Lockheed Martin Instrument On Latest NASA Sun Mission Sees First Light

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The Extreme Ultraviolet Imager (EUVI) instrument -- designed and built at the Solar and Astrophysics Laboratory of the Lockheed Martin Advanced Technology Center (ATC) in Palo Alto -- has begun returning images of the Sun's corona as part of NASA's Solar Terrestrial Relations Observatory (STEREO). STEREO utilizes two nearly identical spacecraft on different trajectories to study the most energetic events on the surface and in the lower atmosphere of the Sun, and their travel through interplanetary space.

Data from spacecraft instruments will allow scientists to construct the first ever three-dimensional views of the Sun, providing a new perspective on Coronal Mass Ejections (CMEs). CMEs are violent explosions on the surface of the Sun that can propel up to 10 billion tons of the Sun's atmosphere -- at a million miles an hour -- out through the corona and into space.

The two STEREO spacecraft were launched together on a Delta-II on Oct. 25, 2006 from Cape Canaveral Air Force Station, Fla. Both spacecraft flew by the Moon taking advantage of a gravity assist that has propelled one of the observatories into an orbit "ahead" of the Earth in its journey around the Sun, and the other "behind" our planet as it makes its yearly revolution. The first images are from the "ahead" spacecraft.

EUVI is one element of an instrument suite on each STEREO spacecraft called SECCHI -- the Sun-Earth Connection Coronal and Heliospheric Investigation -- under the direction of Principal Investigator Dr. Russell Howard of the Naval Research Laboratory of Washington, D.C. SECCHI comprises a suite of telescopes, including three white light coronagraphs and EUVI.

"These first images are magnificent, and just a taste of wonderful things to come! There is enormous satisfaction in seeing that our years of effort have borne fruit. We've been studying CMEs for a long time, but SECCHI will offer us new insight into the structure and evolution of the solar corona in three dimensions, while EUVI focuses specifically on the initiation and early evolution of CMEs," said Dr. James Lemen, Lockheed Martin co-investigator on SECCHI. "EUVI and the other instruments on SECCHI will follow the propagation of these events through the corona, out into interplanetary space and all the way to Earth, giving us a comprehensive view of these enormous phenomena."

NASA Goddard Space Flight Center in Greenbelt, Md. manages the STEREO mission. The Johns Hopkins University Applied Physics Laboratory in Laurel, Md. designed and built the spacecraft. The laboratory will maintain command and control of the observatories throughout the mission, while NASA tracks and receives the data, determines the orbit of the satellites, and coordinates the science results.

The Solar and Astrophysics Laboratory at the ATC has a long heritage of spaceborne solar instruments including the Soft X-ray Telescope on the Japanese Yohkoh satellite, the Michelson Doppler Imager on the ESA/NASA Solar and Heliospheric Observatory, the solar telescope on NASA's Transition Region and Coronal Explorer and the Solar X-ray Imager on the GOES-N environmental satellite. The laboratory also conducts basic research into understanding and predicting space weather and the behavior of our Sun including its impacts on Earth and climate.

The ATC is the research and development organization of Lockheed Martin Space Systems Company (LMSSC). LMSSC, a major operating unit of Lockheed Martin Corporation, designs, develops, tests, manufactures and operates a variety of advanced-technology systems for national security, civil and commercial customers. Chief products include human space flight systems; a full range of remote sensing, navigation, meteorological and communications satellites and instruments; space observatories and interplanetary spacecraft; launch vehicles, fleet ballistic missiles; and missile defense systems.

Headquartered in Bethesda, Md., Lockheed Martin employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2005 sales of $37.2 billion.

Media Contact: Buddy Nelson, (510) 797-0349; e-mail, buddynelson@mac.com

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