



FACT SHEET

UNITED STATES AIR FORCE

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Advanced Electro-Optical System



OBJECTIVE:

Conduct operations, integration and testing, and research and development with a world-class telescope system atop Haleakala, a 10,000-foot-high mountain on Maui, Hawaii. This is the largest United States Air Force optical space tracking facility.

CAPABILITIES:

Telescope

- 3.67-meter thin meniscus primary mirror
- Optimized for satellite tracking and space object identification applications
- Replaceable secondary mirror for alternative sensor locations
- Field of View is 1 milliradian on telescope, 0.3 milliradian in coude' laboratories

Support Facility

- 40,000 square foot, four-level facility
- Security segregation for shared use
- Seven coude' laboratories
- 16-meter pier for turbulent boundary layer minimization
- Retractable dome
- Telescope and optics vibration isolation for facility

Adaptive Optics

- 941 actuator deformable mirror
- Variable wavefront correction closed loop bandwidth to 200 hertz
- Compensated imaging for a broad range of targets

- MORE -

Observatory Control System

- Centralized single operator control
- Integrated with Maui Space Surveillance System
- Standardized data product to the user

Sensors

- Long-Wave Infrared imager
 - Produces spatially resolved thermal images of space objects
 - Primary use is space object identification, operating simultaneously with visible imager
- Radiometer
 - Multi-spectral sensor covers visible through the very-long-wave infrared spectral range
 - Provides high-temporal sampling photometry/radiometry of deep space and unresolved targets
- Visible Imager
 - Scientific CCD camera located adaptive optics system
 - Provides highest resolution imagery of any of the site's optical sensors

MISSION:

- Space surveillance contributing sensor – supports United States Space Command's Space Object Identification Statement of Need, 14-89
- Atmospheric Science – military and environmental missions
- Astronomy – Universities and other agencies

SCHEDULE: Operational in 2000

CONTRIBUTING CONTRACTORS:

Telescope and Mount	Contraves USA
Facility	
Architects	Gima-Yoshimori-Miyabara
Construction	Kiewit Pacific
Dome	Comsat RSI
Adaptive Optics	Hughes Danbury Optical Systems
Observatory Control System	Rocketdyne Technical Services
Sensors	
Radiometer	Mission Research Corp.
Long Wave Infrared Images	Raytheon
Visible Imager	Raytheon Optical Systems Inc.
Technical Support	Logicon RDA, S Systems, MIT/LL Pantera Consulting, Tecolote
Site Integration	Rocketdyne Technical Services

MANAGING AGENCY:

Directed Energy Directorate
Air Force Research Laboratory
Kirtland Air Force Base, New Mexico