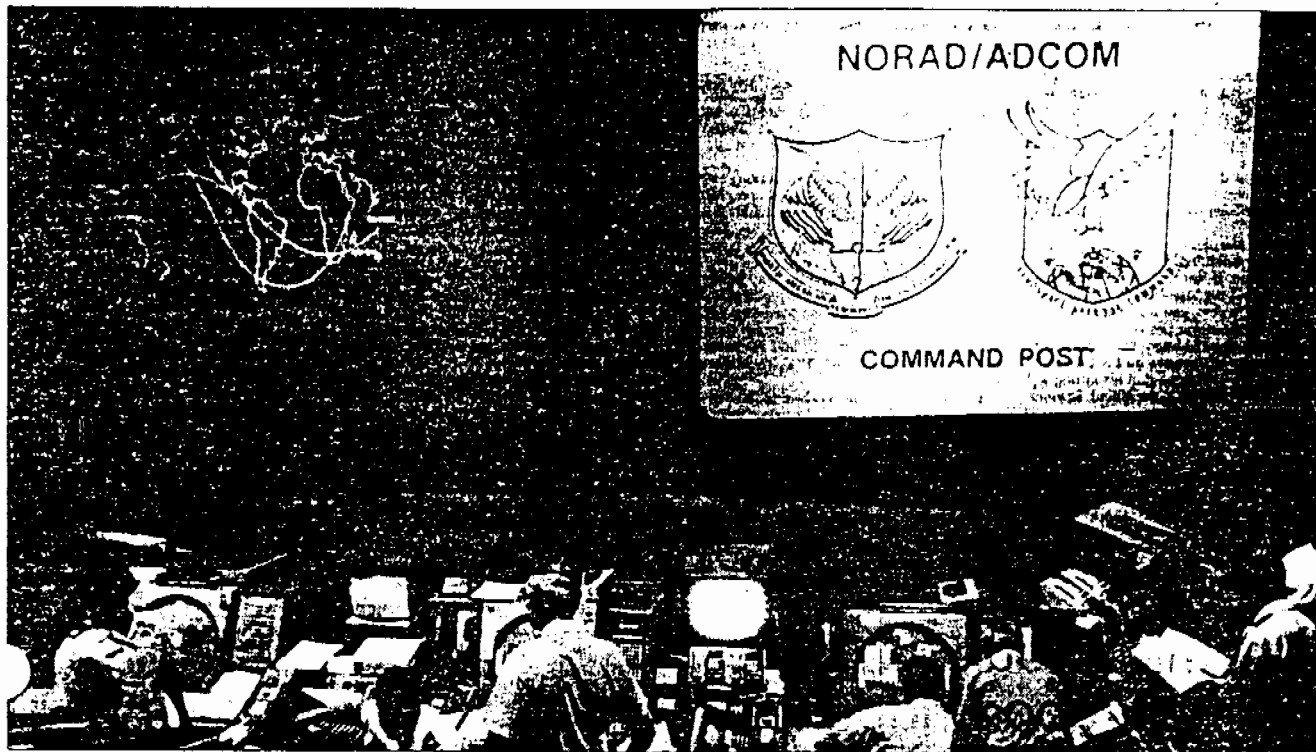


NORAD vulnerable to assault from low-flying cruise missile

A MILITARY BLIND SIDE



FRANK KIMMEL/Rocky Mountain News

Personnel work on a practice exercise at the command post of the North American Aerospace Defense Command in Cheyenne Mountain.

Defenses vulnerable to cruise attack

NORAD's electronic sensors ready, but offensive weapons outrun them

By **DICK FOSTER**
Rocky Mountain News Southern Bureau

COLORADO SPRINGS — For all the billions of dollars in hardware tied to the North American Aerospace Defense Command's nerve center deep in the belly of Cheyenne Mountain, the system designed to detect an airborne attack on the United States and Canada has a blind side.

Star Wars technologies may have captured the attention of the nation's scientists and politicians, but the sentries who daily guard against attack are concerned with a threat far closer to earth — Soviet cruise missiles.

Offensive technology has outflanked NORAD's vast inventory of detection systems. Without such a system for cruise missiles, Soviet submarines already patrolling off U.S. coasts could launch a swift and crippling cruise attack, NORAD officials fear.

"Our primary means of defense is our ability to attack. Our deterrent lies in keeping Ivan scared so he won't attack," said Brig. Gen. Charles W. Bartholomew, NORAD's assistant deputy chief of staff for combat operations.

"We let them develop the cruise without giving them the means to detect it, they might consider a strategic attack on our bases as an attractive military option," he said.

NORAD's detection systems, built over the last three decades, have evolved to meet threats as they arose, and became more sensitive in the process.

The 1950s-era Distant Early Warning line — 31 radar units strung across Alaska, Canada and Greenland — was built to detect Soviet bombers and still pinpoints aircraft flying over the Arctic.

With the advent of ballistic missiles in the '60s, the United States built radar units in Alaska, Greenland and England that track Soviet missiles minutes after their launch. It also orbited infra-red sensing satellites 22,300 miles in space, where they detect everything from an oil well flare in Texas to the launch of a Russian missile.

The new technologies and risks of space traffic brought ground-based television cameras into NORAD's domain that track all manmade items in space, with lenses capable of following a basketball 20,000 miles away.

Together these systems create the multi-tiered surveillance and warning system that pours data into NORAD's 15 steel-walled buildings inside Cheyenne Mountain. There, 1,700 U.S. and Canadian civilian and military personnel monitor air and space traffic around the clock.

But for all of the electronic eyes and ears, they cannot detect cruise missiles.

Skimming along the Earth's surface, cruise missiles launched from Soviet bombers or submarines, are capable of flying undetected to targets in the United States — missile silos, airfields, communications facilities and major population centers.

The U.S. and NATO countries also have



FRANK KIMMEL/Rocky Mountain News

Air Force Brig. Gen. Charles Bartholomew describes how North American Aerospace Defense Command works during briefing at Cheyenne Mountain.

PEOPLE'S EXHIBIT
 695
 Base

at pose a similar threat to the Soviets.

Both sides' cruise missiles are too small and their range too short to deal a decisive blow. The effectiveness lies in the element of surprise, in their ability to skirt detection systems and strike essential operations.

"It's almost like the old German buzz-bombs of World War II," said Capt. Joseph Murphy in a NORAD briefing. "There's no power but a little jet engine, so there's no heat detection as with a rocket. And it flies so low that there's no radar detection."

Cruise missiles can be launched from bombers and from the conventional torpedo tubes of submarines.

"The attack we worry about most is the strategic attack, which only makes sense on some full-scale basis," said Bartholomew.

"Essentially, it would be an attack designed to win World War III, aimed at our strategic forces, our command and control structure, the military and industrial base of the nation.

"The cruise missile doesn't have this kind of knockout punch. But it could be the first wave, sneaking in and knocking out our warning system and bomber force, and that's what we're afraid of," he said.

The attack that Defense Department officials envision would involve most of the Soviets' 1,400 silo-launched ICBMs with up to 10 warheads each. It is estimated they can reach the United States in 35 minutes, and their 928 nuclear tipped ballistic missiles aboard 62 submarines can hit U.S. targets in 8 to 15 minutes.

By the time these attacking missiles would show up on NORAD's radar screens, officials speculate, an undetected cruise missile attack already could have disrupted the military's warning, communications and counterattack capabilities.

There is currently no system to detect the low-flying cruise missile, although "Over-The-Horizon-Backscatter" radar, three years in development, is nearing readiness.

The first station should begin operation in Maine, covering the East Coast, in 1987. Total development cost of the Maine station is estimated at \$460 million. Defense officials project that three such "Backscatter" installations will be necessary.

A system covering the West Coast will be built in Idaho, Oregon and California in the mid-1990s. No date has been set for construction of a Central and Southern system.

The Backscatter will add a birds-eye view of the lower atmosphere now missing from NORAD's total picture of North American airspace.

It will bounce a beam off the ionosphere back onto the ground, creating an area something like the conical beam of a huge searchlight. Anything caught in the beam — planes and cruise missiles alike — will be detected.

The system overcomes the limitation of traditional radar, which is blocked from a long-range, low-altitude scan by anything in its "line of sight."

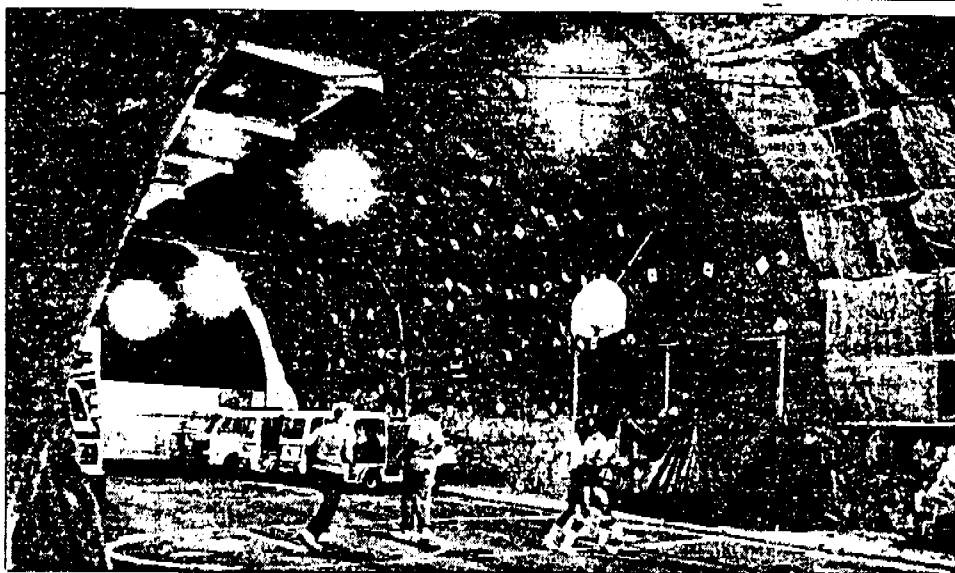
"We're bringing it on in the nick of time," said Bartholomew.

The Soviets are expected to deploy 2,000 to 3,000 cruise missiles in land, sea and air varieties over the next 10 years. Robert M. Gates, deputy director for intelligence for the Central Intelligence Agency, told a Senate subcommittee June 26.

Information about the cruise missile's destructive punch still is classified by the Department of Defense, said NORAD spokeswoman Kay Cormier. But the department's annual publication, "Soviet Military Power," describes five types of cruise missiles either deployed or under development.

Three are ground-, air- and submarine-launched variations of a seven-meter tall, single-warhead type with a range of about 1,600 miles. The submarine version can be fired from standard torpedo tubes.

Two others, in development stage, are far larger, about 12 meters tall, still capable of submarine launch.



FRANK KIMMEL/Rocky Mountain News

Off-duty personnel play basketball in the Cheyenne Mountain tunnel at the NORAD complex in Colorado Springs.

U.S. watches 'Ivan' round the clock with NORAD's computers, satellites

By **DICK FOSTER**
Rocky Mountain News Southern Bureau

COLORADO SPRINGS — "The Soviets keep us from getting stale," said Brig. Gen. Charles W. Bartholomew. "They launched 481 times last year."

Almost on cue, as he watched the lighted glass, two-story-high map of the world in the North American Aerospace Defense Command Center, a bell rang and a bright yellow light began flashing on the wall of the darkened room.

"Sir, we have a missile event," a junior officer told the general.

The general turned to a reporter and a photographer and said, "Well, I'll have to ask you to step back here, out of view of the screens."

It was the fifth "event" of the day. Earlier, other officers with serious expressions on their faces excused themselves from a press briefing, saying, "It looks like the Russians are having a little target practice today."

There were 550 launchings worldwide last year of satellites or test missiles without warheads, and 481 were Soviet. Despite their routine nature, NORAD officers don't want civilians and unauthorized people seeing things on their radar screens.

It is part of the protocol in this Otherworld gouged out of the granite beneath Cheyenne Mountain.

Here, as assistant deputy chief of staff for combat operations, Bartholomew oversees the 1,700 military and civilian personnel who work in windowless buildings of sheet steel mounted on 1,300 steel springs weighing 1,000 pounds apiece.

Day and night blend together in offices where the lights are always on, and in the tracking rooms where the lights are always off, save the green glow from radar screens.

Around the clock the watch goes on.

Personnel enter and leave every day through a single tunnel portal guarded by rifle-carrying sentries.

They pass to their offices through a double set of giant "blast doors," fashioned like the local bank vaults, but three stories high, weighing 25 tons apiece.

There is a 24-hour dining hall, medical facilities, a gym, underground reservoirs of

water, fuel in caves behind the buildings, a battery of diesel engines for emergency power, and emergency rations.

All of this is to ensure no interruption in the ongoing business of "watching Ivan," as Bartholomew puts it.

It is a business that involves 87 separate computer systems inside the mountain, tied to hundreds of radar sites and satellites strung around and above the earth. Since the Cheyenne Mountain complex began operations in 1966, Ivan's moves have triggered the bells and flashing yellow light.

Each time, NORAD's people go through a strenuous process of person-to-person verification with the distant radar stations that detected the launch and consultation with intelligence experts for the latest political and diplomatic information.

NORAD's commanding general must make the decision, each time, whether the

particular launch constitutes an attack. All of this occurs in five minutes.

"A Soviet submarine-launched ballistic missile can reach the U.S. in 8 to 15 minutes," said Bartholomew. "We've got to sort out whether a launch is an attack, and we have to do it swiftly."

Computers and backup computers function constantly. Despite the "War Games" scenarios, and the widely publicized "false alerts" at NORAD in 1979 and 1980, no "glitch" ever has come close to triggering a U.S. counterattack, NORAD officials say.

"In 1979, we'd just installed a new computer and a non-commissioned officer loaded a test tape in the computer," said Bartholomew. "Well, it was designed to generate missile warning data, and it looked like World War III on the display screens."

"The system worked the same as today. There is an immediate verification call to the radar stations, and they said, 'We're all clear, we're not sending you anything.' And it stopped right there."

The 1980 incident involved a computer chip failure, which sent false attack data from NORAD's screens to various agencies that operate Defense Department satellites.

"Again, they hit the phone, checked with us and found nothing was showing on our warning sensors," Bartholomew said.

The general doubted Colorado Congressman Ken Kramer's recent assertion that computers, not humans, will make all the decisions in new defense systems, detecting launches, evaluating whether they are attacks and launching counterattacks.

"For as far in the future as I can see, the critical decisions are going to be made by people," Bartholomew said.

"We'll use computers to get information to people in sufficient detail to make decisions on a split-second basis. The computer can provide data, but that decision has to be made here," he said, tapping his temple.

‘We've got to sort out whether a launch is an attack, and we have to do it swiftly.’

Charles W. Bartholomew, Brigadier general



RUSSIAN-MADE CHAOS

The equipment wasn't anything that would tip the balance of power in favor of the Russians. It helps in

There are other complaints, too. Critics note it's likely that for every shipment seized, several others slip