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Anticyclonic Eddy Observations in the Slope Water Aboard CGC Evergreen

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ABSTRACT

An anticyclonic eddy was surveyed twice, once in late September and again two months later in early December by the CGC *Evergreen*. The two surveys involved a total of 25 CTD stations, 184 XBT's and two subsurface drogued buoys for direct current measurements during the December cruise. The eddy was tracked with infrared satellite imagery from 2 September 1977 to 24 January 1978.

In the two-month period between the first and second cruises the horizontal extent of the eddy, defined by the juncture of the 15°C isotherm with the 200 m isobath, decreased from 185 to 148 km. The baroclinic currents extended to a depth of at least 3000 m in late September and to a depth of only 1600 m two months later in December. The available potential energy referenced to 1600 m decreased from 75×10^{15} to 32×10^{15} J in the same period. The maximum baroclinic currents decreased from 103 to 73 cm s^{-1} .

Direct current measurements in early December with subsurface drogued buoys showed currents as high as 85 cm s^{-1} at 50 m. The observed shear of 10^{-3} s^{-1} was the same as the calculated value. The observed direction differed from the calculated value by 35°. By comparison to other anticyclonic eddies observed in the Slope Water this eddy was larger. Because these observations were made further to the east than most of the others reported in the literature, this eddy may have been in an earlier stage of decay.

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