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The Separation of the East Australian Current

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ABSTRACT

Oceanographic data from the last two decades show that the behavior of the East Australian Current system is qualitatively different on either side of a line extending south-southeast of Sugarloaf Point ($32^{\circ}30'S$); to the north and east of the line, dynamic height contours and satellite buoy tracks are either open, or they consist of large eddies elongated in the north-south direction. South and west of the line, flow consists of relatively small, near-circular eddies. Just south of Sugarloaf Point, northward currents on the continental shelf appear to be common, suggesting entrainment toward a separation flow near Sugarloaf Point which may be topographically controlled. The oceanographic data suggest that the separation point is more closely defined in summer, when the current is strong, than in winter.

Merchant ship, current atlas and continental shelf sediment data generally support this description of the East Australian Current. However, current atlas data collected between 1854 and 1938 suggest that the separation near Sugarloaf Point is stronger in winter than in summer; this may be a real change from present conditions or it may be due to the unknown errors in the data. The distribution of fine sediments over the continental shelf suggests that the current separation near Sugarloaf Point is quite sharp and has been present for a considerable time.

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