US Coast Guard

Coast Guard Cutter Sebago was photographed on Station A in January 1949.

Alpha, Bravo, Charlie…

Ocean Weather Ships 1940–1980

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The ocean weather station idea originated in the early days of radio communications and trans-oceanic aviation. As early as 1921, the Director of the French Meteorological Service proposed establishing a stationary weather observing ship in the North Atlantic to benefit merchant shipping and the anticipated inauguration of trans-Atlantic air service. Up to then, temporary stations had been set up for special purposes such as the US Navy NC-4 trans-Atlantic flight in 1919 and the ill-fated Amelia Earhart Pacific flight in 1937.

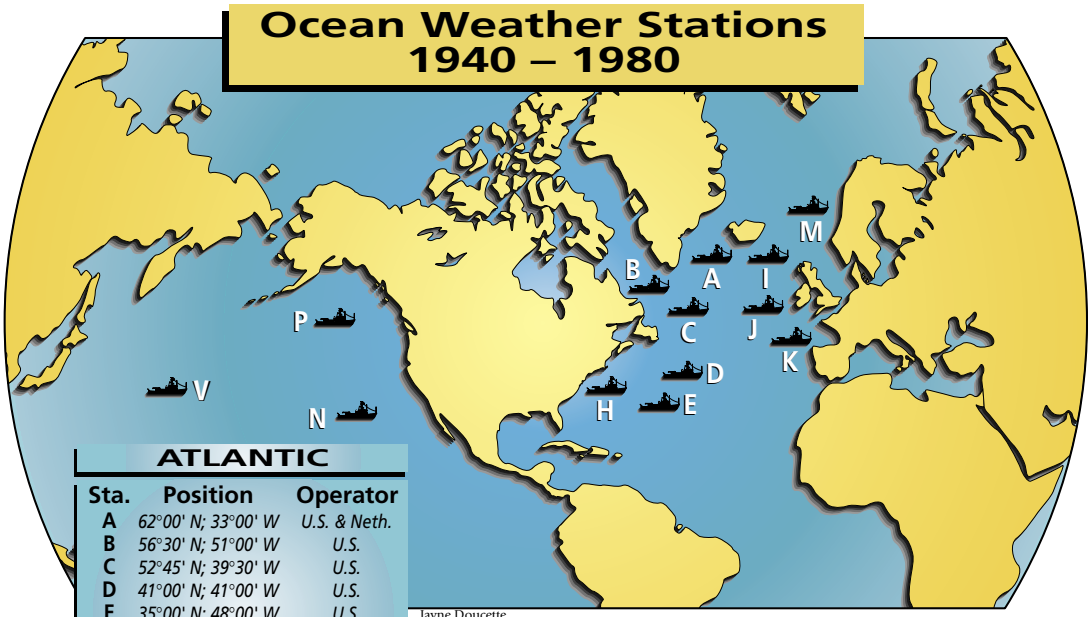
The loss of a PanAmerican aircraft in 1938 due to weather on a trans-Pacific flight prompted the Coast Guard and the Weather Bureau to begin tests of upper air observations using instrumented balloons. Their success resulted in a recommendation by Commander E. H. Smith of the International Ice Patrol (and future Director of the Woods Hole Oceanographic Institution) for a network of ships in the Atlantic Ocean.

World War II brought about a dramatic increase in trans-Atlantic air navigation, and in January 1940 President Roosevelt established the "Atlantic Weather Observation Service" using Coast Guard cutters and US Weather Bureau observers. Most flights at this time were using southern routes. On February 10, 1940, the 327-foot cutters Bibb and Duane occupied Ocean Stations 1 and 2—the forerunners of Stations D and E (see chart on next page).

With the US entering the war, Coast Guard cutters were diverted to anti-submarine duties, and the weather stations were taken over by a motley assortment of vessels ranging from converted yachts to derelict freighters, mostly Coast Guard operated. As trans-Atlantic air traffic increased, so did the number of weather and plane guard stations. The role of weather during the Battle of Coral Sea and trans-Pacific flights resulted in stations being set up in that ocean also. At the service's peak, there were 22 Atlantic and 24 Pacific stations.

At war's end, the Navy intended to discontinue weather ship operations, but pressure from several sources resulted instead in establishment of a permanent peacetime system of 13 stations. These are shown on the next page, with the positions and operating nations listed in the accompanying table. Costs of the program were shared by nations operating transoceanic aircraft.

A typical weather patrol was 21 days on-station. A "station" was a 210-mile grid of 10-mile squares, each with alphabetic designations. The center square, which the ship usually occupied, was "OS" (for "on-station"). A radio beacon transmitted the ship's location. Overflying aircraft would check in with the ship and receive position, course and speed by radar tracking, and weather data. Surface weather



Jayne Doucette

ATLANTIC

Sta.	Position	Operator
A	62°00' N; 33°00' W	U.S. & Neth.
B	56°30' N; 51°00' W	U.S.
C	52°45' N; 39°30' W	U.S.
D	41°00' N; 41°00' W	U.S.
E	35°00' N; 48°00' W	U.S.
H	36°00' N; 70°00' W	U.S.
I	61°00' N; 15°00' W	U.K.
J	52°30' N; 20°00' W	U.K.
K	45°00' N; 16°00' W	France
M	66°00' N; 02°00' E	Norway

PACIFIC

Sta.	Position	Operator
N	30° N; 140° W	U.S.
P	50° N; 145° W	Canada
V	34° N; 164° E	U.S.

Map shows the 13 permanent weather stations established in 1946 by the United Nations Civil Aviation Organization. Program costs were shared by nations operating transoceanic aircraft. Letters missing from the alphabetical sequence were those used for stations occupied during World War II but not included in the post-war weather station program.

observations were transmitted every three hours, and "upper airs"—from instrumented balloon data—every six hours. Using radiosonde transmitters and radar tracking, balloon observers obtained air temperature, humidity, pressure, and wind direction and speed to elevations of 50,000 feet.

Oceanographic observations were recommended for weather ships almost from the start. Beginning in 1945 and continuing to the end, US ships made bathythermograph (B/T) observations that today constitute the largest B/T archive in existence. Many specific, short-term programs were carried out with oceanographers frequently riding the ships. In addition to serving as weather reporters and navigation aids, weather ships occasionally rescued downed aircraft and foundering ships. Dramatic weather station rescues include the Bermuda Sky Queen in 1947 (Station C), Pan-American 943 (Station N) in 1956, and SS Ambassador (Station E) in 1964.

By 1970, new jet aircraft were coming to rely less on fixed ocean stations, and satellites were beginning to provide weather data. In 1974, the Coast Guard announced plans to terminate the US stations, and, in 1977, the last weather ship was replaced by a newly developed buoy. The international program ended when the last ship departed Station M in 1981.

Capt. Dinsmore commanded the weather ship USCGC Cook Inlet. During his 28-year Coast Guard career, he served on four North Atlantic weather ships and was weather ship program manager before joining the WHOI Staff in 1971. This article is exerpted from a text about twice this length. Interested readers may request the longer account from the Oceanus office by calling 508-289-3516 (email: oceanusmag@whoi.edu).

US Coast Guard

Weather balloons were released from weather ships every six hours to gather data from elevations as high as 50,000 feet.