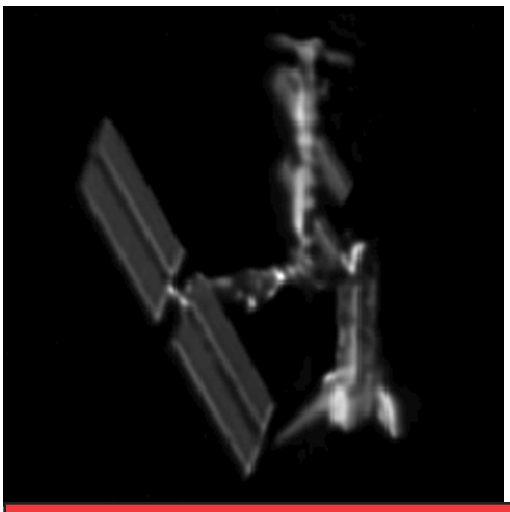
Air Force Research Laboratory | AFRL

Science and Technology for Tomorrow's Aerospace Forces

Success Story

ADVANCED ELECTRO-OPTICAL SYSTEM IS OPERATIONAL



International Space Station with Space Shuttle attached

Hubble Space Telescope

The state-of-the-art capabilities of the Advanced Electro-Optical System (AEOS), located at the Maui Space Surveillance Site on Mt. Haleakala, Hawaii, are providing significant payoffs to a broad range of user communities. The high-resolution images from the adaptive optics/visible imager system provide resolved satellites for which resolved images were not previously available. The Directed Energy Directorate routinely uses a long wavelength infrared (LWIR) imager to satisfy the highest priority tasking of objects from the Air Force Space Command (AFSPC). The directorate also provided support for missile shots, and other government agencies are expressing interest in using AEOS to support their programs. Astronomers and atmospheric scientists will continue use of AEOS in the future.

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Accomplishment

The directorate accomplished testing of the complete integrated AEOS, which became operational in August 2000. The directorate operates the AEOS seven days per week to provide state-of-the-art images and signature data on space objects. This capability, together with the capabilities of the other telescopes and sensors of the Maui Space Surveillance Site, now provides 24 hours per day, 7 days per week observational capability of space objects. Visiting astronomers use the AEOS dual-use capability extensively for their experiments.

Background

The development of AEOS began in 1991. The directorate developed three state-of-the-art sensors to collect data with the 3.67-meter aperture telescope. Those sensors include a four-channel radiometer, an LWIR imaging sensor, and a visible imaging sensor coupled with a state-of-the-art adaptive optics system.

The directorate designed the AEOS as a user-friendly, dual-use facility to provide support to the Air Force space surveillance mission as well as to other government agencies, academia, and astronomy communities. The AFSPC originally operated AEOS, however in 1998, AFSPC transferred the responsibility for its operation to AFRL.

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTT, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (01-DE-05)