

NASA set to study Earth's ionosphere during upcoming total solar eclipse

Washington: NASA is set to study the Earth's ionosphere during the upcoming total solar eclipse in the US, to better understand the Sun's relationship to the region of the atmosphere where satellites orbit and radio signals are reflected towards our planet.

On August 21, the Moon will slide in front of the Sun and for a brief moment, day will melt into a dusky night in the US.

The Moon's shadow will block the Sun's light, and weather permitting, those within the path of totality will be treated to a view of the Sun's outer atmosphere, called the corona.

However, the total solar eclipse will also have imperceptible effects, such as the sudden loss of extreme ultraviolet radiation from the Sun, which generates the ionised layer of Earth's atmosphere, called the ionosphere.



This ever-changing region grows and shrinks based on solar conditions, and researchers will use the eclipse as a ready-made experiment.

"The eclipse turns off the ionosphere's source of high-energy radiation," said Bob Marshall, a space scientist at University of

Colorado Boulder in the US.

"Without ionising radiation, the ionosphere will relax, going from daytime conditions to nighttime conditions and then back again after the eclipse," said Marshall.

Stretching from roughly 50 to 400 miles above Earth's surface, the tenuous ionosphere is an electrified layer of the atmosphere that reacts to changes from both Earth below and space above.

Such changes in the lower atmosphere or space weather can manifest as disruptions in the ionosphere that can interfere with communication and navigation signals.

"In our lifetime, this is the best eclipse to see," said Greg Earle, engineer at Virginia Tech in the US. "But we've also got a denser network of satellites, GPS and radio traffic than ever before. —PTI