



The Spirit of '76 Pod Newsletter

October 1995 Issue 6

A Westinghouse Norden Systems publication

Letter from the Editor

The Spirit of '76 Pod Newsletter is back! The demands of this event-driven, fast moving program have caused a six-month lapse between issues.

In close cooperation with the USAF and USN, Westinghouse Norden Systems has flown the AN/APG-76 on over 100 flights in the past year. The two pod-mounted versions of the AN/APG-76 have participated in five military exercises. This newsletter, issue #6, provides an update on three of the military exercises -- Roving Sands, JTF-95-3 and the F-16 Captive Flight Profile (CFP).

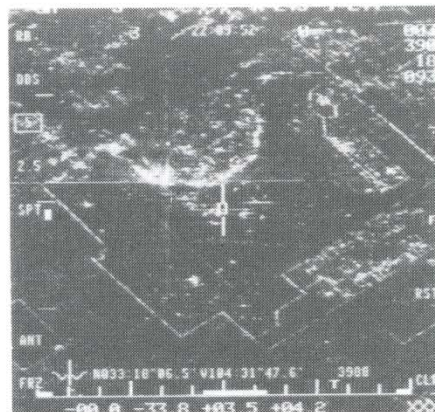
Newsletter #7 will report on the Eglin AFB F-16 flight test and ASCIET exercises. These exercises and tests have demonstrated the value of real-time SAR, UHR SAR and MTI for search, detection and recognition, including a demonstration of GPS-aided stand-off targeting designation which resulted in a successful strike by an F-18 in the recent ASCIET exercises in Gulfport, Mississippi.

Distribution of the 1-foot imagery generated by these exercises is controlled; however, we are able to support US Government requests for limited distribution of this imagery. Please call marketing communications at 1-800-426-9374 with your request.

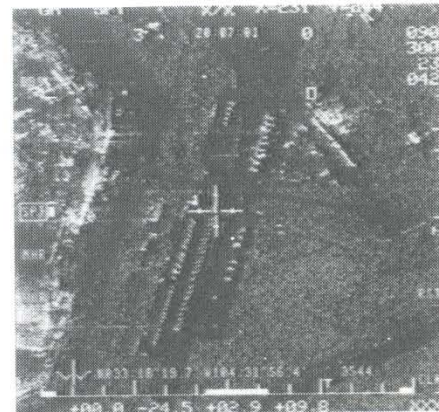
Gray Wolf Exercises

High Resolution SAR at Roving Sands/JPOC

Gray Wolf demonstrated the value of real-time, 1-foot SAR and GMTI capability in a tactical asset during the Roving Sands/Joint Project Optic Cobra exercise. This large scale joint exercise was conducted over large areas of Texas and New Mexico in late April and early May. Using the AN/APG-76 radar pod, Gray Wolf supported both the US Marines and US Air Force, providing radar imagery at ranges in excess of 100 nautical miles (aircraft-to-target) over data link distances up to 120 nautical miles (aircraft-to-ground station). A Westinghouse Norden Systems ground station, equipped with the real-time video data link, was first located at the Marine JFACC and subsequently the Air Force Combat Integration Capability/Control Reporting Center (CIC/CRC) and supplied the down-linked imagery and GPS quality target coordinates to the military users via a live video feed and the military ethernet. This exercise marked the first use of Westinghouse Norden Systems' real time, on-board processed, 1-foot SAR in a podded configuration.

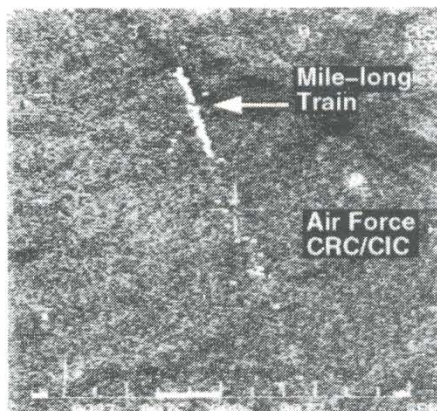


Roswell at 93 nmi



Roswell Airfield, 10 ft. at 39 nmi

**High Resolution
SAR at Roving
Sands/JPOC
(continued)**



MTI Image of Train and CIC

turnaround. The GMTI mode provided data regarding suspected launch sites, helicopter setdowns, vehicle movements and other militarily significant information. The same surveillance capability continued during the second half when the Gray Wolf was tasked with directly supporting the Air Force CIC during the Theater Missile Defense portion of the exercise. The radar provided SAR and GMTI imagery of suspected SAM and mobile ballistic missile sites at standoff ranges in excess of 100 nautical miles.

Gray Wolf's participation in Roving Sands / Joint Project Optic Cobra was sponsored by the Defense Airborne Reconnaissance Office (DARO) and the Joint Theater Missile Defense (JTMD) office.

During the exercise, the Gray Wolf S-3 aircraft and radar pod were based at Biggs Army Air Field. Operating under forward deployed conditions, Gray Wolf flew up to 2 sorties per day over the 11-day period. While attached to the Marine JFACC during the first half of the exercise, Gray Wolf provided real-time imagery of airfields and SAM sites. Ten-foot SAR imagery of Roswell Airfield was used to determine ramp counts while one-foot imagery was of sufficient quality to allow identification of parked aircraft by type. A 2MAW Marine Photo Interpreter specialist operating from the ground station was able to interpret the APG-76 radar imagery in real time, expediting the normal surveillance reporting



S-3 at Biggs Army Airfield

**Gray Wolf Visits
the West Coast**

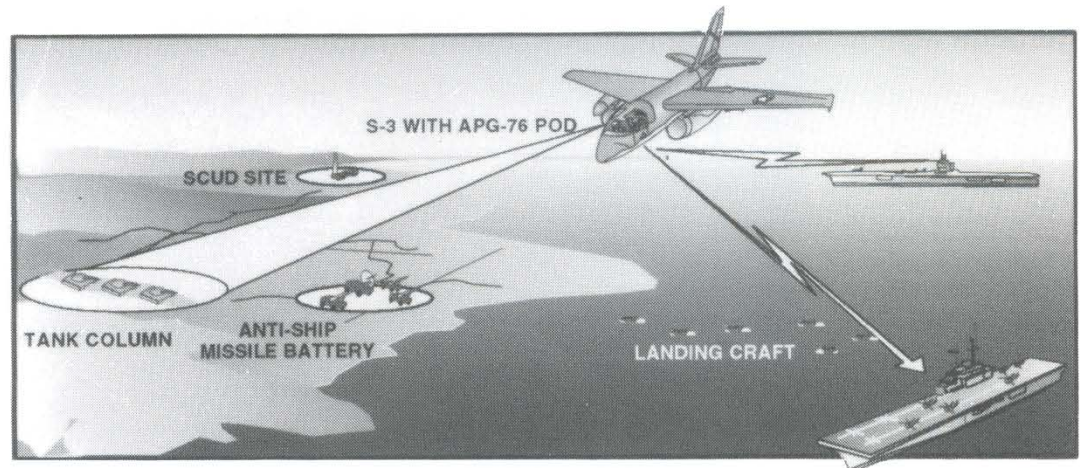
Immediately following the Roving Sands exercise, Gray Wolf and the Westinghouse Norden Systems ground station moved to NAS, North Island, San Diego. There, on May 11 and 12, Gray Wolf demonstrated the AN/APG-76 real-time SAR and GMTI capabilities to Commander, Third Fleet, Commander Naval Air Forces, Pacific, and to Commander Sea Control Wing, Pacific, who sponsored the visit. Additional visitors included prospective S-3 COs / XO's and representatives from the Naval Strike Warfare Center at Fallon, Nevada..

**Gray Wolf
Participates in
JTF-95-3**

The Gray Wolf S-3, with the AN/APG-76 SAR/GMTI radar pod, participated in the high visibility JTF-95-3 exercise from July 17 - 21. JTF-95-3 was a large scale naval operation exercising many aspects of a littoral air-sea-land battle problem. Gray Wolf participation was especially noteworthy because the Gray Wolf data link ground station was installed on a Navy ship (USS Wasp, LHD-1) for the first time. This allowed real-time radar images and GPS target coordinates to be fed directly into the Joint Intelligence Center and the Landing Force Operations Center aboard the ship. Gray Wolf flew 6 sorties over the 5 day period, demonstrating its unique capabilities as an organic fleet asset.

Gray Wolf supported two separate phases of the assault. During the first three missions, Gray Wolf surveyed suspected mobile, surface-to-surface, theater ballistic missile sites and antiship cruise missile sites, primarily using the SAR capabilities of the radar. The final three missions directly supported the amphibious assault. Gray Wolf provided SAR and GMTI coverage of the landing area prior to and during the landings (at night), as well as post-landing support as the landing force pushed in from the beach. Significant features included detection of enemy vehicles repositioning prior to the assault, as well as monitoring of the landing progress during the assault phase.

Support for Gray Wolf's participation was provided by USAComm and Commander, Sea Control Wing, Atlantic.



JTF-95-3 Concept

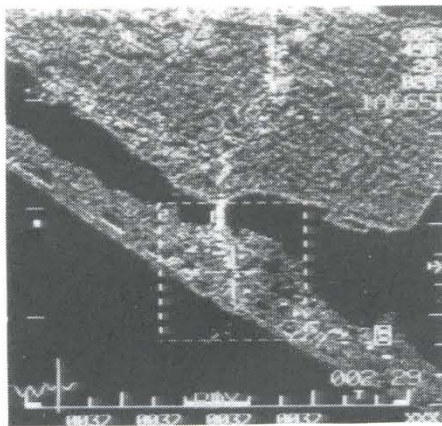
**Air Force
AN/APG-76 Pod
Completes
Checkout Flights**

The pod's advanced architecture, which minimized aircraft wiring mods, allowed completion of initial pod/aircraft integration in two days, and EMC/EMI tests in one day. Its maiden Captive Flight Profile (CFP) flight aboard an F-16C on 24 May under worst-case conditions showed no anomalies and "handled like a 370 gallon fuel tank."

Installation and initial checkout flights of the AN/APG-76 pod aboard an F-16D block 30 aircraft were completed on 12 July at Eglin AFB, FL

This effort preceded a formal demo sponsored by Air Combat Command to "demonstrate sensor technologies that could assist in detecting, tracking, and identifying mobile missile launchers..."

**Air Force
AN/APG-76 Pod
Completes
Checkout Flights
(continued)**



**Simultaneous SAR/GMTI Radar
Image**

Four integration/training test flights were flown in early July demonstrating long-range SAR in excess of 70 miles, simultaneous SAR/GMTI, and real-time on-board 1 foot SAR. The system worked well on the very first flight with no hardware or software modifications required. This effort was supported by the USAF Air Warfare Center at Eglin AFB, FL through the 79th Test & Evaluation Group for project management and flight testing, and by the 475th Weapons Evaluation Group at Tyndall AFB, FL through the 84th Test Squadron for aircraft modifications and integration.



F-16D In-Flight with APG-76 Pod

**Westinghouse
Norden Systems
Won JAST 95-1**

Westinghouse was awarded a contract by the JAST program office in February 1995 to evaluate a concept for using SAR, GMTI, 1-foot SAR and ATR for conducting all-weather strike of moving and time-critical targets. Under the program, Westinghouse and Westinghouse Norden Systems will formulate and evaluate the concept in a Phase I program (from February to November 1995) and conduct a series of flight test demonstrations in the Phase II program. Phase II demonstrations will use the AN/APG-76 radar integrated with GPS/INS and flight tested on a BAC1-11 aircraft to demonstrate precision location of moving and time-critical targets.