

WATCH MOON TURN COPPER RED, IF RAIN STAYS AWAY

Swati Shinde Gole | TNN

File photo

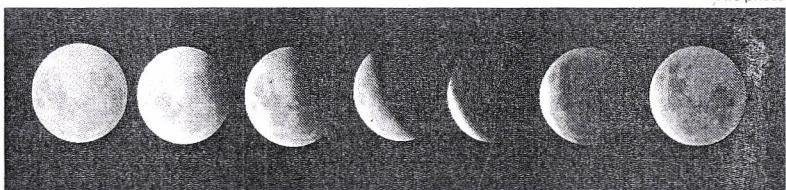
Pune: A game of hide-and-seek will be played out in the skies on Wednesday night-Thursday morning. Enthusiasts may witness the darkest lunar eclipse of the century and one with a 100-minute total phase, if rain does not play spoilsport.

Before Wednesday's event, the darkest lunar eclipse was observed on August 6, 1971. The next such show would be on June 6, 2058.

The India Meteorological Department officials on Tuesday said that enthusiasts may not be completely disappointed as the weather conditions could be cloudy, but not extreme.

Skywatchers in the city are getting ready for a rare celestial show — a near straight alignment of the moon which will acquire a brownish-red hue as it creeps into the deep shadow (the umbra) cast by the earth.

The moon will be in the penumbral (faint) shadow of the earth at about 10.53 pm on Wednesday.



"Nothing much will be noticeable to the untrained eyes for the next 30 to 40 minutes after which a gradual change in the brightness of the lunar disk will be seen. By 11.53 pm, the moon will be in the umbra. The dark shadow will progress on the lunar disk, covering the moon crater by crater," Arvind Paranjpye, scientific officer at the Inter-University Centre for Astronomy and Astrophysics (IUCAA), said.

In the next one hour, the moon will be completely inside the earth's shadow and the lunar disk will turn into many shades of red from crimson to brick red, he added.

The event can be watched directly, with binoculars or low-power telescopes, and observers can estimate the

darkness of the eclipse. In Pune, the eclipse will peak at 1.42 am.

During maximum eclipse, the moon is likely to be 'out of sight'. It will be in the umbra till about 3.32 am and come back to its original form by 4.32 am on Thursday.

"A lunar eclipse takes place when the moon enters the shadow of the earth. On such a night, the earth is directly between the moon and the sun, blocking the sunlight from reaching the moon. The event is on a full moon night when the moon and the sun are on the opposite sides of the earth," Paranjpye said.

Enthusiasts can send their observations to IUCAA at scipop@gmail.com or arp@iucaa.ernet.in

A RED MOON

When the moon enters totality during the eclipse, it will look a copper red because of the earth's atmosphere. If the earth had no atmosphere, the moon would have simply vanished from the sky during totality.

According to Paranjpye, "As the sunlight passes through the atmosphere of the earth, light is scattered by the constituent atmospheric particles. The blue component of sunlight is scattered the most, but the red rays pass through. Absence of the blue rays and presence of the red rays make the rising or the setting sun appear red. During a lunar eclipse, some of the red rays come out of the earth's atmosphere to reach the moon and give it a red hue."

DARKEST ECLIPSE

The lunar eclipse on Wednesday night may also be one of the darkest due to the ashes thrown into the earth's atmosphere by the recent eruption of Iceland's most active volcano Grimsvotn, according to Paranjpye.

Paranjpye recalled the total lunar eclipse on December 9, 1992. "It was such a dark lunar eclipse that close to mid-eclipse the sky was completely dark and one could see the faint stars. The moon itself was difficult to spot. It was in the north of Orion constellation. That year, on June 15, Mount Pinatubo in the Philippines erupted for about nine hours. It spewed some 15 m tonnes of sulfur dioxide into the atmosphere," he said.

THE DANJON SCALE

The French astronomer Andre-Louis Danjon proposed a five-point scale for evaluating the visual appearance and brightness of the moon during total lunar eclipse. 'L' values stand for luminosity

- ▶▶▶ L = 0: Very dark eclipse. Moon almost invisible, especially at mid-totality
- ▶▶▶ L = 1: Dark Eclipse, gray or brownish in colour. Details distinguishable only with difficulty
- ▶▶▶ L = 2: Deep red or rust-coloured eclipse. Very dark central shadow, while the outer edge of umbra is relatively bright
- ▶▶▶ L = 3: Brick-red eclipse. Umbral shadow usually has a bright yellow rim
- ▶▶▶ L = 4: Very bright copper-red or orange eclipse. Umbral shadow has a bluish, very bright rim

WATCH THE SHOW

| DATE | STAGE | PHASE | TIME |
|---------|-------|----------------------|----------|
| June 15 | 1 | Moon enters penumbra | 22:52:52 |
| June 15 | 2 | Moon enters umbra | 23:52:24 |
| June 16 | 3 | Start of totality | 00:51:57 |
| June 16 | 4 | Maximum eclipse | 01:42:24 |
| June 16 | 5 | End of totality | 02:32:50 |
| June 16 | 6 | Moon leaves umbra | 03:32:22 |
| June 16 | 7 | Moon leaves penumbra | 04:32:02 |

