

## Total solar eclipse live from Australia with GLORIA

*On 13<sup>th</sup> November 2012 a solar eclipse will occur over North Australia and the Pacific Ocean. A GLORIA project expedition will be there to broadcast the event live, starting at 20:30 until 20:45 UT, from three observation points in Northeast Australia (State of Queensland), around the city of Cairns, where the eclipse will have an average duration of about 2 minutes. The expedition and transmission will be coordinated and directed by GLORIA astronomer Miquel Serra-Ricart.*

After more than two years without any total solar eclipses (the last one took place on July 11<sup>th</sup>, 2010), the Moon's shadow will revisit the Earth's surface. The journey of the shadow begins in Northeast Australia, and then moves out to the Pacific Ocean. The maximum of the eclipse, with a duration of 4 minutes and 2 seconds, occurs in the middle of the Pacific Ocean at 22:11 UT, with the Sun at 68° above the horizon.

«The chance to see such a short, but spectacular event (minutes or just seconds long), from any given place is very small - once every few hundred years, clouds permitting», says Lorraine Hanlon, GLORIA astronomer at University College Dublin, «but this is one natural phenomenon that should feature in any self-respecting bucket-list and is well worth making a special journey to see».

A solar eclipse occurs when the Moon passes between the Sun and Earth, and the Moon fully or partially blocks the Sun from our view. This can happen only at New Moon and if the Sun and the Moon are perfectly aligned as seen from Earth. In a total solar eclipse, as in this case, the disk of the Sun is fully obscured by the Moon. In partial and annular eclipses only part of the Sun is obscured.

Solar eclipses are seen on Earth only because of the happy coincidence that, at certain times, the angular sizes of the Moon and Sun are identical for Earth-bound observers. Hundreds of millions of years in the past, the Moon was too close to the Earth to precisely cover the Sun as we can now observe. Tidal forces cause the orbit of the Moon around Earth to increase by a few centimetres each year. A billion or more years into the future, the last total solar eclipse observable on Earth will occur.

Because the shadow of the Moon is narrow, solar eclipses are only visible in a relatively narrow band on Earth's surface, and are observed at a specific point on the Earth's surface, such as a city, on average only once every 375 years. Most people must make long journeys to be in the band of totality and to witness the entire event. On average, a total eclipse will last about 3 minutes with the longest lasting up to 7 minutes 30 seconds.

It is vital never to look at the Sun without safe glasses designed specifically for solar viewing. During all observations of a solar eclipse, except for the few moments of totality, adequate eye protection must be worn.

For more information on this and other GLORIA activities please go to [gloria-project.eu](http://gloria-project.eu).

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