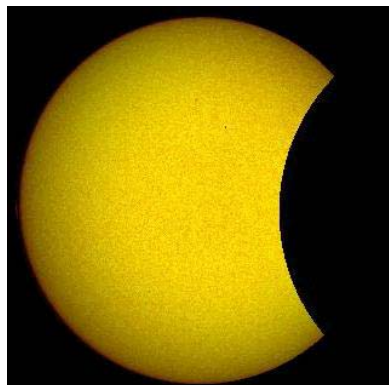


## In This Issue

- Road to the March 29<sup>th</sup> Solar Eclipse
- Eclipse Safety
- Sky Events

### Web edition, MAR-APR 06

On the 29th of March an eclipse will be visible as a partial solar eclipse viewed from Delhi. At maximum of eclipse, the Sun would be visible as shown here.



The eclipse as seen from parts of Brazil, Ghana, Nigeria, Turkey and a few other countries will be seen as a total solar eclipse. India will have to wait until 2009 to be able to see a total solar eclipse.

Circumstances from Delhi

Eclipse Begins	16:33:38 IST
Max Phase	17:19:25 IST
Eclipse Ends	18:02:04 IST
Max. Eclipsed Area	17.4%

Meanwhile, what can we do with this partial eclipse? What are the interesting observations that we could do, with very simple equipment?

### SAFETY FIRST

We all know that it is not safe to view the eclipse with unprotected eyes. The safest way of observing an eclipse would be through projection.

Make a simple pinhole camera and use it to view a small projected image of the Sun, and amazingly, this small image of the Sun is enough to show the eclipse details! All you need to make a pinhole camera is a sheet or a box made of cardboard. A small hole on the sheet or one face of the cardboard box needs to be made using a pin. Allow sunlight to enter through this hole and fall on a screen held on the

other end. Shade the screen from stray light and there is the small circular disk of the Sun imaged on the screen!

If you do not feel satisfied with the size of the image that you can obtain with a simple pinhole camera, then try the following. Someone in your school/college/Institution will surely have access to a pair of binoculars? Mind, these have to be binoculars that do not have plastic parts inside - these might melt if you use the binoculars to project an image of the Sun. Make a long hardboard box, about 4-6 feet in length. Make an arrangement to fit the eyepiece of the binoculars into one end of this box. Make a small opening near the other end, so that the projected image on this end can be seen. This makes a wonderful projection box for simple binoculars, with which many interesting Sun and sunspot observations can be made.

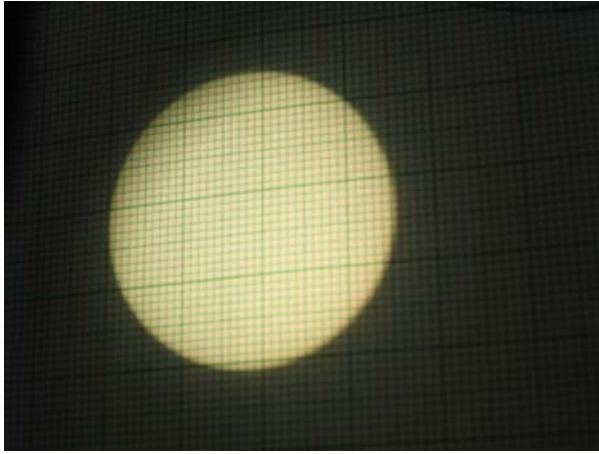


**Projected image of the Sun inside a hardboard box, using binoculars**

Look for discussions about these in forthcoming issues of **Kritika!**

### THE ECLIPSED SUN PERCENTAGE

There are many other interesting observations one can do after projecting an image of the Sun, on to a graph sheet, during the time of the eclipse. Count the number of mm squares that are completely inside the disk of the Sun. At any given moment during the eclipse, count the number of mm squares inside the eclipsed portion of the Sun. By a simple division of these numbers you can estimate the fraction of



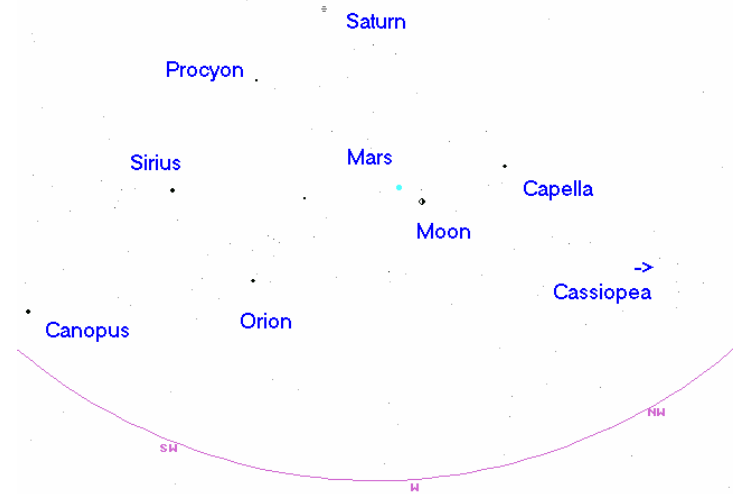
eclipse visible at given instances of time. It is worth trying this out carefully and checking the kind of accuracies that can be obtained with this simple technique. It will help if you can photograph the projected image and then carefully look at a printed image corresponding to a given time, to count the number of mm squares easily.

Here is some theoretically calculated data on the fraction of the Sun's disk covered by the Moon, at some specific time intervals. Use this data to judge the accuracy of your measurements, add data at other time intervals and send it to [krittika@gmail.com](mailto:krittika@gmail.com) with your name and the name of your school/college. Your data will be acknowledged in an article discussing these observations.

Time	Eclipse Fraction (theoretical)
16:35	0.2%
16:50	6.99%
17:15	17.1%
17:19	17.4%
17:25	16.9%
17:45	8.4%
18:00	0.44%

### THE NIGHT SKY

**April 3<sup>rd</sup>** Gives an opportunity to a beginning skywatcher to find Mars in the sky, along with some winter constellations. Mars will be seen very close to the Moon and the relative positions of the stars, Mars, Saturn and the Moon as seen towards west, at 8 PM on the night of April 3<sup>rd</sup>, is shown here.



**April 6<sup>th</sup>** Saturn will appear about 4 degrees to the south of Moon.

**April 13<sup>th</sup>** Occultation of Spica (discussed on Page 3)

**April 15<sup>th</sup>** Jupiter will appear about 5 degrees to the North of Moon

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