

NOAA BACKGROUNDER



DeHavilland Twin Otters NOAA's Versatile Workhorses



A WORD ABOUT NOAA...

The National Oceanic and Atmospheric Administration (NOAA) conducts research and gathers data about the global oceans, atmosphere, space and sun, and applies this knowledge to science and service that touch the lives of all Americans.

NOAA warns of dangerous weather, charts our seas and skies, guides our use and protection of ocean and coastal resources, and conducts research to improve our understanding and stewardship of the environment which sustains us all.

A Commerce Department agency, NOAA provides these services through five major organizations: the National Weather Service, the National Ocean Service, the National Marine Fisheries Service, the National Environmental Satellite, Data and Information Service, Office of Oceanic and Atmospheric Research; and numerous special program units. In addition, NOAA research and operational activities are supported by the Nation's seventh uniformed service, the NOAA Corps, a commissioned officer corps of men and women who operate NOAA ships and aircraft, and serve in scientific and administrative posts.

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Twin Otters are perhaps the most versatile airplanes flown by NOAA. Able to carry a wide variety of scientific payloads, they can be configured to perform numerous missions. Twin Otters were originally designed to operate in the harsh environment of Northern Canada and Alaska, and have established a legendary reputation for ruggedness and reliability. Their short takeoff and landing capability is truly remarkable and gives them the ability to operate from places accessible to few other aircraft. Throughout their years of service, the two Twin Otters operated by NOAA have participated in a diverse range of scientific projects. Their solid stability, excellent visibility and ample payloads make them ideally suited to serve NOAA's needs for data gathering. These aircraft stay busy year round and are among NOAA's highest demand platforms. Some examples of projects that they are used for follow:

Northeast Right Whale Early Warning System:

The Northern Right Whale is one of the most endangered species on earth. There are presently about 350 of these great whales remaining in the Atlantic Ocean. To help protect these precious few animals, the Northeast Right Whale Early Warning System was established in 1997 to help minimize the risk of collisions between ships and whales. Ship strikes have been the major source of human-caused mortality for Northern Right Whales in recent years. The warning system seeks to reduce the number of ship strikes by providing real time whale locations to vessel operators. To gather this data, the NOAA Twin Otters conduct low-altitude surveys year round along the Atlantic Coast from Florida to Maine. Scientists on board the aircraft plot the whales' positions and establish a 3-5 km buffer zone around the whales. This information is then broadcast to mariners by the U.S. Coast Guard and by NOAA Weather Radio.

Marine Mammal Abundance Surveys:

The National Marine Fisheries Service (NMFS), part of NOAA, is responsible for overseeing compliance with the Marine Mammal Protection Act. One of the fundamental elements of protecting any animal species is the ability to track population trends. NMFS uses the Twin Otters to perform population assessments along the U.S. coastlines as far north as Barrow, Alaska and as far south as the Florida Keys. Using the aircraft's expansive bubble windows and belly viewing port, NMFS scientists are able to scan large areas of ocean and count numerous species. The data gained from these flights are combined with detailed information from scientists aboard NOAA ships to provide accurate abundance estimates of marine mammals.

Ozone Research:

The Twin Otters can also be configured to perform various NOAA air chemistry research missions, including ozone research. Each aircraft has numerous sensor ports that can accommodate a variety of meteorological and atmospheric measuring instruments. Information gained from these atmospheric research missions provides a better understanding of the processes that affect air quality. Ultimately, this results in policy decisions that maximize improvements to air quality while minimizing the overall cost.



Coastal Erosion Assessments:

Understanding the geologic processes that shape our nation's shoreline is essential for effectively managing our coasts. The Twin Otters, using an Aerial Terrain Mapping system developed by NASA, are able to chart any type of coastline to a high degree of accuracy. The ATM, which uses lasers and differential GPS (global positioning system) positioning, is so accurate that it can detect and geo-reference something the size of a softball from 2,000 feet above. Once a baseline survey is accomplished, the Twin Otters can visit the same stretch of beach periodically to track geologic changes. This joint NASA–NOAA project will provide previously unavailable data to help scientists understand both natural and man-made impacts on coastal erosion.

Hurricane Damage Assessments:

After a hurricane or severe storm impacts the U.S. coastline, the NOAA Twin Otters are often called by the USGS to photographically record the damage. Flying low and slow with the cargo doors removed, the aircraft are able to provide the perfect platform for documenting the effects of major storms on both natural and man-made features.

NOAA's Aircraft Operations Center

The Twin Otters are maintained and operated by NOAA's Aircraft Operations Center located at MacDill Air Force Base in Tampa, Fla. The AOC, part of the Office of NOAA Corps Operations, is charged with the management of NOAA aircraft, personnel, budget, and facilities in support of the assigned fixed-wing and rotor-winged aircraft. Commissioned officers from the NOAA Corps, the nation's smallest uniformed service, manage AOC and fly and navigate NOAA hurricane and research aircraft.



For further information, please contact Lori Bast, NOAA Aircraft Operations Center Public Affairs, at (813) 828-3310, ext. 3072, or visit our web site at www.aoc.noaa.gov.

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