

CURRENTS IN THE ALEUTIAN BASIN AND SUBARCTIC
REGION NEAR THE DATELINE IN SUMMER 1993

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ABSTRACT

The flow structures in the Aleutian Basin and the subarctic region of the North Pacific near the Dateline in Summer 1993 are described, mainly based on Shipboard Acoustic Doppler Current Profiler and Lowered Acoustic Doppler Current Profiler velocity measurements, and Conductivity-Temperature-Depth profiles. The strongest flow in the study region was the Alaskan Stream, with a core as narrow as 20 km and speed up to 100 cm s^{-1} at about 100 m. The speed reduction near the sea surface may result from the salinity contrast between the Aleutian Basin and the subarctic North Pacific in the upper layer, from wind-driven upwelling and from vertical mixing. Part of the Alaskan Stream flowed through Amchitka Pass into the Aleutian Basin at depths down to the Pass depth, to provide about 70% of the transport of the Aleutian North Slope Current in the Aleutian Basin. Two anticyclonic eddies occupied most of the Aleutian Basin along the cruise track; both extended to the bottom. The southern one may have come from the Aleutian North Slope Current.