RETROFLECTION

The subtropical wind gyre of the southern Indian Ocean sets up the Agulhas Current which transports about 70 to 80 x 106 m3 s-1of water. At the end of the African continent (south of Cape Agulhas) the Agulhas Current turns southwards and doubles back on itself in the vicinity of the Agulhas Plateau. This is known as retroflection (De Ruijter, W. P. M. and Boudra, D. B., 1985).

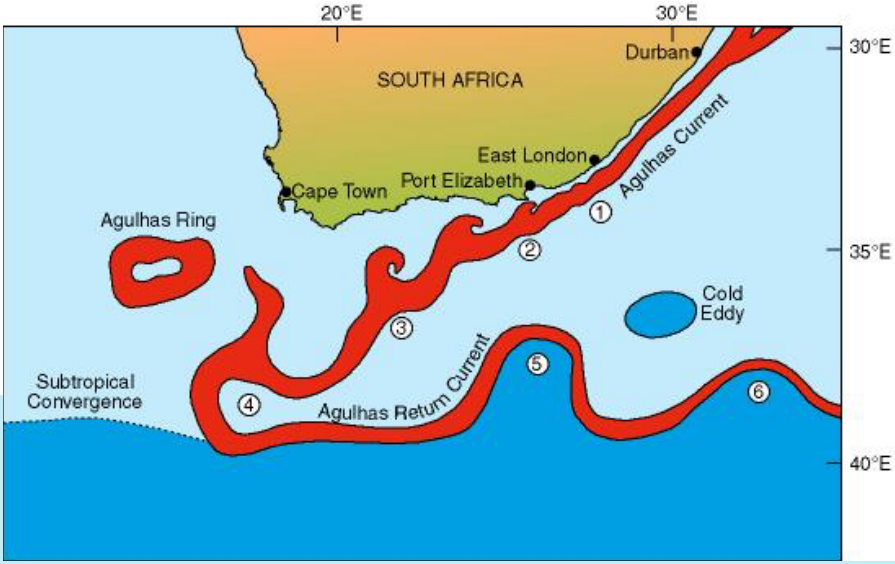

Figure 1 - Large-scale circulation of the Agulhas Current system showing (1) onset of small meanders in the current; (2) divergence of current axis from coast; (3) downstream meanders; (4) retroflection of the Agulhas Current; (5) and (6) downstream meanders of the Agulhas Return Current. (Diagram reproduced and altered from Boebel et al., 2003).

The Agulhas retroflection lies between 20° and 16°E with the retroflection loop possessing a mean diameter of 342 km. The principle of conservation of potential vorticity is thought to be the factor responsible for the

currents behaviour (i.e. Retroflection). The location of the retroflection varies. The use of a hydrodynamic model showed that the position of the retroflection is regulated by the volume transport. The Agulhas retroflection shows a characteristic progradation to the west, into the South Atlantic, followed by a sudden reinitiation in the east. Each event has a period of about 39 days, and is concluded with the shedding of a warm Agulhas ring (Lutjeharms and van Ballegooyen, 1988).

CLASSIC PAPER

Lutjeharms, J. R. E. and van Ballegooyen, R. C. (1988). **The retroflection of the Agulhas Current**. Journal of Physical Oceanography, 18 (11), 1570-1583.

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