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Circulation east of the Grand Banks, 1973¹

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ABSTRACT

The North Atlantic Current was 40 miles further north than its average position. This places the current directly in contact with the Tail of the Bank, thus forcing the Labrador Current up on the Grand Banks proper. The Labrador Current, at the Tail of the Bank, was reduced by a factor of five or more to $.3 \times 10^6 \text{m}^3/\text{sec}$ in April and $10^6 \text{m}^3/\text{sec}$ in May. This condition appears to have persisted through July causing a broadening of the dynamic trough between the Labrador Current and the North Atlantic Current. The area where the Labrador Current reverses to join the North Atlantic Current was north of 44°N as opposed to a more normal $42-43^\circ\text{N}$. Anticyclonic eddies appeared on both the April and May surveys and are important in transporting warm water across the front of the North Atlantic Current into the dynamic trough region. Current measurements under the Labrador Current at a depth of approximately 900 m give mean speeds of 3.4 to 5.3 cm/sec parallel to the slope. Only the lunar semi-diurnal tide is present at this depth and the tidal current has a standard deviation of ± 2.2 to ± 3.0 cm/sec.

¹ Full text to follow as Addendum I.

