



Observations of deep currents in the southern Drake Passage

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Current-meter moorings were deployed on a crossover point of the JASON satellite tracks northeast off Elephant Island in the southern Drake Passage in 2004 and 2006. Seasonal variation is clear in both years with relatively strong flows from January to May and weak flows from July to October indicating the effect of the sea surface ice. In the warm season, mean currents range from 10 to 30 cm/sec and from 5 to 20 cm/sec in 1000 and 2500 m depths, respectively, and abrupt changes in the flow direction for all depths occurred once a month in average. This suggests that the large vertical scale (exceeds 2000 m) of eddies is the unique feature of physical processes in the region. Spectral analysis indicates diurnal peaks at K1 and O1 frequencies are larger than semidiurnal peak at M2 frequency. Tidal currents of individual constituents range from 4 to 7 cm/sec.