SORCE
Solar Radiation and Climate Experiment

Laboratory for Atmospheric and Space Physics
University of Colorado **Boulder**

(Courtesy NASA)

SORCE is a free-flying, Earth-orbiting satellite carrying four state-of-the-art instruments to measure solar radiation at the top of the Earth's atmosphere.

Frequently Asked Questions

What is the purpose of the SORCE mission?

SORCE measures the Sun's output with state-of-the-art radiometers, spectrometers, photodiodes, and photomultiplier tubes engineered into instruments mounted on a satellite observatory. Data obtained by the SORCE experiments is used to model the Sun's output and to explain and predict the effect of solar radiation on the Earth's atmosphere and climate. The mission is one element of NASA's Earth Observing System, which is the major observational and scientific element of the U.S. Global Change Research Program.

What do the SORCE instruments measure?

The Total Irradiance Monitor (TIM) measures the total solar irradiance (TSI), the spatially and spectrally integrated solar radiation striking the top of the Earth's atmosphere. The Spectral Irradiance Monitor (SIM) provides the first continuous, long-duration solar spectral irradiance measurements from 200 to 2400 nm. The Solar Stellar Irradiance Comparison Experiment (SOLSTICE) measures daily solar ultraviolet irradiance from 115 to 320 nm. The X-ray Ultraviolet Photometer System (XPS) extends solar X-ray ultraviolet (XUV) irradiance measurements with improvements to accuracy, spectral range (1 to 34 nm), and temporal cadence.

Quick Facts

Launch date: January 25, 2003
Launch location: Kennedy Space Center, Cape Canaveral, FL
Launch vehicle: Pegasus XL
Mission target: Earth orbit
Primary duration: Eight years (extended through FY 2017)
Project description: The Solar Radiation and Climate Experiment (SORCE) is a NASA-sponsored satellite mission that is providing state-of-the-art measurements of incoming x-ray, ultraviolet, visible, near-infrared, and total solar radiation.
LASP provides:
- The Total Irradiance Monitor (TIM), the Spectral Irradiance Monitor (SIM), the Solar Stellar Irradiance Comparison Experiment (SOLSTICE), and the X-ray Ultraviolet Photometer System (XPS)
- SORCE satellite and instrument mission operations
- Data acquisition, management, processing and distribution
- SORCE principal investigator, Tom Woods
- Original SORCE principal investigator, Gary Rottman

Other organizations involved:
- NASA's Goodard Space Flight Center (GSFC)
- Naval Research Laboratory

To read more about the SORCE mission, visit:
http://lasp.colorado.edu/home/missions-projects/quick-facts-sorce.

The Laboratory for Atmospheric and Space Physics (LASP) combines all aspects of space exploration through our expertise in science, engineering, mission operations, and data management. As an institute at the University of Colorado Boulder, LASP includes students throughout our activities. Learn more at http://lasp.colorado.edu.

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