
Coalition Aerial Surveillance and Reconnaissance Project

By

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Seven NATO nations are in the process of defining a project to work together to develop and improve their ability to detect and track vehicles on or near the ground with radar sensors. Canada, France, Germany, Italy, Norway, the United Kingdom, and the United States have initiated the coalition aerial surveillance and reconnaissance (CAESAR) project in an effort to bring together and enhance existing and developing capabilities for ground surveillance. Initial planning sessions for the project began in January 2001.

The goals of the CAESAR project are to develop the concept of operations, tactics, techniques and procedures (TTPs) and the technology that will allow efficient and effective use of ground surveillance sensor platforms in a coalition environment. The project aims to develop a capability to maximize the military utility of scarce and expensive ground surveillance resources through the development of operational and technical means that enhance interoperability.

The project will demonstrate the capabilities for synergy using multiple sensors from the CAESAR nations, using a combination of simulation and live fly exercises. The first exercise that will be supported by the project is North Atlantic Treaty Organization's (NATO's) Clean Hunter 2001, which took place in June 2001. Development efforts are focused inside government and industry facilities in the participating countries with all nations coming together for exercises and experiments.

Fielded systems such as the U.S. Joint Surveillance Target Attack Radar System (Joint STARS) and the French Helicopter (HORIZON) produce this data, called moving target indicator (MTI) reports and synthetic aperture radar images in near real time. In addition to Joint STARS and HORIZON, the CAESAR project will develop interoperability with the Italian CRESO, the U.K. Airborne Stand Off Radar (ASTOR), the French ground-based radar Rapsodie, and the U.S. Global Hawk, U-2, and Predator in MTI modes. In addition, numerous ground based exploitation

capabilities will be part of the exercise and integration work. Systems such as the Norwegian mobile tactical operations centre, the French SAIM, a German Exploitation Workstation, and U.S. systems such as the common ground system, joint services work station, multiple hypothesis tracker, and the moving target indicator exploitation workstation will be part of the effort. Canada will demonstrate the utility of space based GMTI platforms to complement CAESAR coalition assets.

The CAESAR project came about as the result of ongoing efforts by the seven nations and the North Atlantic Treaty Organization Consultation, Command and Control Agency, under the sponsorship of the Supreme Headquarters Allied Powers Europe, to foster interoperability of national ground surveillance systems and to promote integration of the data from these systems into NATO command and control systems. Since 1995, nations have been working to develop greater interoperability between ground surveillance systems at the NATO alliance ground surveillance (AGS) capability test bed (NACT) at NC3A, in The Hague, Netherlands. These efforts led to the development of a data format that allows systems from the seven nations to share and exploit data about moving and stationary targets.

In 1997, France hosted systems from six nations at a military flight test facility south of Paris to perform the Paris Interoperability Experiment (PIE). During this experiment, one Joint STARS Aircraft with an associated ground station module and a common ground station and two French HORIZON helicopters with two HORIZON ground stations were used to gather data about traffic movement in a prescribed area.

The airborne sensor platforms flew predefined orbits designed to provide surveillance of specific portions of the French countryside. In addition to observing civilian traffic in the area, the French Army provided a number of instrumented military vehicles to support the experiment. The data from the air platforms was sent down to their respective ground stations where it was disseminated among exploitation workstations from France, Germany, Italy, Norway, the United Kingdom, the United States, and NATO. Using the ground stations as intermediaries, each nation's system could request and receive data from the airborne systems.

The highly successful PIE effort proved that the interoperability capability demonstrated in the NACT could be transferred to fielded national systems. A number of subsequent exercises, in cooperation with NC3A, have continued to increase the ground surveillance interoperability available to NATO and Coalition efforts. The use of both HORIZON and Joint STARS to provide surveillance of ground and helicopter traffic in Kosovo for Operation Allied Force in 2000 highlighted the need to increase the interoperability and integration of these assets.

The Joint Surveillance Target Attack Radar System Program Office, ESC/JSDQ Hanscom AFB is the U.S. technical manager for the CAESAR project.

About the Author

Major Davis S. Long is currently assigned as the chief of the Joint STARS Advanced Development Team at Hanscom Air Force Base, Massachusetts. His team is responsible for JSTARS requirements, advanced development, international projects, modeling and simulation, and test support. One of his primary tasks is leading the U.S. effort for coalition aerial surveillance and reconnaissance (CAESAR), the 7-nation coalition for interoperability on the GMTI battlefield. He is also the USAF action officer working group member for the Multi-Service 0-6 GMTI steering group that was established to provide coherent battle space situational awareness to the joint GMTI battlefield.

Previous assignments include Tinker AFB, Oklahoma, where he was a maintenance officer for the KC-135 depot maintenance branch. At Edwards AFB he was a flight test program manager and squadron maintenance officer, and at Wright-Patterson AFB, Ohio, Major Long served as an electronic warfare integration program manager for the F-16 program office.

Major Long was commissioned through the Air Force Reserve Officer Training Corps at North Dakota State University, Fargo North Dakota where he earned a degree in industrial engineering and management. He received a master of science degree in engineering from California State University, California.