Fe@tures

Air Force Research Laboratory
AFRL

Unleashing the power of innovative aerospace technology....

news@afrl

Spring 2000 **Official voice of the Air Force Research Laboratory**

General praises center's national defense efforts

by Lira Frye, AEDC Public Affairs

ARNOLD AFB, TENN. - The following article is based on an interview with Brig. Gen. Paul Nielsen, former vice commander, Aeronautical Systems Center (ASC), Air Force Materiel Command, Wright-Patterson AFB, Ohio. The general visited the Arnold Engineering Development Center March 6-7 and discussed the importance of sustaining the world's best aerospace systems and the part AEDC plays in their development and modernization.

On his first visit to AEDC, Nielsen said he discovered how the center's unique test facilities support ASC's mission to equip the warfighter with the best possible systems.

The general led an organization that develops, acquires, modernizes and sustains aerospace systems through its acquisition work force and support units. ASC's major acquisition programs include fighter, bomber, transport, reconnaissance and trainer aircraft.

"AEDC's and ASC's goals and missions overlap," he said. "Both organizations strive to develop, modernize and sustain the world's best aerospace systems – together we work on those things that bring those systems to our warfighters.

MEETING OF THE MINDS — Former ASC Vice Commander Brig. Gen. Paul Nielsen, who recently became commander of the Air Force Research Laboratory, visited the Arnold Engineering Development Center March 6-7 and discussed the importance of sustaining the world's best aerospace systems and the part AEDC plays in their development and modernization.

The F-22 Raptor. One of those systems, the F-22 Raptor is one of ASC's major acquisition programs tested for more than a decade at AEDC. The work includes thousands of hours of engine and wind tunnel tests to measure aerodynamics and clean separation of munitions and fuel tanks from the aircraft.

But just as important as developing new systems is the modernizing and maintaining of the existing systems, said Nielsen.

"A lot more of our business now is in making modifications in older aircraft," he said. "I believe in the future we'll continue modifying and upgrading existing systems, and I think Arnold will be in that business, too."

The general said AEDC is going to find itself in continual, almost spiral development cycles in engines.

"What you'll do is continue to tweak and improve them," he said. "With the services keeping weapons systems in the inventory much longer than in the past, it's necessary to introduce new technology as it's developed to keep systems on the cutting edge."

In addition to maintenance and upkeep, Nielsen said the Air Force also has to understand and test the interaction of airplanes carrying different stores. Wind tunnel testing to see how different munitions fit on different airplanes and effect those airplanes' characteristics is where AEDC will fit into that scenario.

Information fusion. Another area Nielsen said is key in supporting our warfighters is to significantly improve the fusion between space-based and airborne sensors.

During a war or conflict such as Desert Storm, the technology is available to capture real-time activities from airborne sensors. Nielsen said the difficulty lies in determining how to combine the airborne information with the considerable information received from space systems, and then getting it to the decision makers and warfighters in a timely enough fashion to be meaningful.

"It's a real challenge," he added. "We found in several of our last skirmishes if you can't close that loop fast, then a SCUD is launched before you have a chance to strike it."

In support of the space effort, AEDC has done some testing on unmanned aerospace vehicles that are important sensor platforms in this war of information, but Nielsen said those aren't the total answer.

"It will take investment in information systems to close that loop," Nielsen said. "Right now we suffer from the fact that space systems grew up separately from the air systems and the air systems grew up separately from the ground systems. We have to work cooperatively to develop systems that take information from all these areas and learn how to combine and use the information."

Close cooperation. Working together and creating alliances is one of Nielsen's priorities, a plan he hopes will continue as he recently became commander of the Air Force Research Laboratory (AFRL), located at Wright-Patterson AFB, Ohio.

"I've really learned about the close cooperation we must have within our Air Force," he said. "As we move toward more advanced aerospace systems, I can see that AEDC and AFRL will continue to work closer than they have in the past."

And AEDC is uniquely capable of handling those requests. Center space environmental simulation facilities can test sensor systems at any development level, from Focal Plane Array characterization to full-scale sensor testing. And the new Decade radiation test facility is designed to test 21st century space and missile systems and their components against nuclear weapons effects.

"Arnold is not just an Air Force resource, it's a national resource as well," Nielsen said. "This visit showed me the uniqueness of some of the center's systems and test cells. There's really a bright future in store for Arnold." **@**