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A Sixty-Year Timeline of the Air Force Maui Optical and Supercomputing Site

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Summary

This document contains a timeline of key events in the history of the Air Force Maui Optical and Supercomputing Site (AMOS). AMOS is located on the island of Maui, Hawaii, and is comprised of two physically separate facilities: the Maui Space Surveillance Complex (MSSC) located on the top of the Haleakala volcano and the Maui High Performance Computing Center (MHPCC) located in Kihei. The events contained in this document focus primarily on the MSSC, but MHPCC has always maintained a strong collaboration with the MSSC, so we have included several events associated with MHPCC.

The MSSC¹ is operated by the Air Force Research Laboratory (AFRL) on land leased from the University of Hawaii. MSSC provides electro-optical imagery for space situational awareness on man-made objects in low Earth and geosynchronous orbits. The complex has three large optical telescopes—a dual 1.2-meter diameter refractive telescope, a single 1.6-meter diameter reflective telescope, and a 3.67-meter telescope that is the largest optical aperture in the Department of Defense (DoD). Together, these three telescopes provide the Air Force with a unique capability for high-resolution, visible and infrared wavelength imagery of space objects over the Pacific Ocean.

MSSC was first imagined as an optical research observatory in the early 1950s. Since then, the site's mission, management structure, and operational partners have changed several times to accommodate the contemporary challenges and research tools. This timeline is an attempt to document these historical changes. This history was originally researched for a RAND project on MSSC that was sponsored by AFRL/RD. In the process of performing this project, we found that there was no definitive source that provided a complete history of the site.

The purpose of this document is not to be a definitive history, but to provide a source more thorough than what is currently available to the public. We are publishing this timeline with the hope that it will be helpful to researchers and policymakers who can use this information to inform future decisions about the U.S. space surveillance architecture.

The research for this timeline was based on open source articles, historical documents, references within the scientific literature, and discussions with current and former site personnel. All of the timeline's entries have a supporting bibliographic entry that details the source for each entry.

¹ In this document, we make a distinction between the Maui Space Surveillance Site (MSSS) and the MSSC. MSSS refers to a specific building within the observatory that houses the 1.2-meter, the 1.6-meter, and the Ground-Based Electro-Optical Deep Space Surveillance (GEODSS) telescopes. MSSC refers to AFRL's entire facility on the mountaintop. The MSSC also includes the 3.6-meter Advanced Electro-Optical System (AEOS), which is housed in a separate building from the MSSS. Because of this distinction, the term MSSC did not exist prior to the construction of AEOS in the 1990s.

The timeline is provided in both tabular and wall chart formats. The tabular form will likely be the most convenient for viewing the data using conventional display formats, such as letter-sized paper or computer screens. However, we chose to also include the full-size wall chart for readers who have access to large-format printing capabilities. Readers can also view the wall chart on a large computer screen, using the scroll bar to move from one section of the timeline to the next. The wall chart can be found at the end of this document.