



EXPERIENCE ^{THE} 2017 ECLIPSE ACROSS AMERICA
THROUGH THE EYES OF NASA
<http://eclipse2017.nasa.gov>

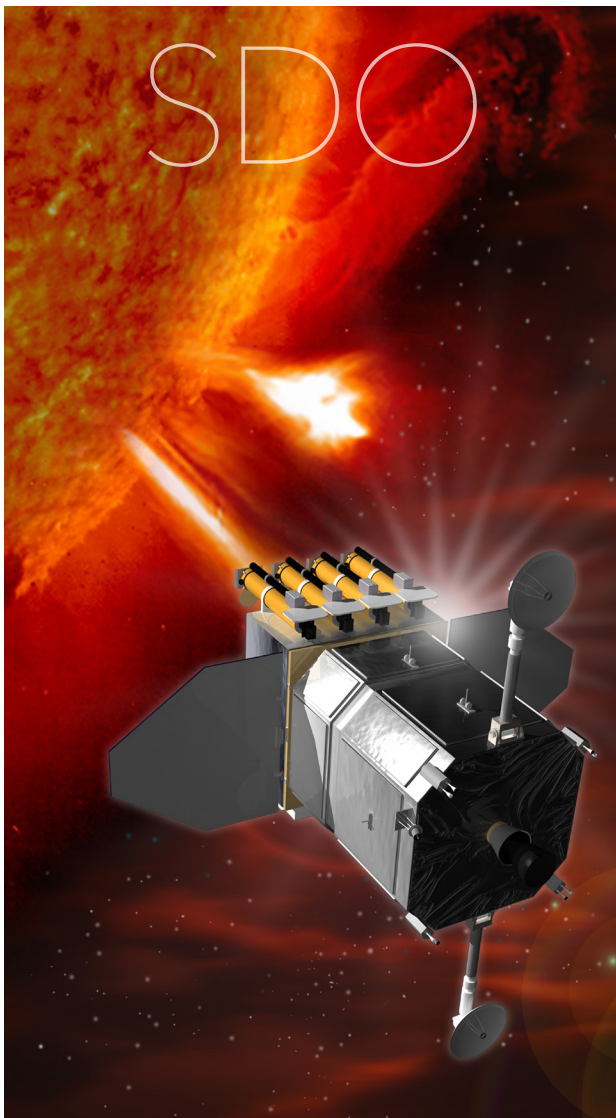
AUGUST 21, 2017



Credit: Rick Fienberg, TravelQuest International and Wilderness Travel

Credit: S. Habbal, M. Drudekuller and P. Aniol

SOLAR DYNAMICS OBSERVATORY



SDO During the Eclipse

While ground based instruments will be able to see a total eclipse from some locations, NASA's Sun watching Solar Dynamics Observatory, or SDO, will see only a partial lunar transit. The Moon will graze SDO's view of the Sun—obscuring just a small portion of the star—from 3:27 pm EDT to 3:55 pm EDT.

Throughout Aug. 21, 2017, SDO will keep a constant eye on the Sun—as it has done 24/7 since it launched in 2010. SDO views the Sun in a handful of wavelengths that let it observe material on the Sun in different temperatures. Each wavelength highlights material in different layers on the Sun's surface and in its atmosphere, the corona.

Scientists will be able to compare SDO imagery of the corona to images captured from the ground. During a total eclipse, the lower parts of the Sun's atmosphere, or corona, can be seen in a way that cannot completely be replicated by current human-made instruments. The combination of space-based and ground-based observations together create a more comprehensive picture than either can do alone.

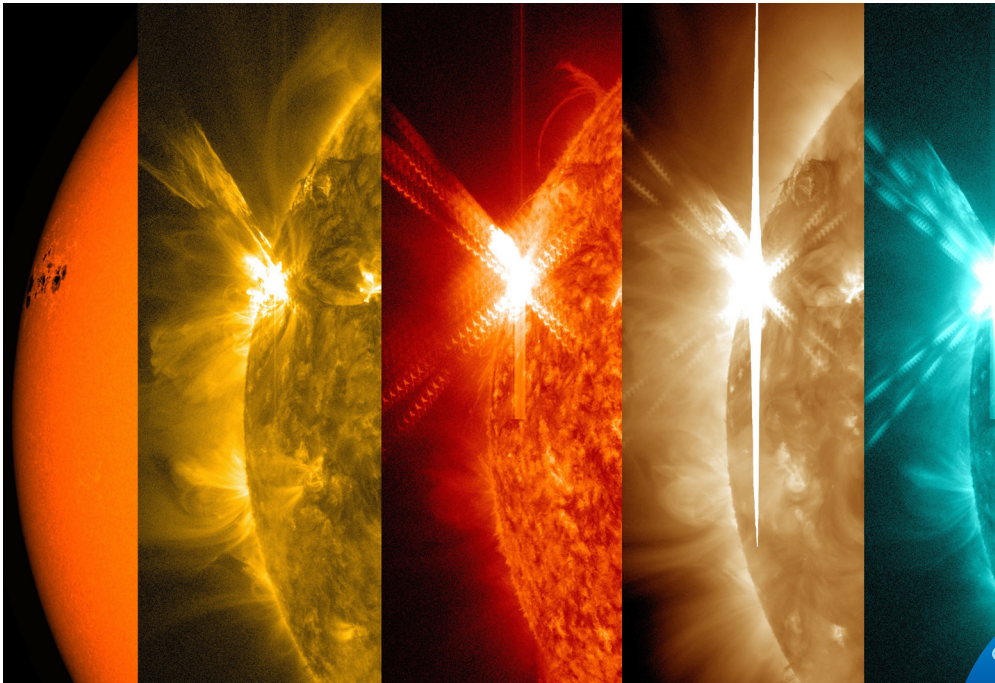
The lower part of the corona is key to understanding why the Sun's atmosphere is so much hotter than its surface as well as the process by which the Sun sends out a constant stream of solar material and radiation, which can cause changes in the nature of space and impact spacecraft, communications systems, and orbiting astronauts.

A Constant Sun Watcher

Understanding the Sun has always been a top priority for space scientists. Studying how the Sun affects space and the space environment of planets is a field known as heliophysics. SDO is one of the most advanced missions ever designed to study the whole Sun and its dynamic behavior at an unprecedented spatial and temporal resolution. The mission seeks to understand the Sun as a star and its influence on Earth and near-Earth space by observing the solar atmosphere in many wavelengths simultaneously and on small scales of space and time.

The mission is the cornerstone of a NASA science program called Living With a Star, which develops the scientific understanding necessary to address those aspects of the Sun and solar system that directly affect life and society. SDO studies what creates solar activity causing various space weather effects. To do so, SDO is equipped to measure the Sun's interior, its magnetic field and the hot plasma of the solar corona.

Orbit: Geosynchronous orbit at an altitude of 22,000 miles.



NASA's Solar Dynamics Observatory captures images of solar events—such as these solar flares from May 5, 2015—in many different wavelengths of light. Each wavelength holds information about matter at different temperatures, thus allowing scientists to better map out how the Sun's material moves during these large eruptions.

Credit: NASA/SDO

ADDITIONAL RESOURCES:

Mission Project Home Page: <https://sdo.gsfc.nasa.gov/>

SDO News: nasa.gov/sdo

SDO Data: <https://sdo.gsfc.nasa.gov/data/>

