

DELAGOA BIGHT EDDY

The Delagoa Bight is a widening of the continental shelf at 26°S. Various analyses imply the possibility of a quasi-permanent, topographically trapped cyclonic lee eddy in this bight. Previous hydrographic measurements combined with about 10 years thermal infra-red satellite imagery was used by Lutjeharms and Jorge da Silva (1988) to study this feature more comprehensively.

The cyclonic Delagoa Bight eddy covers most of the continental shelf and terrace on the landward side of the Mozambique Current/Agulhas Current (note: recently the existence of the Mozambique Current has been called into question - See Mozambique Channel Drifter Experiment. It extends through the entire water column, but is particularly obvious below 100m. Well-mixed Equatorial Surface and Sub-Tropical Water are found at the surface. The core of the eddy consists of a dome of cold Antarctic Intermediate Water, which has been upwelled from a depth of about 900m to a shallower depth of 400m on the shelf.

It is believed that this eddy is driven by the energetic Mozambique Current/Agulhas Current, and occasionally receives fresh inputs of water, particularly Sub-Tropical Water. A study of surface thermal images shows various shear-edge features, eddies and a warm counter-current. Gill and Schumann (1979) show that a constriction in the width of the shelf (which occurs south of the Delagoa Bight) can cause a coastal counter-current to develop. This counter-current often advects warm water northward, and forms a landward border of the Delagoa Bight eddy.

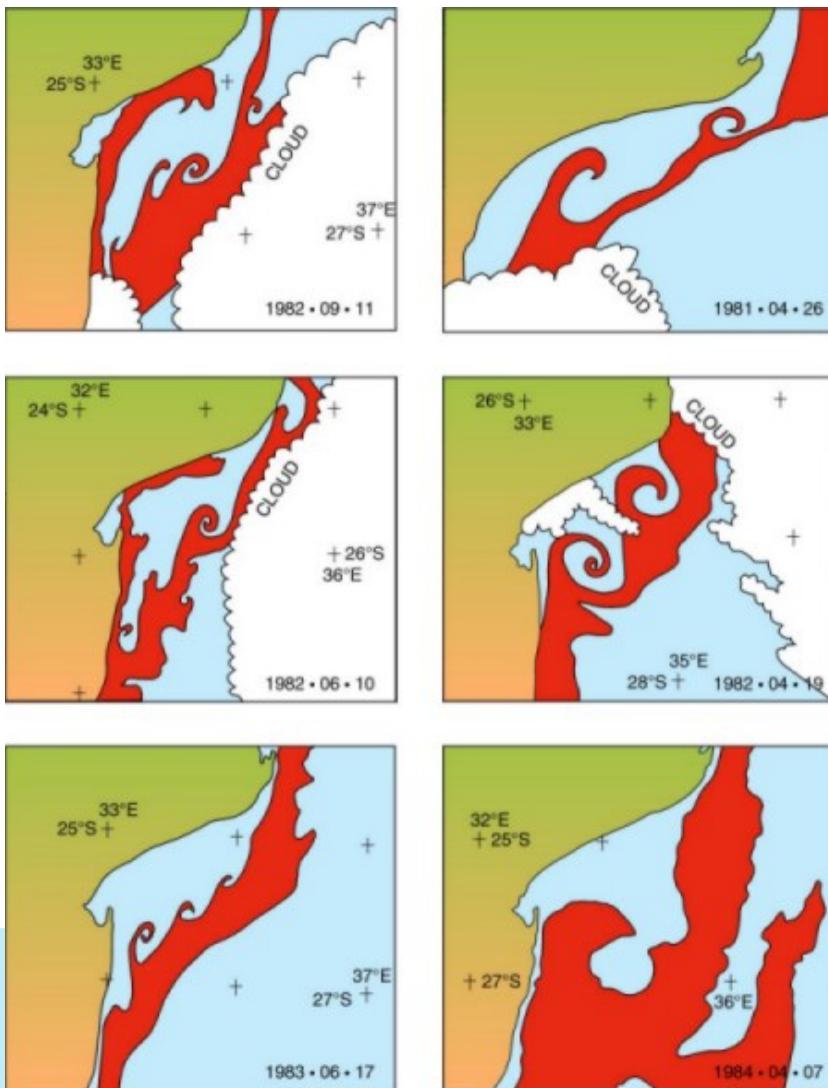


Figure 1 - Interpreted line drawings for a number of characteristic thermal configurations observed in Delagoa Bight by satellite remote sensing. (Diagram reproduced and altered from Lutjeharms and Jorge da Silva, 1988).

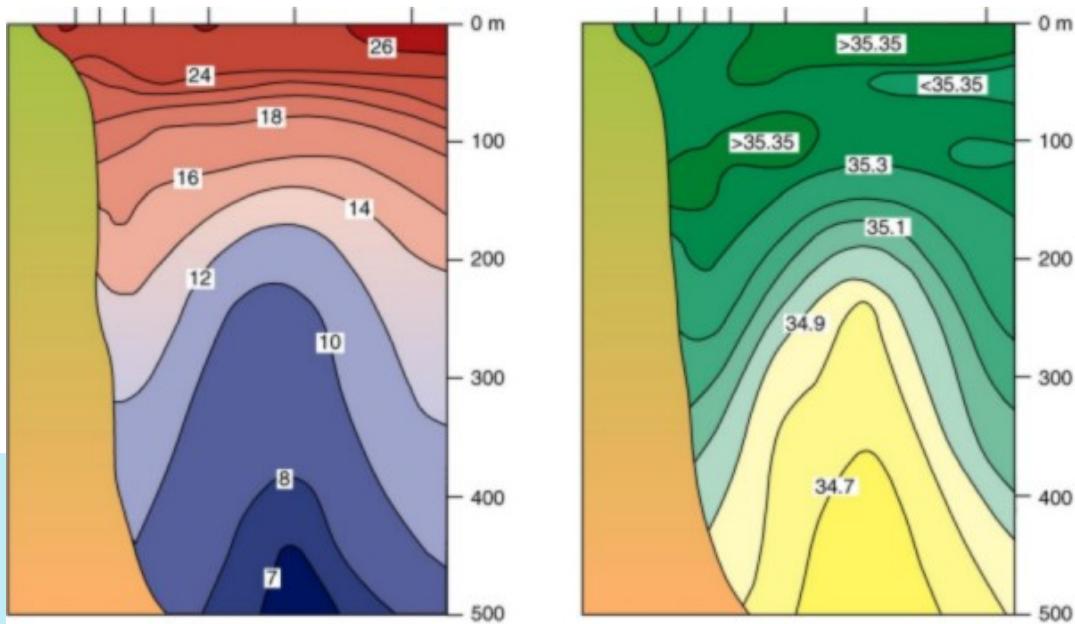


Figure 2 - Hydrographic section across the Delagoa Bight circulation during January 1982. Temperature distribution shown on the left, and salinity on the right. (Diagram reproduced and altered from Lutjeharms and Jorge da Silva, 1988).

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Lutjeharms J. R. E. and Jorge Da Silva, A. (1988). **The Delagoa Bight eddy**. Deep-Sea Research, 35 (4), 619-634.

Bibliography

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- Jorge Da Silva, A. (1983). Oceanographic research in Delagoa Bay area - a progress report. *Revista de Investigacao Pesqueira No. 8*, Instituto de Investigacao Pesqueira, Maputo, pp. 5-23.