



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

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Credit: Rick Fienberg, TravelQuest International and Wilderness Travel

Credit: S. Habbal, M. Drude Müller and P. Aniol

EXPLORING THE PHYSICS OF CORONAL PLASMA



Overview

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 lower part of the corona is key to understanding many processes on the Sun, including why the Sun's atmosphere is—counterintuitively—so much hotter than its surface.

Eclipse Science

Shadia Habbal of the University of Hawaii's Institute for Astronomy in Honolulu will lead a team of scientists to image the Sun from four different states during the total solar eclipse. They will use spectrometers, which analyze the light emitted from different ionized elements in the corona. The scientists will also use unique filters to selectively image the corona in certain colors, which allows them to directly probe into the physics of the Sun's outer atmosphere. Using the data, they can explore the composition and temperature of the corona and measure the speed of particles flowing out from the Sun. Different colors correspond to different elements—nickel, iron and argon—that have lost electrons or been ionized in the corona's extreme heat, and each element ionizes at a specific temperature. By analyzing such information together, the scientists hope to better understand the processes that heat the corona.

ADDITIONAL RESOURCES: Science Home Page: <https://science.nasa.gov/>