FACT SHEET
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NORTH OSCURA PEAK

North Oscura Peak is an Air Force Research Laboratory site in the northern portion of the U.S. Army's White Sands Missile Range, New Mexico. The facility is designed to assemble and evaluate advanced sensor, tracking and atmospheric compensation systems. The goal is to improve the U.S. Air Force's ability to track missiles and then efficiently transmit laser energy through the atmosphere to destroy those missiles.

The site is managed by the Laboratory's Directed Energy Directorate, headquartered at Kirtland Air Force Base, about 140 miles to the north.

Atop the 8,000-foot-high North Oscura Peak, a 30-inch telescope is used to send and receive laser light to and from Salinas Peak, another site approximately 35 miles away. Sophisticated instrumentation is used to measure the extent that Earth's atmosphere distorts the laser light. Then, deformable optics are used: mirrors that can change their shape to compensate for the distortions.

The research gained from these tests will benefit any follow-on efforts to the Airborne Laser – a large cargo aircraft, equipped with a high-energy laser that can destroy theater ballistic missiles hundreds of miles away. In contrast to the Airborne Laser, which is designed to operate at altitudes around 40,000 feet, these tests are taking place on peaks that are between 8,000 and 9,000 feet high. The denser air at these lower test elevations makes it possible to take the collected data and scale it to the higher altitudes and longer ranges envisioned for the Airborne Laser. Research at this site may be applied on the first three Airborne Laser production aircraft or as advanced weaponry on tactical aircraft.

A 30-inch telescope was initially used, one of the largest refractor telescopes in the world. However, in late January of 1999, it was replaced with a $2.5 million, 1-meter (40-inch) telescope build for the Research Laboratory by Contraves Brasher Systems in Pittsburgh, Pennsylvania. Unlike the initial telescope, which was stationary, the new telescope was designed to be used with a moveable mount. Capable of moving down 5 degrees and revolving 360 degrees, it can be used with moving targets to simulate more realistic wartime conditions. In order to properly house the new telescope, an isolation-free structural steel tower was built in December.

By June of 1999, the Air Force will be able to fire its non-destructive lasers at a variety of missiles being launched at White Sands Missile Range. Although three to four missile launches may take place each year, Laboratory scientists will be getting better data from a different "target" – a single-engine, propeller-driven Cessna Caravan airplane. This test aircraft will carry a scoring board comprised of a range of detectors that will be able to gather greater amounts and more complete information than will be available from the missiles.

Overall, 40 people are working on the project, most of whom reside in offices at the Directed Energy Directorate at Kirtland Air Force Base, about 140 miles away. Six to eight people work at the site with four of them there full time.

Three lasers are typically used at the site: a 30-watt tracking laser, a 30-watt adaptive optics beacon laser, and a 3-watt scoring laser. The scoring laser acts as a surrogate for the high-energy weapons laser.

During a test, North Oscura and Salinas Peaks are in constant communications, and a laser cannot propagate unless several fail-safe measures are in force at both locations. These are among the safety precautions in place to ensure eye-safe operations.

North Oscura Peak was a former Army missile-tracking site. Designed to withstand rocket strikes, the walls at the site are 4-feet thick, with 1,200 tons of concrete embedded six feet in bedrock. The Directed Energy Directorate refurbished the site in June of 1997, spending approximately $700,000 to repair the buildings, bring in the telescope, build a clean room, and install lasers, advanced optics, computers and test instrumentation. The money also included improvements to the receiver station at Salinas Peak, where three portable shelters, an electronics room and an optics room were installed.

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