

Sun and Planets

This year the autumnal equinox is on 22 September at 19:01 hours. On this day the Sun's rays will fall perpendicular on the equator.

Mercury's reappearance above the western horizon this month is highly unfavourable for viewers. It is just about 8° above the horizon at sunset on the first day of the month. It will be seen moving southwards until the end of the month, maintaining about 10° altitudes above the horizon. By 19 September it will set after nautical twilight. Certainly, a difficult object to spot. You can take a chance on 19 September when it will be about 7° below the thin lunar crescent. Then on 22 September Mercury is just about 17 minutes of arc above Spica (*Chitra*).

Venus continues to shine brilliantly in the pre-dawn sky as a -4.2 magnitude object till 12 September. After that it fades to -4.1 magnitude. On 13 September Venus will be about 2.5° south of the Beehive open cluster (M44).

Mars, Jupiter and Saturn are visible during the first half of the night. Mars rises about two hours after sunset and can be seen well above the western horizon at dawn. Jupiter and Saturn can be seen well above the southern horizon at sunset. These two planets set after midnight.

Mars travels into retrograde motion this month. On 9 September it will be stationary and then will start moving in the opposite direction, that is westwards. It will continue to do so till 15 November and then resume its normal motion.

List of Events in September 2020

Dt	Dy	Time	Event
02	We	10:52	Full Moon
06	Su	10:12	Moon-Mars: 0°
06	Su	12:01	Moon apogee: 405600 km
07	Mo	06:23	Uranus 3.1° N of Moon
09	We	16:51	Aldebaran 4.1° S of Moon
09	We	23:15	Mars stationary
10	Th	14:56	Last quarter
11	Fr	04:35	Moon ascending node
12	Sa	00:45	Neptune opposition
12	Sa	10:55	Moon north declination: 24.4° N
13	Su	05:24	Jupiter stationary
13	Su	05:40	Venus-Beehive: 2.6° S
14	Mo	08:49	Moon-Beehive: 1.9° S
14	Mo	10:13	Moon-Venus: 4.6° S
15	Tu	18:22	Regulus 4.1° S of Moon
17	Th	16:30	New Moon
18	Fr	19:14	Moon perigee: 359100 km
19	Sa	07:57	Mercury 5.9° S of Moon
22	Tu	11:36	Mercury-Spica: 0.3° N
22	Tu	13:22	Antares 5.8° S of Moon
22	Tu	19:01	Autumnal equinox
23	We	18:03	Moon descending node
24	Th	07:25	First quarter
25	Fr	00:41	Moon South declination: 24.5° S
25	Fr	12:16	Moon-Jupiter: 1.7° N
26	Sa	02:16	Moon-Saturn: 2.5° N
29	Tu	08:20	Saturn stationary

Jupiter and Saturn have been in retrograde motion and will resume their normal motion from 12 and 29 September respectively.

Transitions of the Sun and Planets

(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 transitions of the Sun and planets is to acquaint the reader with the Indian nomenclature of the 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.)

The Sun is in Leo, the Lion (*Simha*) on 1 September and moves to Virgo, the Virgin (*Kanya*) on 16 August.

Mercury too is in Leo and it moves Virgo on 2 September.

Venus is in Gemini, the Twins (*Mithuna*). It moves to Cancer, the Crab (*Karka*) on 4 September and then to Leo on 23 September.

Mars is in Pisces, the Fish (*Meena*) this month.

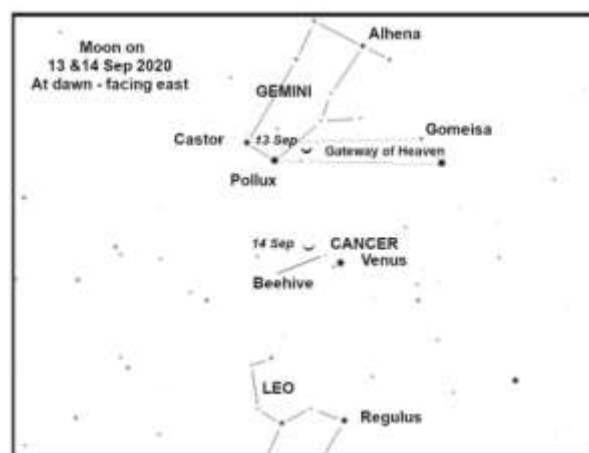
Both Jupiter and Saturn are in Sagittarius, the Archer (*Dhanu*).

March of the Moon

Full Moon is on 2 September. On 6 September the Moon is less than 3° from Mars. On this day it will occult Mars but this event will not be seen from India as it takes place at about 10 am after both objects have set. On 8 September the almost half illuminated Moon rises in The Pleiades (*Krutika*) a little before midnight. The next day it will be just about 5° from Aldebaran (*Rohini*). On 13 September the Moon, which is about about 25% illuminated, can be seen inside the Gateway of Heaven. On the morning of 14 September, the Moon and Venus are on either side of the Beehive cluster.

On 19 September, if you have a good, clear view of the western horizon at sunset, then this is a good challenge — the thin lunar crescent is just about 7.5° above Mercury.

On 22 September the Moon passes north of Antares (*Jyeshtha*). From 24 to 26 September the Moon can be seen travelling south of Jupiter and Saturn. On 24 September it is to the west of Jupiter. The next day it moves to the east, below Jupiter and Saturn, halfway between the two planets. On 26 September it is east of Saturn. This a good photo opportunity.



Moons of Jupiter

The table below gives the timings of eclipses, occultations, transits and shadow transits of the moons of Jupiter, suitable for Indian observers. The timings are given in UTC (Coordinated Universal Time, the 24-hour civil time standard commonly used across the world today). It is 5.5 hours behind Indian time, i.e. you need to add 5 hours and 30 minutes to convert the time to IST.

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

Column 1 = date; column 2 = hour; column 3 = minutes; column 4 = satellite number; column 5 = event type; column 6 = phase.

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

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

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

Example: An event listed as

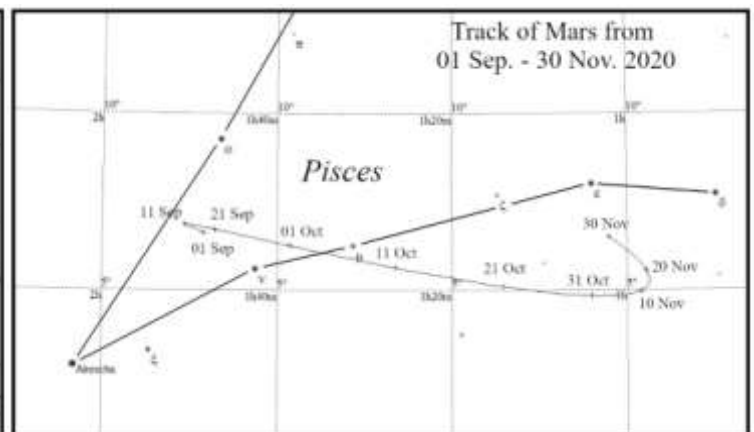
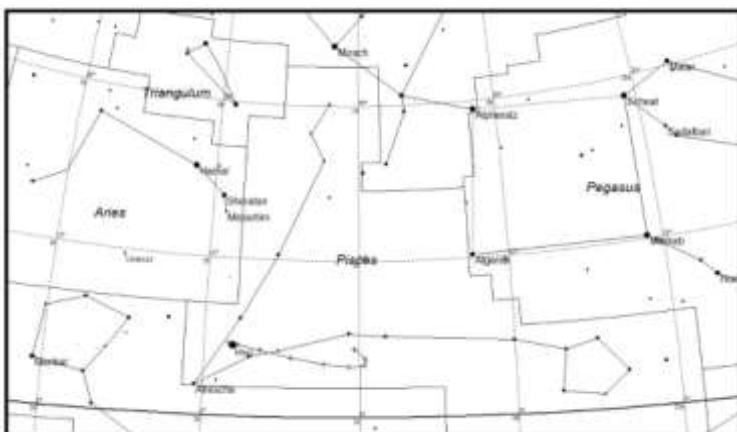
3 14 21.1 1.Tr.I

means that on 3 September the Satellite Io transits Jupiter with ingress at 14h 21.1m UTC (19h 51.1m IST). This is followed by ingress of Io's shadow, then egress of Io and finally egress of Io's shadow.

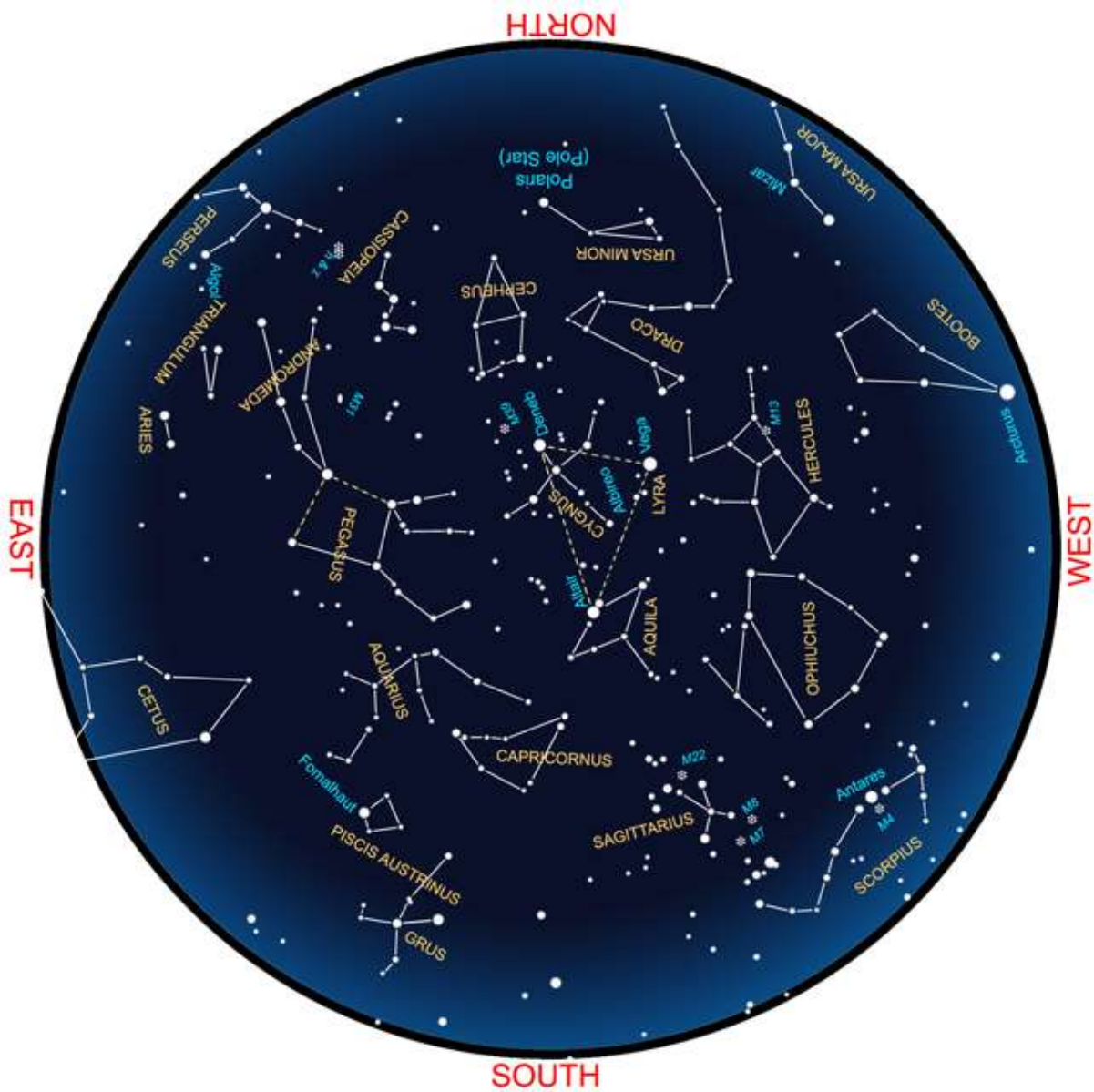
Note that the date is given only for the first event listed for that date.

Satellites of Jupiter in September 2020											
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
1	19	53.7	1	Tr	I	15	15	33.7	2	Sh	E
	20	21.4	3	Oc	D	17	18	2.9	1	Tr	I
	20	56.1	1	Sh	I		19	15.7	1	Sh	I
2	17	0.8	1	Oc	D	18	15	9.4	1	Oc	D
	20	21.7	1	Ec	R		18	41.0	1	Ec	R
3	14	21.1	1	Tr	I	19	13	44.5	1	Sh	I
	15	25.0	1	Sh	I		14	46.8	1	Tr	E
	16	37.4	1	Tr	E		16	0.8	1	Sh	E
	17	41.6	1	Sh	E		17	32.6	3	Tr	I
4	14	50.4	1	Ec	R	20	18	42.3	2	Oc	D
	18	41.4	2	Tr	I	22	15	21.2	2	Sh	I
	20	50.3	2	Sh	I		15	38.2	2	Tr	E
5	14	31.8	3	Sh	I		17	43.0	4	Ec	D
	17	25.2	4	Oc	R		18	10.4	2	Sh	E
	17	56.5	3	Sh	E	23	16	3.9	3	Ec	R
6	13	44.5	2	Oc	D	24	13	22.5	2	Ec	R
	18	50.1	2	Ec	R	25	17	1.8	1	Oc	D
9	18	50.5	1	Oc	D	26	14	23.8	1	Tr	I
10	16	11.4	1	Tr	I		15	39.9	1	Sh	I
	17	20.3	1	Sh	I		16	39.6	1	Tr	E
	18	27.5	1	Tr	E		17	56.1	1	Sh	E
	19	36.8	1	Sh	E	27	15	5.3	1	Ec	R
11	16	45.7	1	Ec	R	29	15	23.6	2	Tr	I
12	13	47.2	3	Tr	I		17	58.0	2	Sh	I
	14	5.6	1	Sh	E		18	10.6	2	Tr	E
	17	6.7	3	Tr	E	30	14	44.6	3	Oc	R
	18	32.0	3	Sh	I		16	36.2	3	Ec	D
13	16	12.3	2	Oc	D		16	55.7	4	Tr	E
	19	43.6	4	Tr	I						

Track of Mars from 1 Sep to 30 Nov 2020



**Sky map for the month of September, drawn for mid northern latitudes,
to be used around 9:30 pm local time**



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

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

These pages are contributed by:

Arvind Paranjpye (paranjpye.arvind@gmail.com) (<http://arvindparanjpye.blogspot.com/>) and Anjaneer Rao (rao.anjaneer@gmail.com)