circ$  from Antares at 4:45 am IST. It can be seen right above Antares above the south-western horizon at dawn.

On the morning of 6 April, the approximately 33% illuminated Moon can be seen above and to the left of Saturn. At 3:42 pm, when the Moon is below the horizon for India, it passes less than  $4^\circ$  from Saturn. The next day at 3:21 pm — again when it is below the horizon — it is just about  $4^\circ$  from Jupiter.

Then on 7 April the Moon slides down to Jupiter. Deneb Algedi or delta Capricorni, an Algol type variable star, is just to the right of Jupiter.

On 11 and 12 April, the Moon passes less than  $3^\circ$  from Mercury and Venus; but observing them will be a challenge. On 11 April, Mercury and the Moon will rise slightly before the break of civil twilight. At that time the angle between the Moon and the Sun will be just about  $9^\circ$ . The next day, Venus will set just about 18 minutes after the sun. It might be possible for you to catch the Moon and Venus if you have a very clear horizon. **Caution: Be absolutely careful with these sightings. The Sun is less than  $10^\circ$  away and you**

**can damage your eyes if you inadvertently look at the Sun.**

On 13 April the thin lunar crescent can be seen south of Uranus. At 19:08 hours IST the separation between the two will be  $2^\circ 18'$ . This will be worth trying to observe with a small telescope.

On 15 April, the approximately 12% illuminated lunar crescent can be seen between the Pleiades (*Krittika*) and Hyades clusters. This also is a good photo opportunity.

On 17 April the Moon will occult Mars. This event will not be visible from latitudes above that of Srinagar. See below.

On 19 April the Moon can be seen inside the boundaries of the Gateway of Heaven, close to Castor and Pollux, the stars of Gemini.

The almost 70% illuminated Moon will be to the north of Regulus (*Magha*) on 22 April.

## Planetary Conjunction

We have one planetary conjunction this month. On 25 April at 22:42 hours IST Mercury (mag -1.6) and Venus (mag -3.9) will be separated by  $1^\circ 9.5'$ . The elongation between the planets and the Sun will be  $7.7^\circ$ . The planets will set about 30 minutes after the Sun and it should be possible to see them using a pair of binoculars just after sunset.

## Lunar Occultation of a Planet

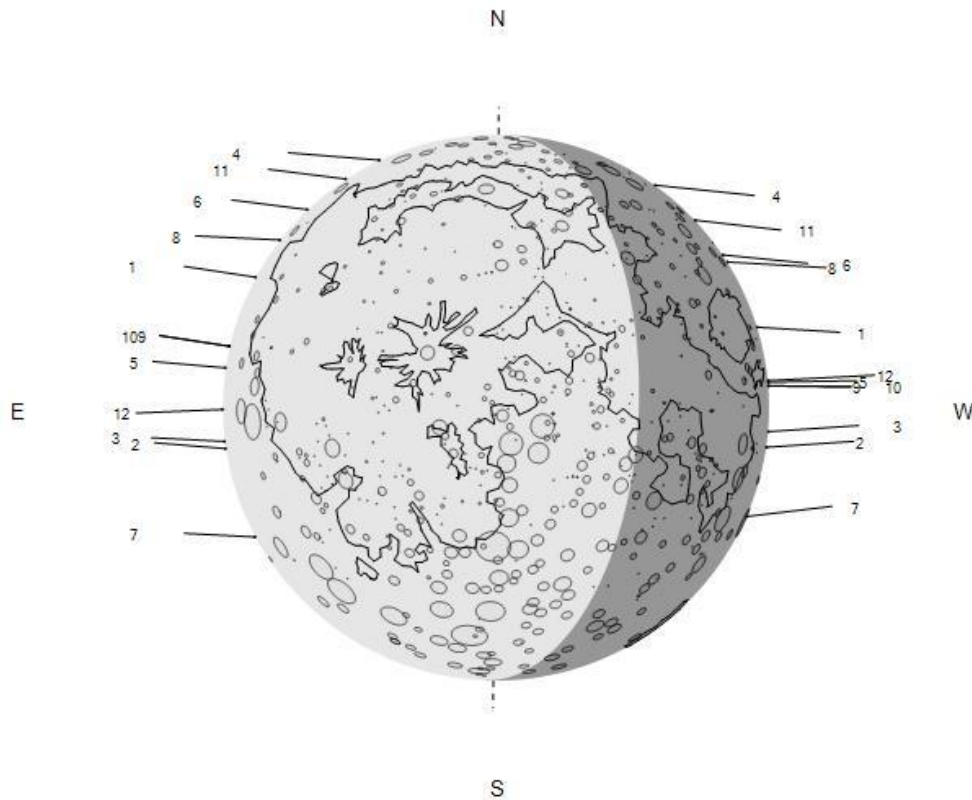
On 17 April 2021, Mars (mag 1.5) will be occulted by the Moon. The elongation of Mars will be  $58.7^\circ$ . During this time, a ray of light will take 15m 52s to travel from Mars to Earth. Its angular diameter will be  $4.90''$ , with a phase of 0.92. It will take a few seconds for the planet to disappear or

reappear from behind the Moon. We can see from the table below that for most western cities, the disappearance will take

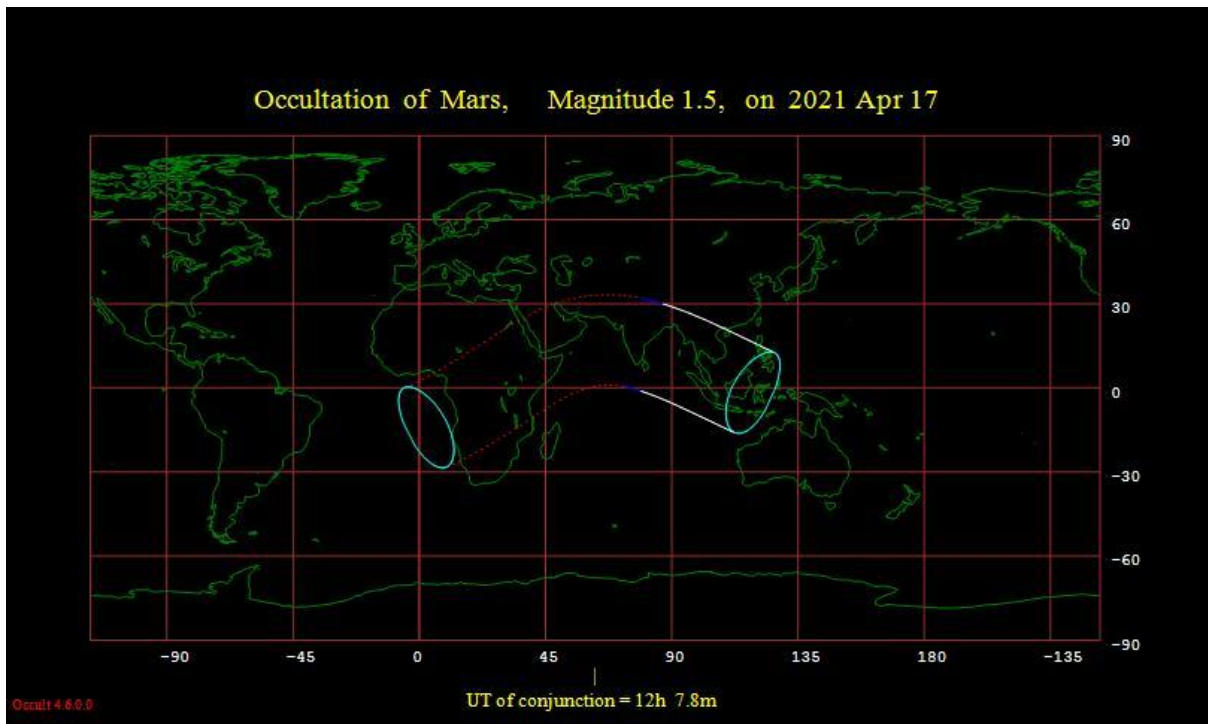
place with the Sun still above the horizon. It will be interesting to see if one can image Mars using a good camera.

		Disappearance			Reappearance		
		Time IST	Sun alt	Moon alt	Time IST	Sun alt	Moon alt
1	Ahmedabad	17:34:59	19	77	19:13:14	-4	55
2	Bengaluru	17:49:21	10	66	19:33:02		43
3	Chennai	17:57:46	5	62	19:38:12		40
4	Guwahati	18:39:37		46	19:21:13		37
5	Hyderabad	17:50:17	9	67	19:32:17		44
6	Jaipur	17:52:44	12	71	19:08:59	-5	54
7	Kanyakumari	17:56:24	7	62	19:30:17		42
8	Kolkata	18:22:12	-6	52	19:34:10		36
9	Mumbai	17:31:52	19	76	19:19:45	-6	52
10	Mumbai South	17:31:45	19	76	19:19:41	-6	52
11	New Delhi	18:02:07	9	67	19:04:10	-4	54
12	Port Blair	18:29:48		43	19:54:42		24

Lunar map showing where the disappearance and reappearance will take place. The numbers correspond to the station numbers mentioned above.



## World map of Mars Occultation



The line colours have the following meanings:

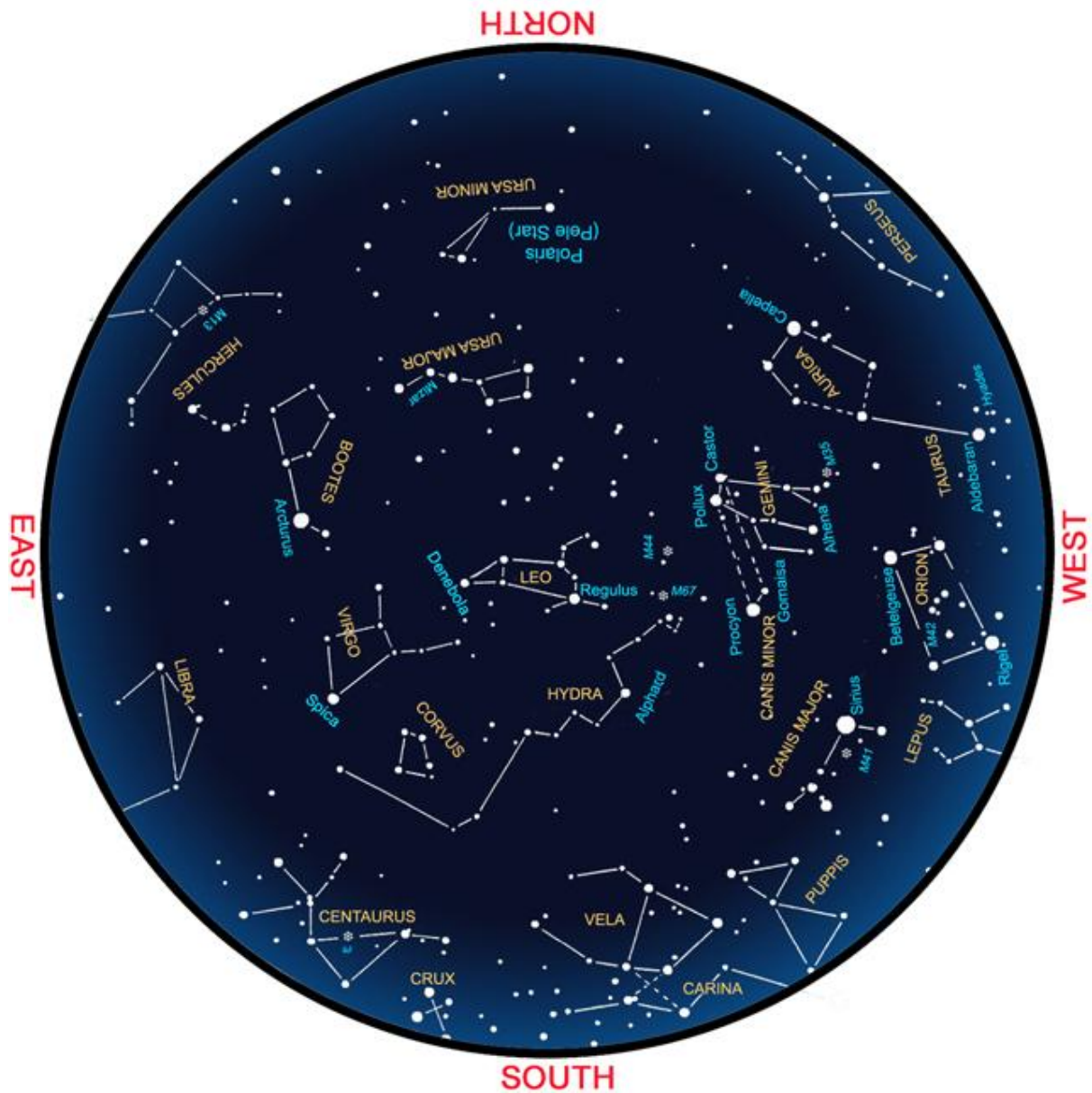
- Cyan:** The curves of occultation D (disappearance) or R (reappearance) at moonrise or moonset
- White continuous line:** The northern and southern occultation limits (graze paths), with the event occurring during the dark hours
- Blue continuous line:** Occultation limits, event in twilight
- Red dotted line:** Occultation limits, event in daylight.

## Lunar Occultation of Bright Stars

**Date:** 17 April  
**Star:** 132 Tauri  
**Magnitude:** 5.0  
**Approximate time:** 21:50 hours  
**Visibility:** Across India, except for a small region at the tip of India

**Date:** 18 April  
**Star:** Epsilon Geminorum (Mebstuta)  
**Magnitude:** 3.1  
**Approximate time:** 22:20 hours  
**Visibility:** Across India, except for a small region at the tip of India

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



For notes on stargazing [click here](#).

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

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

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<https://www.gimp.org/>

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