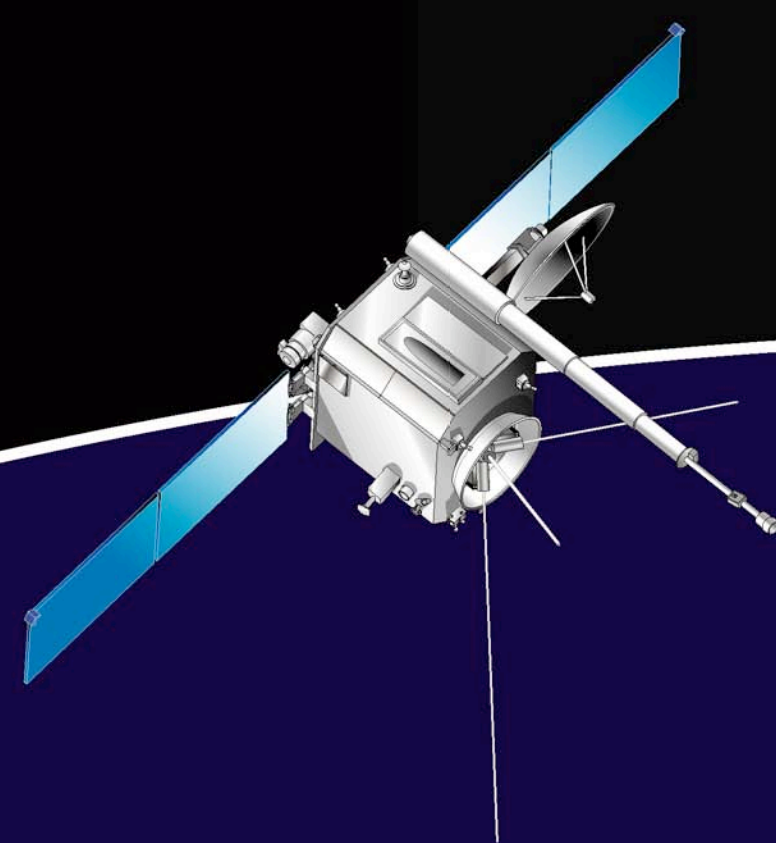
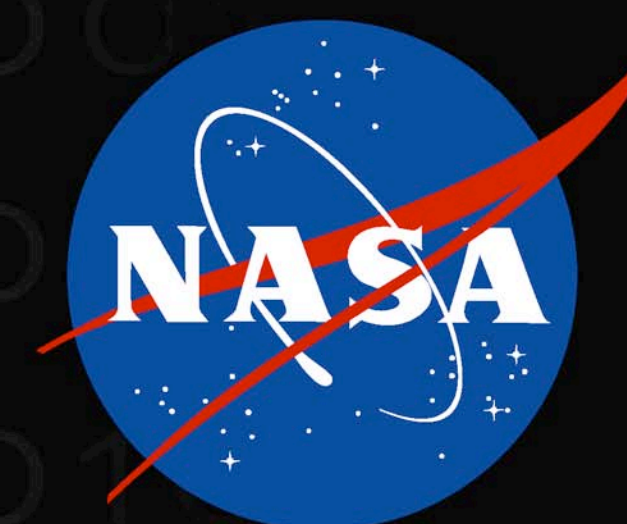


STEREO SCIENCE CENTER



Scheduled for launch in early 2006, STEREO (Solar TERrestrial RELations Observatory), the third mission in the Solar Terrestrial Probes (STP) program, will employ two nearly identical spacecraft in heliocentric orbits - one ahead of Earth, the other trailing behind. This will provide the first-ever stereoscopic measurements to study the Sun and develop an understanding of the fundamental nature and origin of coronal mass ejections. - the most energetic eruptions on the Sun and primary cause of major geomagnetic storms.

STEREO's scientific objectives are to:

- Understand the causes and mechanisms of coronal mass ejection (CME) initiation.
- Characterize the propagation of CMEs through the heliosphere.
- Discover the mechanisms and sites of energetic particle acceleration in the low corona and the interplanetary medium.
- Improve the determination of the structure of the ambient solar wind.

STEREO Instruments

The following four instrument packages are mounted on each of the two STEREO spacecraft:

Sun Earth Connection Coronal and Heliospheric Investigation (SECCHI) will have four instruments: an extreme ultraviolet imager, two white-light coronagraphs and a heliospheric imager. These instruments will study the 3-D evolution of CME's from birth at the Sun's surface through the corona and interplanetary medium to its eventual impact at Earth.

STEREO/WAVES (SWAVES) is an interplanetary radio burst tracker that will trace the generation and evolution of traveling radio disturbances from the Sun to the orbit of Earth.

In-situ Measurements of Particles and CME Transients (IMPACT) will sample the 3-D distribution and provide plasma characteristics of solar energetic particles and the local vector magnetic field.

PLAsma and SupraThermal Ion Composition (PLASTIC) will provide plasma characteristics of protons, alpha particles and heavy ions. This experiment will provide key diagnostic measurements of the form of mass and charge state composition of heavy ions and characterize the CME plasma from ambient coronal plasma.

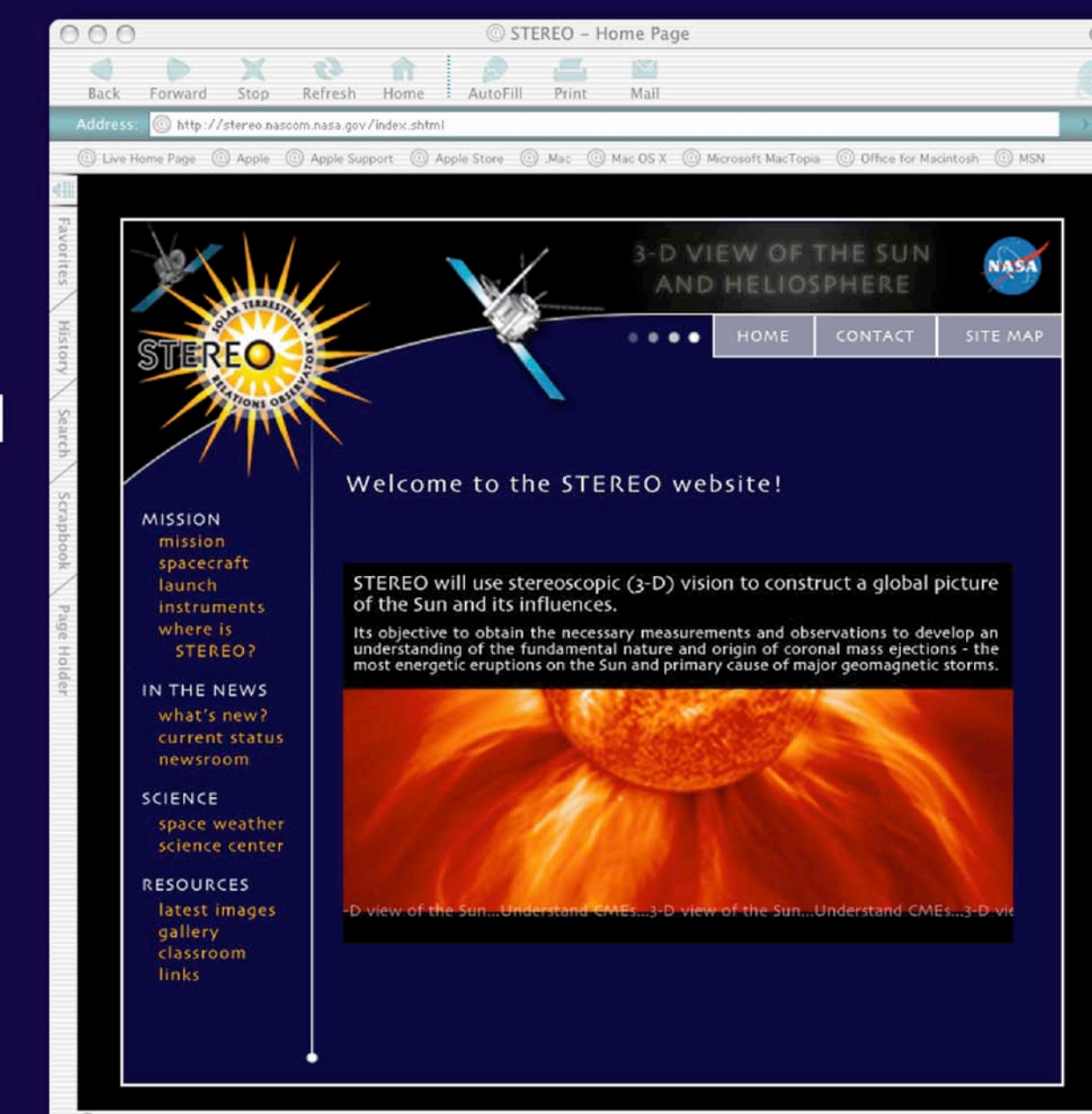
<http://stereo.gsfc.nasa.gov>

Terry Kucera, William Thompson, Michael Kaiser
designed by Emilie Drobnes
NASA Goddard Space Flight Center

What is the SSC?

The STEREO Science Center (SSC) at the NASA Goddard Space Flight Center will be the "one-stop shopping" location for STEREO data, observation plans, analysis software, and links to other mission resources. Along with the other data products, a special "Space Weather Beacon" telemetry stream, relayed through an array of antenna partners coordinated by NOAA, will provide near-real-time images, radio, and in-situ data. Through interaction with the SOLAR Software Library, the SSC will also act as a focal point for software coordination.

- Collects telemetry and processed data, archives it, and serves it on the web.
- Receives beacon data from the DSN and NOAA antenna partners, processes it, and makes space weather products available in near real-time.
- Focal point for science coordination
- Focal point for education and public outreach.



There will be two separate websites, one for the public and the other for serving science data.

Virtual Solar Observatory



The STEREO Science Center will be completely integrated into the Virtual Solar Observatory (VSO). STEREO is also planning to work closely with the Virtual Heliospheric Observatory (VHO) and the Virtual Space Physics Observatory (VSPO) projects.

Telemetry Processing

Science telemetry from the STEREO spacecraft will be collected by antennas of the Deep Space Network, and sent to the STEREO Mission Operations Center at the John Hopkins Applied Physics Lab. The SSC will collect and archive telemetry from APL and processed science data from the individual instrument teams. These data will be available via web interfaces. A separate low-rate Space Weather Beacon stream will be collected by antenna partners outside of DSN contact. This stream, supplemented by the DSN during contact periods, will be processed by the SSC into data files, using software supplied by the instrument teams, and served on the web in near-real-time.

