

## Sun and Planets:

The second half of March 2020 offers us a chance to see all the naked eye planets on a single night. On 24 March Mercury reaches its maximum elongation of  $27.8^\circ$  west. The next day Venus reaches its maximum elongation of  $46.1^\circ$  east. The elongation of a planet is the Sun-Earth-planet angle. When the maximum elongation is to the west, the planet is best seen in the morning; when it is to the east, the planet is best observed in the evening sky.

Mars, Jupiter and Saturn can be seen in the pre-dawn sky above the eastern horizon from the first week of March. In the beginning of the month, bright Jupiter is almost halfway between ruddy coloured Mars (on top) and Saturn (below).

By 19 March Mercury too can be spotted right above the horizon. It reaches its maximum western elongation on 24 March.

On 20 March, Jupiter and Mars are just about  $0.7^\circ$  from each other. And Saturn is about  $7^\circ$  from them. Then till the end of the month, one can see this trio in the single field of a small pair of binoculars. On 31 March Mars is just about  $1^\circ$  from Saturn.

### 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 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*

### List of Events

Dt	Day	Time	Event
01	Su		Venus $44.6^\circ$ E
02	Mo	20:02	Aldebaran 3.3 S of Moon
03	Tu	01:27	First quarter
04	We	20:28	Moon ascending node
05	Th	07:04	Moon north dec. $23.4^\circ$ N
06	Fr	04:32	Pollux 5.1 N of Moon
07	Sa	02:38	Moon-Beehive: $1.1^\circ$ S
08	Su	15:59	Regulus 3.6 S of Moon
08	Su	17:39	Neptune conjunction
08	Su	21:06	Venus 2.2 N of Uranus
09	Mo	23:18	Full Moon
10	Tu	12:03	Moon perigee: 357100 km
12	Th	05:52	Moon $6.7^\circ$ S of Spica
16	Mo	15:04	Last quarter
17	Tu	06:30	Moon descending node
17	Tu	19:37	Moon south dec.: $23.5^\circ$ S
18	We	13:49	Moon-Mars: $0.8^\circ$ N
18	We	15:48	Moon-Jupiter: $1.6^\circ$ N
19	Th	05:34	Moon-Saturn: $2.3^\circ$ N
20	Fr	09:20	Vernal equinox
20	Fr	15:54	Mars-Jupiter: $0.7^\circ$ N
21	Sa	23:18	Moon-Mercury: $4^\circ$ N
23	Mo	07:57	Neptune 3.8 N of Moon
24	Tu	07:29	Mercury elongation: $27.8^\circ$ W
24	Tu	14:58	New Moon
24	Tu	20:53	Moon apogee: 406700 km
25	We	03:29	Venus elongation: $46.1^\circ$ E
28	Sa	20:46	Venus $6.5^\circ$ N of Moon
30	Mo	02:21	Aldebaran 3.5 S of Moon
31	Tu	22:21	Moon ascending node
31	Tu	23:00	Mars 0.9 S of Saturn

*the Sun and planets, which are based on modern computing, are very different from those given in astrology tables.)*

The Sun moves from Aquarius, the Water Bearer (*Kumbha*) to Pisces, the Fish

(*Meena*) on 12 March.

Mercury moves from Aquarius to Capricornus, the Sea Goat (*Makara*) on 8 March and returns back to Aquarius on 11 March.

Venus moves from Pisces to Aries, the Ram (*Mesha*) on 4 March and then to Taurus, the Bull (*Vrishabh*) on 30 March.

Mars travels in Sagittarius, the Archer (*Dhanu*) most of the month. On 30 March it moves to Capricornus.

Jupiter remains within the boundaries of Sagittarius this month.

Saturn crosses over to Capricornus on 21 March.

## March of the Moon:

On 1 March the Moon is less than  $8^\circ$  from the Pleiades Cluster (*Kruttika*). It will be about 40% illuminated. The next day it is  $3.5^\circ$  north of Aldebaran (*Rohini*). On 6 March the Moon passes close to Pollux (from the south); on the 7th it passes north of the Beehive Cluster; and then on the 8th the near-Full Moon rises just after Regulus (*Magha*).

The Moon now enters the post-midnight sky. It is about  $7^\circ$  south of Spica (*Chitra*) on 12 March. On the early morning of 18 March one can see the Moon pass less than two degrees south of Mars and Jupiter. On 19 March it is just about  $2.5^\circ$  south of Saturn.

After New Moon on 24 March the Moon enters the evening sky. Look out for a beautiful sight of Venus and the Moon pairing up above the western horizon soon after sunset on 28 March (see 'Observing Venus in Broad Daylight' below). On 29 March the Moon is between Pleiades and Aldebaran.

## Observing Venus in Broad Daylight:

Venus is a planet that can be seen in broad daylight. But since the sky is nearly as bright as the planet, the observation requires some technique and skill. Once a month the Moon comes to our help. On 28 March Venus rises about two minutes ahead of the Moon, to its north. Both transit the meridian after six hours. The meridian is the line that joins the North Pole, the zenith (the point directly above the observer) and the South Pole.

What you need to check is the time of moonrise for your location and add six hours to it. That is when the Moon and Venus will transit. Once you know the transit time, you need to know the declination.

The coordinates of Venus and the Moon are as follows:

Moon : Right ascension: 3h 22.5m and declination:  $+15^\circ 5'$

Venus: Right ascension: 3h 23.5m and declination:  $+22^\circ 1.5'$

What these numbers tell you is if you are at latitude  $+15^\circ$ , then at transit the Moon will be right overhead and Venus will be  $7^\circ$  north of the Moon.

Now say you are in Delhi at latitude  $+27.5^\circ$ . Venus will be about  $5^\circ$  south of the zenith ( $+27.5^\circ$  minus  $+22^\circ 1.5'$ ) and the Moon will be further  $7^\circ$  south. So if you are in Delhi, then at the transit time of Venus, lie down flat and look right overhead (a pair of binoculars will be useful). Then look about  $5^\circ$  south. You should be able to see Venus.

If you have any doubts please feel free to contact us.

## A Distinguished Personality:

**On the occasion of International Women's Day, SkyNews takes pleasure in highlighting the achievements of Professor Annapurni Subramaniam, Director of the Indian Institute of Astrophysics, Bengaluru, and the first lady astronomer-director of an astronomical institute in India.**



**Professor Annapurni Subramaniam** took charge as Director, IIA in October, 2019. She has about three decades of

research experience and has published about 200 research papers in topics such as star clusters, stellar populations, galaxies and ultra violet astronomy. She has guided a large number of students, 10 of whom have completed their PhDs.

Currently Professor Subramaniam is involved in two major projects:

- She is the calibration scientist for the **UV Imaging Telescope (UVIT)** on ASTROSAT, India's first space observatory. As part of her responsibilities, Professor Subramaniam compiled and predicted its performance before launch, and planned and completed the calibration after launch. She also developed a mandatory user tool for safe observations of the telescope.
- She is part of the team managing the **Thirty Metre Telescope (TMT)**. She headed the Indian team working on the software of the observatory, and completed the delivery of common software in 2019.

She is a Fellow of the Indian Academy of Sciences and the National Academy of

Sciences; and a life member of the International Astronomical Union and the Astronomical Society of India. She is a Kavli Fellow, an honour bestowed by the Kavli Foundation and the National Academy of Sciences, USA. She was awarded the C V Raman Young Scientist Award for Physical Sciences, conferred by the Government of Karnataka for the year 2018.

*"I chose astronomy over a career in music. I was fascinated by the night sky and was more than happy to take an opportunity which came my way to pursue a PhD in astronomy & astrophysics. I am a performing Carnatic violinist. I continue my passion in music by giving performances as well as teaching the violin to students. My hobbies include gardening, making various types of rangoli, and going for long walks."*



### Upcoming Star Parties:

**Organizer:** [Gaurav Babar](#)

**Dates:** Saturday, 28 March 2020

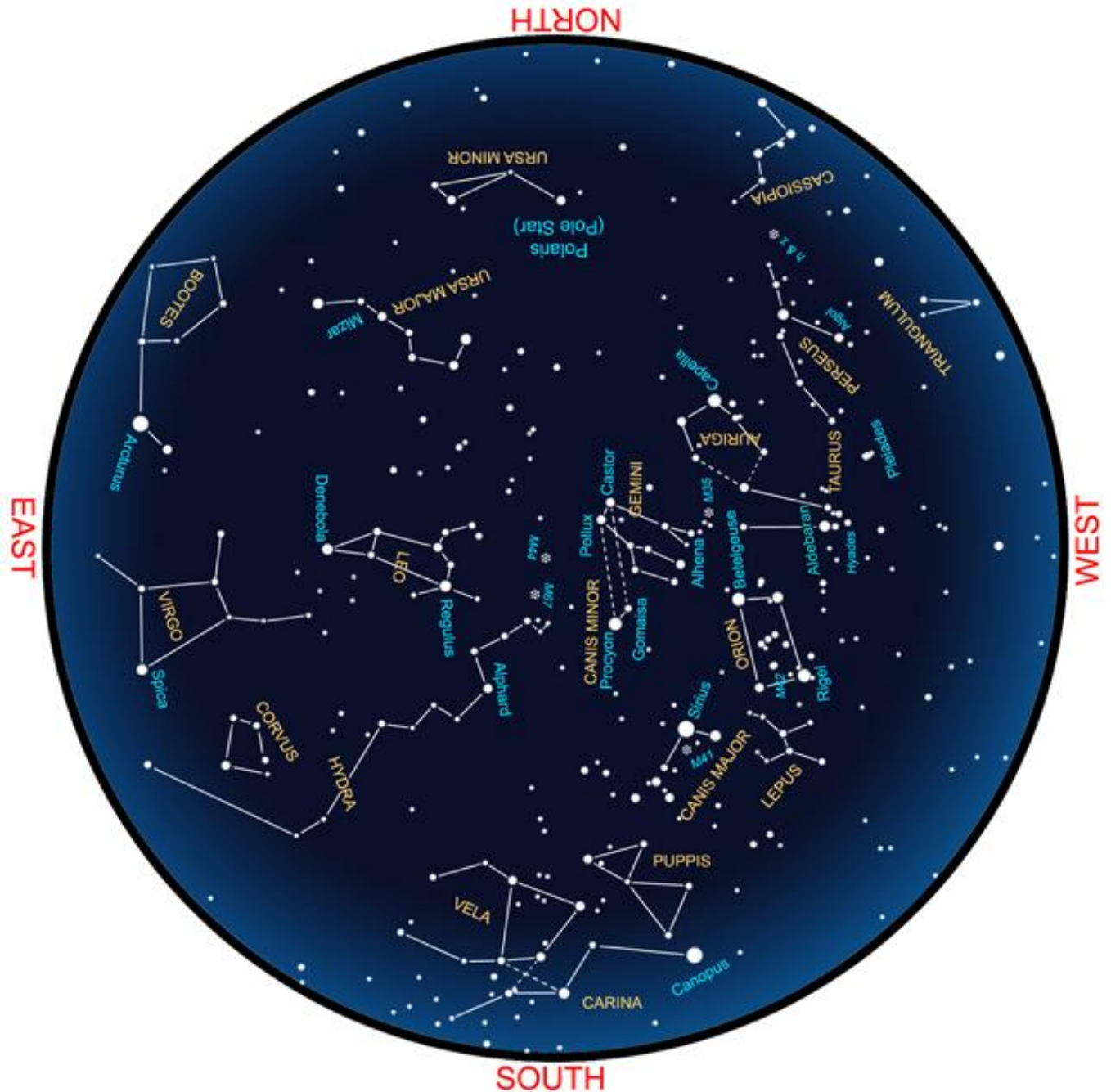
**Place:** Nisargshala Campsite, Pasli Village, Velhe, Pune

**Details:** Identifying the galactic centre, constellations and stars; learning theories and concepts from experts; telescopic observation of the Moon and deep sky objects.

**Fee:** Contact the organiser

**Contact:** Gaurav Babar, 8600020875, 8087771169, or [gaurav.babar1109@gmail.com](mailto:gaurav.babar1109@gmail.com)

**Sky map for the month of March, drawn for mid northern latitudes,  
to be used around 9:30 p.m. local time**



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