Solar eclipse in ghana 2018



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On Thursday (Feb. 15), the first eclipse of the sun since last summer's historic solar event will take place. However, unlike the Great American Solar Eclipse of Aug. 21, the upcoming eclipse will be only partial, with its visibility confined to far southerly latitudes.

To many people, the ability of astronomers to predict the occurrence of an eclipse of the sun or moon may seem miraculous. Yet, forecasting when the sun or moon will darken requires nothing more than a background in celestial mechanics. For one thing, eclipses do not occur randomly or haphazardly. There is a specific schedule that can be worked out based upon the movements of the Earth and the moon. [The Solar Eclipses of 2018 Explained]

If the Earth, moon and sun were all in the same plane, there would be eclipses every month. A lunar eclipse occurs when the Earth gets between the sun and moon, and a solar eclipse occurs when the moon passes between the sun and Earth. As it turns out, however, the plane of the moon"s orbit is slightly out of kilter with respect to the Earth"s orbital plane (called the ecliptic), by an angle of just over 5 degrees.

So, ordinarily, at the time of new phase, the moon will pass either above or below the sun, with no eclipse. In the same way, when it turns full, the moon will usually pass above or below the Earth's shadow and escape being eclipsed itself.

Two weeks ago, the full moon passed through the Earth's shadow only about 5.5 hours before the satellite reached its ascending node. That is, the moon was moving on a southwest-to-northeast trajectory when it passed through the intersection point with the Earth's orbital plane. So, it passed just to the south of the center of Earth's shadow and, in the process, became completely immersed in the shadow's darkest portion, the umbra, resulting in a total lunar eclipse. [The Greatest Skywatching Events of 2018]

Since then, the moon, moving along its orbit, has come around to the Earth's sunward side. But it's almost arrived at the node too late to produce a solar eclipse; passing through its descending node (moving from northwest to southeast) on Valentine's Day, it still has to travel on for another 24 hours, before finally reaching its new moon position on Feb. 15.

So, the lunar shadow''s interaction with our Earth amounts to just a glancing blow; its dark umbral shadow — from where we can see a total eclipse — completely misses the Earth by some 4,800 miles (7,700 kilometers), while its outer shadow, the penumbra, only brushes the southern end of our planet.

Greatest eclipse — defined as the point when the largest amount of the sun will be covered within the entire range of the visibility of the eclipse — will be visible (weather conditions permitting) very near to the British Halley Research Station, located on the Antarctic''s Brunt Ice Shelf. (The primary function of



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this research station at the bottom of the world is to study the Earth"s atmosphere.)

From there, the sun will appear about 10 degrees above the west-southwest horizon (equal to the width of your clenched fist held at arm's length). Viewd through proper solar filters, the moon will appear to bite roughly three-fifths or so into the sun's upper edge. The 70 or so people who work at Halley during the Southern Hemisphere summer will hopefully be able to take a break from their normal routine and enjoy this solar sky show.

Parts of Chile, Argentina and Paraguay; all of Uruguay; the southernmost tip of Brazil; and the Falkland Islands will also see the moon occult the sun"s disk, though to a much lesser degree as the sun approaches setting.

The sun's altitude and azimuth, the eclipse magnitude (defined as the fraction of the sun's diameter eclipsed by the moon), and eclipse obscuration (defined as the percentage of the area of the sun's disk obscured by the moon) are all given at the moment of maximum eclipse. When the eclipse is in progress at sunset, this information is indicated by "—s."

The 2018 Feb. 15 Solar Eclipse Calculator is an interactive web page than can quickly calculate the local circumstances for the eclipse from any geographic location not included in the short table.

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