Abstract View

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Monitoring the Transport of the Antarctic Circumpolar Current at Drake Passage

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ABSTRACT

Data from an extensive moored instrument array and three hydrographic cruises are used to calculate a time series of the net transport through the upper 2500 m of the Drake Passage. The baroclinic geostrophic transport was monitored with heavily instrumented moorings at each side of the passage. Pressure gauge measurements at the northern and southern ends of the passage provided a reference speed at 500 m to adjust the relative transport. The net transport of the upper 2500 m for the 370-day record ending in January 1980 averaged 121 $\times 10^6$ m^3 s^{-1}. The total transport through the entire cross-sectional area of Drake Passage is probably between 118 and 146 $\times 10^6$ m^3 s^{-1}. Fluctuations in the relative transport are related to changes in latitude of the northernmost front in the passage, the Subantarctic Front. Variability of the net transport is coherent with the zonally averaged eastward wind stress.