## VXS-1 SNAPSHOT

The Warlocks have a proud history dating back to 1963. Originally designated as the U.S. Naval Research Laboratory's (NRL) Flight Support Detachment, for 43 years, they served as the airborne arm for science and technology (S&T) research, conducting worldwide operations in support of the Navy, Department of Defense, and other government agencies that contribute to naval research. The Chief of Naval Operations established the squadron in 2004 as Scientific Development Squadron (VXS) 1.

Today, the Warlocks endeavor to carry on the proud tradition of premier airborne S&T support left by our forbearers. Comprised of 11 officers, 60 enlisted sailors, and four civilians, the mission of the squadron is to operate and maintain uniquely configured NP-3, RC-12, and UV-18 aircraft in direct support of the Office of Naval Research (ONR) and NRL airborne research projects. It is a mission the squadron has safely executed for more than 58 years and 77,000 Class A mishap-free flight hours.

The Warlocks' recent projects incude support to ONR, NRL's Tactical Electronic Warfare, Optical Sciences, Space Systems, Radar, and Ocean Sciences divisions, Naval Air System's Command (NAVAIR) Advanced Concepts Division, MIT's Lincoln Laboratory, and the Naval Test Pilot School. The squadron has completed S&T research detachments around the globe including operations in USCENTCOM, USEUCOM and USINDOPACOM and operated locally as well as various CONUS locations. VXS-1 remains steadfast in its commitment to support the vast spectrum of airborne research missions required by the Naval Research Enterprise.

## MISSION

Scientific Development Squadron (VXS) 1 conducts airborne scientific experimentation and advanced technology development through worldwide operations supporting U.S. Navy and national science and technology priorities and warfighting goals. Supporting broad-based, multidisciplinary programs across the full spectrum of scientific research and applied technologies, our focus is toward the maritime application of new and improved airborne data collection techniques, experimental equipment, and system demonstration. While directly supporting scientific programs across the globe, we ensure our work environment provides for the learning, personal growth, and respect of all our men, women, and their families.

**http://www.nrl.navy.mil/vxs1**
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# Scientific Development Squadron (VXS) 1

*"Turning Ideas Into Reality"*

Naval Air Station
Patuxent River, MD


U.S. NAVAL RESEARCH LABORATORY

## NP-3C SPECIFICATIONS

The NP-3C is an all-weather, medium-altitude, long-endurance aircraft configured to rapidly integrate science and technology projects. The NP-3C has a max endurance of 12 hours (weight and fuel dependent), max altitude of 30,000 feet, and a speed range of 160 to 300 knots indicated airspeed.

The aircraft can carry sensors in nose and tail radomes and a configurable bomb bay equipment platform that can be outfitted with a 72" diameter radome and a payload of 3,000 lbs.

Additionally, the aircraft has an external antenna mounting capability, the ability to mount sensors in forward and aft underbelly sensor wells, and is capable of deploying sonobuoys and dropsondes from an unpressurized chute. The open architecture of the aircraft interior with mounting rails and multiple power and data ports enable the aircraft to be uniquely configured according to individual project requirements. The aircraft has a dedicated project power distribution system that includes 3 Phase 400 Hertz (Hz) 115 Volts of Alternating Current (VAC), 1 Phase 400Hz 115VAC, 1 Phase 60Hz 115VAC, and 28 Volts of Direct Current (VDC).


## RC-12M SPECIFICATIONS

The RC-12M is a medium-altitude, medium-endurance aircraft modified to rapidly integrate science and technology projects that do not require the space or endurance of the NP-3C. The RC-12M has a max endurance of six hours (weight and flight profile dependent), max altitude of 35,000 feet, and a speed range of 120 to 245 knots indicated airspeed.

The aircraft has the ability to mount sensors in a belly radome that can be fitted with or without an optical window. Additionally, the aircraft has an external antenna mounting capability as well as GPS and Iridium antennas. Components are designed as "Roll-on, Roll-off." The interior of the aircraft is configurable for equipment and electronic racks and workstations, and has multiple power structure options that include 3 Phase 400Hz 115VAC, 1 Phase 60Hz 115VAC, and 28VDC.


## UV-18A SPECIFICATIONS

The UV-18A Twin Otter is a short-takeoff-and-landing unpressurized aircraft designed to be rapidly configured to support embarked projects. The UV-18A has a max endurance of five hours (weight dependent), max altitude of 25,000 feet, and a speed range of 100 to 166 knots indicated airspeed.

The aircraft features two bubble windows (one port, one starboard), a research grade GPS antenna, a VHF/UHF/maritime band radio, an XM Satellite receiver option, two zenith ports, a project antenna mounting plate, two nadir ports in the nose to accommodate multiple downward-looking sensors or an EO/IR turret, and a large fuselage cut-out (27.5" x 36") designed to mount sensor packages (radar, optical, turrets, etc.).

Additionally, the aircraft can be configured with a freefall sonobuoy deployment chute and removable wing pylon stations capable of carrying atmospheric or other sensors (max 245 lbs.). The interior can be configured as required to support equipment racks rated for 250 lbs. each, flexible operator locations, and has multiple project power outlets that include four 80 amp 28 VDC buses and four 15 amp 115 VAC 60 Hz buses.