

PAVE PAWS FOR PEACE

The heart of the nation's missile warning capabilities, the Pave Phased Array Warning System, or Pave PAWS, has been monitoring the skies surrounding North America since the early 1980s. The system's main purpose is to detect and track both intercontinental and sea-launched ballistic missiles.

It's a job it does well.

"If something's out there, we'll see it," said Lt. Col. Corey Keppler, 7th SWS commander. "And that's really what our job is, to detect launches, track them and provide data to the right agencies."



Senior Airman Blake Braun responds to a phone call from the Joint Space Operations Center at Vandenberg Air Force Base, Calif. Airman Braun, a space systems operator with the 7th Space Warning Squadron, operates a space console at Beale Air Force Base, Calif., to identify, track and categorize space objects.



Eddie Clark, the computer lead technician, checks the status of processors in the operations center of the 7th Space Warning Squadron, Beale Air Force Base, Calif. The processing units track objects in space as small as a wrench 3,000 miles away by reading data signals collected by 10-story tall antenna.

Beale Air Force Base is one of several Pave PAWS sites that are scattered around the globe. Others are at Clear Air Force Station, Alaska; Cape Cod AFS, Mass.; Cavalier AFS, N.D.; Thule Air Base, Greenland; and Royal Air Force Flyingdales, England.

Together, these stations create the ground-based radar network – a crisscrossed pattern of coverage that monitors the areas surrounding North America and the United Kingdom.

Each radar station can "see" 3,000 miles across the Earth's hemisphere and up to 12,000 miles above the Earth. The radar faces are giant, 10-story structures containing thousands of arrays and sensors that are continuously sending and receiving data.

This data is fed into a room full of computers, where it is deciphered and relayed to the radar's command center as easily readable information.

The radars are designed to search their areas of responsibility for missiles or launch plumes, but, calibrated the right way, they can track items much smaller.

"We help track space shuttle launches," Colonel Keppler said. "And the radars are sensitive enough to see something as small as a piece of foam falling off the shuttle during its launch."

Each radar station is also self-sustaining. They have their own power plants, communications systems and security personnel and are nuclear hardened, meaning the radars are designed to survive and maintain operations after a nuclear blast.

"If something like that happened, we would be the eyes and ears of our defense capabilities," Colonel Keppler said.

The Pave PAWS sites were built during the heart of the Cold War, a time when nuclear attack was a thought that weighed heavy on many minds. Even though the Cold War is over, these radars are very important, said officials at Air Force Space Command.

"There are still real threats out there," said Col. Jay Moody, deputy director of Requirements for Headquarters AFSPC at Peterson Air Force Base, Colo. "China has launched missiles at a satellite, and other countries are trying to get their feet into the nuclear arena. It's important we have the capability to know when and where someone tries to attack us."

Which, by design, is exactly what Pave PAWS will do.

ALL SEEING EYES IN THE SKY

Pave PAWS aren't the only sentinels on duty for missile warning and defense. A network of satellites orbit the earth and monitor its atmosphere with unblinking eyes.

These silent sentinels are the AFSPC-operated Defense Support Program satellites -- a key part of North America's early warning systems. In their 22,300-mile, geosynchronous orbits, DSP satellites help protect the United States and its allies by detecting missile launches, space launches and nuclear detonations.

"They are really the workhorses for missile warning," said Lt. Col. Michele Edmondson, commander of the 2nd Space Warning Squadron at Buckley Air Force Base, Colo. "They provide reliable early warning capabilities to our nation and its defense."

The first DSP satellite launched in the early 1970s. Since then, this system has provided uninterrupted space-based missile warning capabilities.

The satellites use an infrared sensor to detect heat from missile and booster plumes against the earth's background. Over the years, though, the technology used by the satellites has undergone several upgrades to keep them current with modern threats.

"Missiles used to be large, easily identifiable objects," Colonel Edmondson said. "But now, they keep getting smaller and smaller and harder to identify."

In 1995, technological advancements were made to the ground processing systems, enhancing the satellite's detection capability of smaller missiles and providing improved warning of attack by short-range missiles against the United States.

A new satellite system, the Space Based Infrared System, or SBIRS, is also set to be online soon.

“SBIRS will work alongside and eventually replace DSP,” Colonel Moody said. “This system will provide the nation with critical missile defense and warning capabilities well into the 21st century.”

SBIRS features a mix of geosynchronous earth orbit satellites, highly elliptical earth orbit payloads and associated ground hardware and software.

The system will have both improved sensor flexibility and sensitivity, will cover short-wave infrared, and will have expanded mid-wave infrared and see-to-the-ground bands, allowing it to perform a broader set of missions compared to its predecessor, the DSP.

The program is currently in the engineering, manufacturing and development phase, with the first GEO satellite expected to launch in 2010.

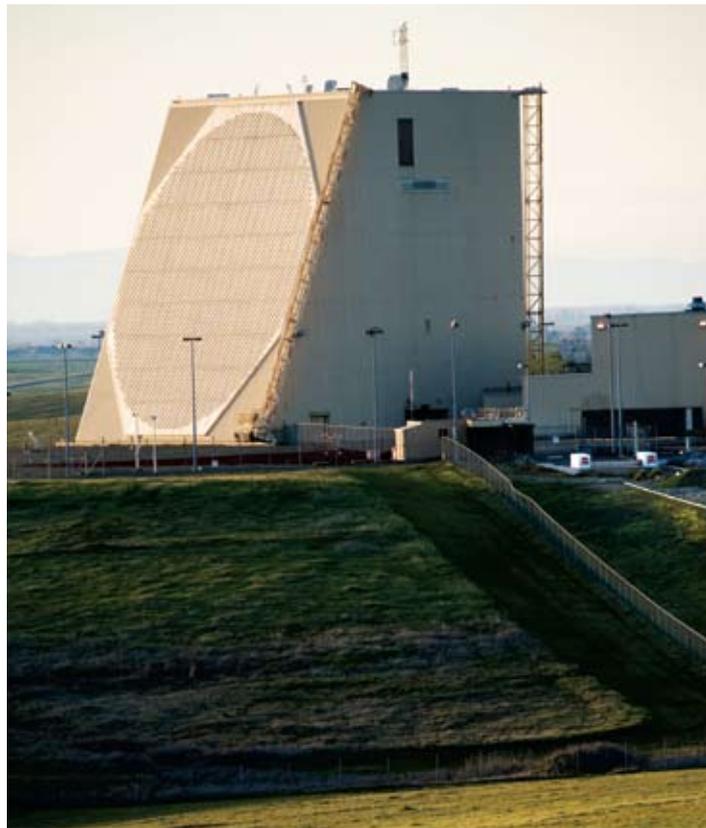
THE HUMAN ELEMENT

As effective and consistent as the U.S.’s missile warning and defense satellites and radars are, none of them would work without the Airmen who monitor them on a daily basis.

“It’s truly the Airmen who make the whole system work,” Colonel Moody said. “It’s their dedication and professionalism that ensures these satellites and radars do what they’re supposed to, when they’re supposed to.”

Their human eyes are also needed to aid the electronic ones they are in charge of.

“The satellites and radars only pick up and warn us of items in the earth’s atmosphere, so the Airmen are the ones who look at it and

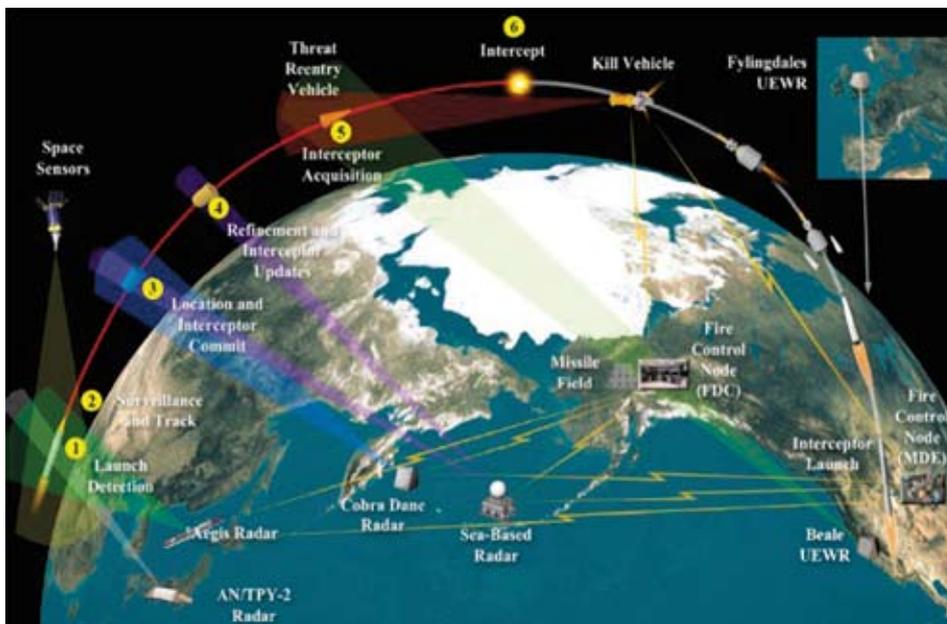


Working inside a 10-story **Pave Phased Array Warning System, or Pave PAWS**, the men and women of the 7th Space Warning Squadron continuously scan the horizon for missiles, satellites and other man-made objects in space.

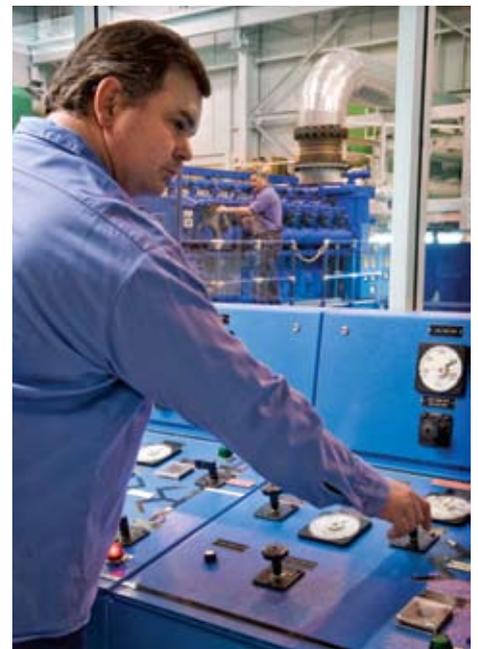
say, ‘Okay, that’s nothing to worry about,’ or ‘Hey, let’s take a look at that,’” Colonel Edmondson said.

For the Airmen who work with the satellites and radars, it’s a job they take seriously and are proud to do.

“When I sit back and think about the fact that I’m contributing to the defense of the country, that makes me feel proud,” Lieutenant Veater said. “Sure, it’s easy to say all I do is push buttons or talk on the phone, but everything we do helps keep the nation safe. That’s a good feeling.” 🦅



MISSILE WARNING/MISSILE DEFENSE



Mike Dalton tests the transfer of electrical power from the commercial grid to the on-site power plant at the 7th Space Warning Squadron at Beale Air Force Base, Calif. Mr. Dalton is a contract power plant operator.