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[Volume 3, Issue 4 \(October 1973\)](#)

Journal of Physical Oceanography

Article: pp. 397–405 | [Abstract](#) | [PDF \(512K\)](#)

Circulation Patterns Near the Tail of the Grand Banks

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(Manuscript received February 26, 1973, in final form June 4, 1973)

DOI: 10.1175/1520-0485(1973)003<0397:CPNTTO>2.0.CO;2

ABSTRACT

Dynamic topographies for the region surrounding the tail of the Grand Banks have been examined for the years 1922–65, in an attempt to define the characteristics of the eddies and meanders typical of the circulation pattern. The size distribution of the cyclonic eddies appears to be bimodal and thus suggests the possibility of two different modes of eddy formation. The shear of the mean current system is cyclonic, and it is therefore not surprising that cyclonic eddies dominate over anticyclonic ones by 2.5:1. However, the anticyclonic eddies appear faster; this may in part be associated with the choice of reference level. Other than a seasonal decrease in eddy strength from April–June, no secular trends could be found. The eddies were characteristically found in certain areas only, suggesting that topography plays a role in their formation. The meanders were markedly smaller and slower than those of the Kuroshio front. No secular trends could be found in the meander patterns. A simple vorticity analysis indicates the meander pattern to be bathymetrically controlled.

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