



Introducing Research in the



College of Oceanic & Atmospheric Sciences

Tracking Currents Along the Oregon Coast

Ocean currents are important for several reasons. Shallow currents transport heat, salt, plankton, sediments and material introduced by man (e.g., pollutants). Knowledge of upper-ocean currents is important for navigation and for search and rescue. The ocean currents off Oregon vary seasonally and can also vary from year to year because of, for example, El Nino and La Nina. For several years, Professor **Jack Barth** has been releasing surface drifters at regular intervals off Newport to track the ocean currents in Oregon coastal waters.



Satellite-tracked surface drifter with float and canvas drogue being deployed off the *R/V Wecoma*.

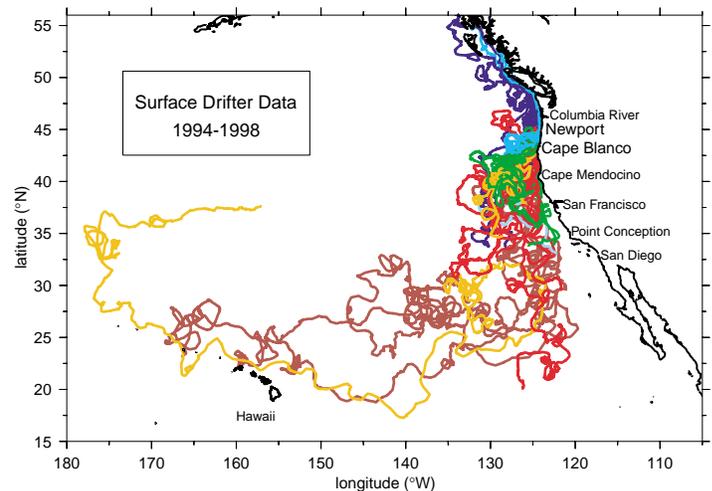
Drifters consist of a surface float carrying electronics and a large canvas drogue to insure that the drifter tracks the water rather than being blown by wind. The electronics transmit a signal to satellites from which the drifter's location is determined. The drifter also measures sea-surface temperature. Location and temperature are relayed over the Internet to scientists' computers in near real time. Drifters, which may transmit for two to four years, have been released from the *R/V Wecoma* off Newport and Cape Blanco, Oregon, since 1994. Regular deployments in April, July and September of each year began in 1998.

In winter, southwest winds drive the surface flow northward. Drifters released in January move as far north as the Canadian-Alaska border. In summer, the flow is to the south driven by north winds, which also cause coastal upwelling of cold, dense water to the surface. Drifters released in spring and early summer move southward in the California Current. Some of these drifters travel far to the south and join westward equatorial currents eventually reaching Hawaii and beyond. Drifters released in late summer and fall initially move southward, but as the winter season winds and currents reverse, they are brought back near the coast and often travel northward, sometimes back to the latitude at which they were deployed or beyond.

The satellite-tracked drifters tell us much about the connection of Oregon's coastal ocean with the eastern North Pacific. The great distances traversed by the drifters show how water parcels and the material they contain (e.g., plankton) disperse from Oregon's coastal ocean. The seasonally varying ocean circulation has profound implications for the biology off the Oregon coast. Data from this drifter project are being used in conjunction with other physical and biological measurements as part of the Global Ocean Ecosystem Dynamics (GLOBEC) program to further our understanding of the northeast Pacific Ocean ecosystem.

Funding for this drifter research comes from the NSF and the Coastal Ocean Program of NOAA.

For further information, contact Prof. Jack Barth at COAS (barth@oce.orst.edu).



Paths of surface drifters released off the Oregon coast in spring and early summer (red, yellow and brown), late summer and fall (green and light blue), and winter (dark blue).

