Satellite tracks NOAA buoys in Gulf of Alaska

A series of unique buoys, riding the ocean currents in the Gulf of Alaska and signaling data to a satellite overhead, are helping scientists with the National Oceanic and Atmospheric Administration develop a picture of circulation in the Gulf, in their effort to predict the flow of pollutants from off-shore oil development.

This effort is part of a large, multidisciplinary environmental investigation being conducted by NOAA for the Bureau of Land Management.

Three buoys were deployed near Yakutat Bay last month by the NOAA Ship Surveyor. Commerce Department scientists from NOAA's Atlantic Oceanographic and Meteorological Laboratories in Miami plan to launch nine more, in groups of three, at roughly three-month intervals during the coming year.

As they drift, the buoys broadcast information on position, water temperature and surface winds.

Their signals are picked up by Nimbus 6, an experimental, polar-orbiting meteorological satellite, as it makes its daily pass overhead, and then fed to NASA's Goddard Space Flight Center in Maryland where each buoy's position is computed. NOAA scientists then incorporate these daily positions and the environmental data into a growing picture of the patterns of currents in the Gulf.

The current study is part of a major project to assess the environmental effects of oil leasing on the Alaskan continental shelf. NOAA's Outer Continental Shelf Environmental Assessment Program, part of the Environmental Research Laboratories, manages the project.

Remotely tracking buoys by satellite vastly increases the scope possible for studies of this sort. Buoys have long been used to trace ocean currents, but in the past had to be tracked visually, by radar or followed by ships.

Satellite remote tracking systems can keep "watch" of buoys over huge areas of water.

Dr. Donald Hansen, director of NOAA's Physical Oceanography Laboratory in Miami, said the buoys themselves—designed and built at Nova University in Danis, Fla.—are simple and inexpensive.

Each consists of a plastic tube six inches in diameter and 14 feet long girded by an inverted conical float about 2 1/2 feet in diameter.

The tube sits upright in the water, with an apparatus resembling a sea anchor attached to its underwater end to keep it from being blown around by the wind, Hansen explained. An antenna atop the buoy broadcasts its bits of information.

Each buoy is expected to last several months before the battery that powers it is exhausted. They were designed to be expendable, and Hansen expects they will ultimately lose their sea anchors and drift ashore, probably somewhere in the Aleution Islands.

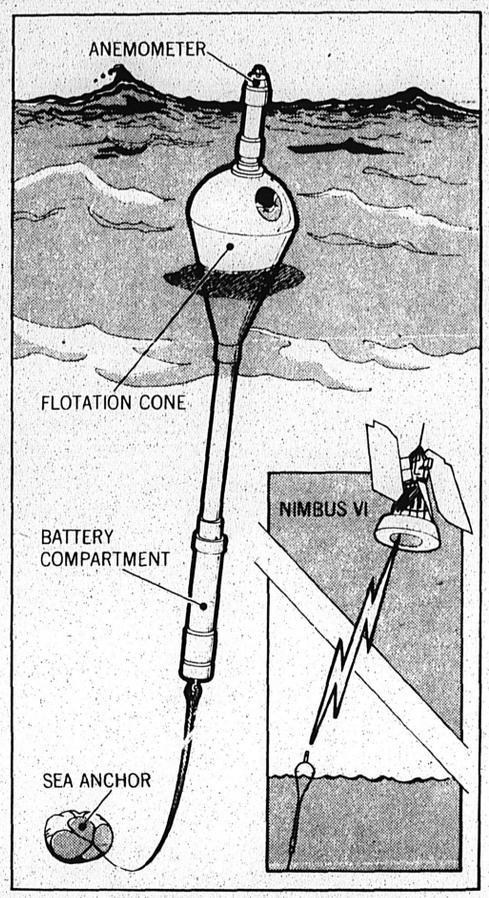
The buoys transmit randomly in time for about one second out of each minute, thus reducing the possibility of two buoys broadcasting at the same time and jamming each other's signals.

This type of system is simpler and less costly than one in which the satellite interrogates each buoy as it passes overhead, according to Hansen.

Its disadvantage is that the number of buoys that can be placed in a given part of the ocean is limited since the odds that two buoys will be transmitting simultaneously increases as their number increases.

The Gulf of Alaska project is only one of the applications planned for the NOAA buoys. Researchers at the Atlantic Oceanographic and Meteorological Laboratories plan to use them next spring in studies of ocean currents in the Caribbean and the Sargasso Sea.

Scientists with the National Oceanic and Atmospheric Administration have deployed a series of unique buoys in the Gulf of Alaska to track ocean currents. They drift with the currents, signaling positions and environmental data to NIMBUS VI satellite. The study is part of a major project aimed at assessing the probable environmental impact of oil leasing in the gulf.



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