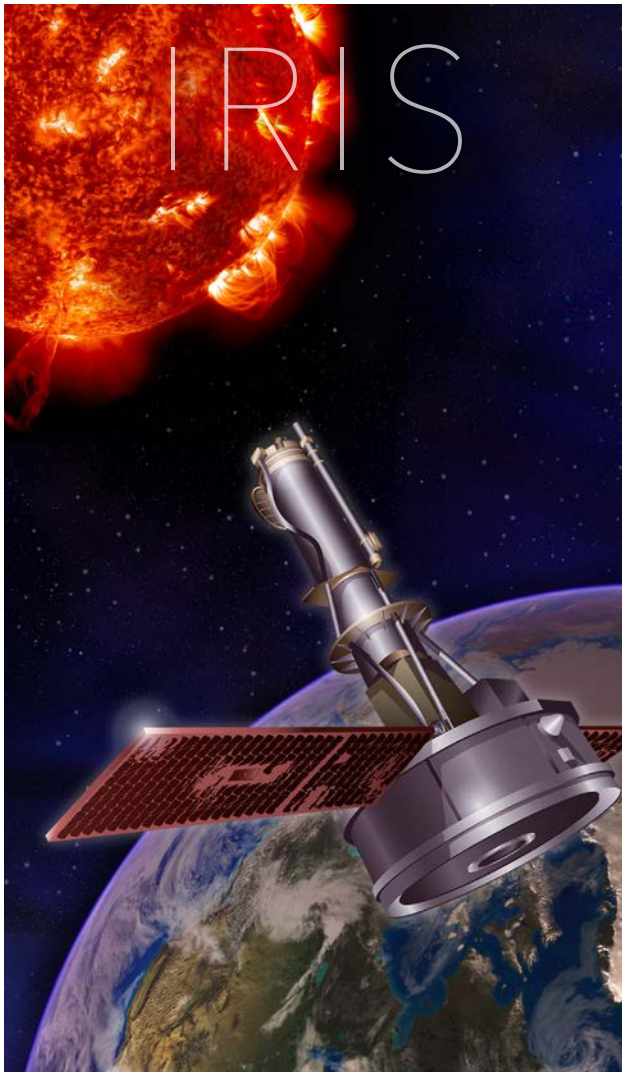
INTERFACE REGION IMAGING SPECTROGRAPH



The Interface Region Imaging Spectrograph During the Eclipse

Due to its orbit in space, IRIS will witness the moon pass in front of the sun on several occasions on Aug. 21, 2017—each time for about 15 minutes. During the transits, IRIS will perform calibrations on its instruments.

During the rest of the day, IRIS will focus on coordination with ground-based efforts observing the eclipse. The science obtained from the rare view from the ground can be amplified by IRIS's space-based observations of the sun's lower atmosphere—the chromosphere—as well as the loops of solar material, called prominences, visible over the sun's limbs. IRIS will be sensitive to solar material at temperatures that cannot be seen from the ground (e.g., material in the lower atmosphere at 100,000 K).

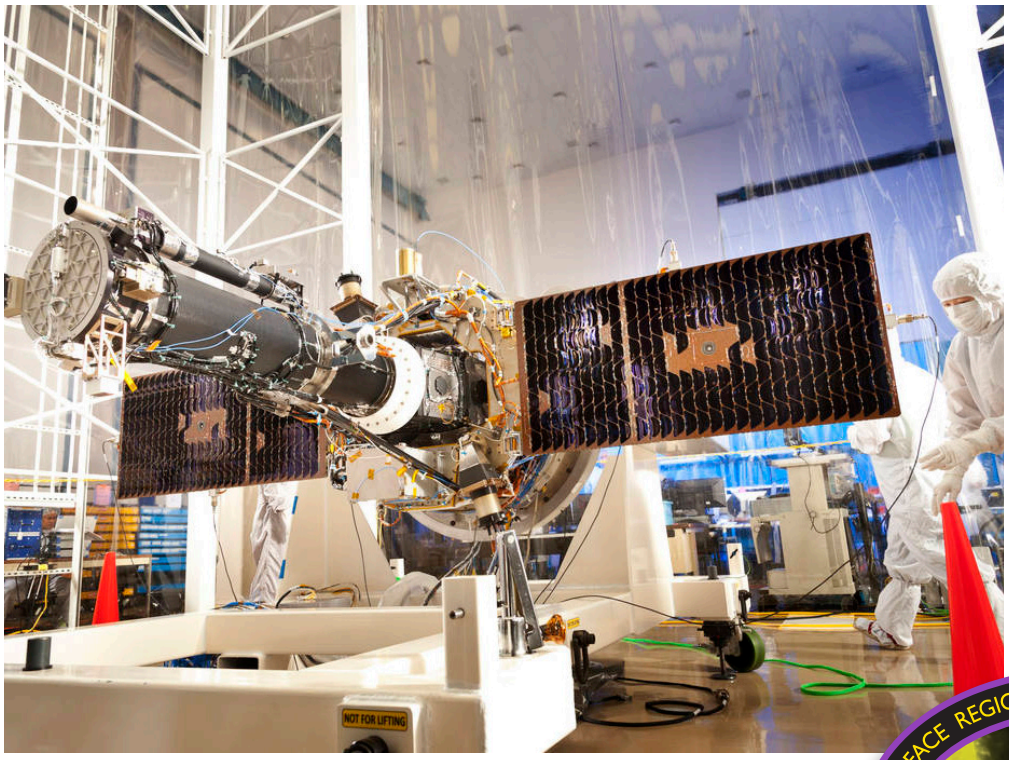
In addition, IRIS will obtain a scan of the whole limb which involves about 50 different pointings. The resulting mosaic image will provide a unique image of the sun's horizon at very high resolution.

Keeping an Eye on the Lower Atmosphere

IRIS makes use of high-resolution observations and state-of-the-art computer models to unravel how matter, light, and energy travel through and heat a little-understood region in the sun's lower atmosphere. Tracking how these move through this region is a crucial part of understanding the dynamics of the sun. Such information can help explain what causes the ejections of solar material—from the steady stream of the solar wind to larger, explosive eruptions such as coronal mass ejections, or CMEs—which travel toward Earth and cause space weather that can disrupt human technology.

The interface between the sun's surface and the atmosphere is also where one of the most mysterious occurrences on the sun takes place. Usually the closer you get to a heat source, such as a fire, the hotter it gets, but the solar atmosphere doesn't do that. The solar atmosphere gets hotter—1,000 times hotter—as it gets further away from the sun, and scientists don't yet have enough information to distinguish between various theories on why this happens.

IRIS also draws on state of the art computer modeling sophisticated enough to deal with the complexity of this area. In combination, IRIS's resolution, wide temperature coverage and computer modeling enables scientists to map plumes of solar material as they move throughout the region and to pinpoint where in their travels they gain energy and heat.



NASA's Interface Region Imaging Spectrograph mission in a clean room at the Lockheed Martin Space Systems Sunnyvale, Calif. Facility before it launched. The solar arrays are deployed in the configuration they later assumed in orbit. Credit: NASA/Lockheed Martin

ADDITIONAL RESOURCES:

Mission Project Home Page: *http://iris.lmsal.com/*
IRIS News: *nasa.gov/iris*
IRIS Data: *http://iris.lmsal.com/data.html*