Africa-Asia eclipse set to kick off astronomers' year

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Indian school students Sarath and Roshan present a computer generated solar eclipse model at Kennedy High School in Hyderabad. The Planetary Society, India has organised a campaign to promote interest in space science by drawing attention to the upcoming January 15 eclipse.

For half the world, the Sun will be briefly reduced to a blazing ring surrounding a sombre disk on Friday, when an annular eclipse races from central Africa to eastern Asia, astronomers say.

The solar coverup, visible in a roughly 300-kilometre (185-mile) band running 12,900 kms (8,062 miles), will at one point set a duration record that will be unbeaten for more than a thousand years.

An annular eclipse occurs when the Moon passes directly in front of the Sun but does not completely obscure it, thus leaving a ring -- an annulus

-- of sunlight flaring around the lunar disk.

According to NASA's eclipse website (eclipse.gsfc.nasa.gov/SEmono/ASE2010/ASE2010.html), the Moon's shadow will strike the southwestern tip of Chad and western Central African Republic at 0514 GMT and then flit across Uganda, Kenya, and Somalia.

Its path then leads across the Indian Ocean, where the duration of "annularity" at 0706 GMT will be 11 minutes, eight seconds, making it "the longest annular eclipse of the 3rd Millennium," says NASA.

Only on December 23, 3043 will this record be beaten.

The lunar umbra, or shadow, then zips across Bangladesh, India, Myanmar and China before expiring in the Shandong peninsula at 0859 GMT.

People in a broader path of the shadow, which includes eastern Europe, most of Africa, Asia and Indonesia, will see a partial eclipse.

It will be the last annular solar eclipse for 29 months.

Compared to other years, the number of eclipses in 2010 is meagre although they provide an "interesting mix" for watchers, the US magazine Sky & Telescope says in its January issue.

Apart from Friday's event, the only coverup of the Sun this year will take place on July 11, when a total eclipse will cross the Pacific, visible notably from Easter Island, one of the world's remotest inhabited locations.

Total eclipses occur because of an unusual trick of celestial geometry.

The Sun is 400 times wider than the Moon, but it is also 400 times farther away. Because of the symmetry, the umbra, for those on the planetary surface, is exactly wide enough to cover the face of the Sun.

The orbits of the Earth and Moon are not completely circular, though. Tiny differences in distance explain why some eclipses are complete and others leave a thin ring of sunlight.

On December 21, 2010 -- solstice day -- there will be a total lunar eclipse, in which the full Moon will be covered completely by Earth's shadow for the first time in three years, according to Sky & Telescope.

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