

Interactive comment on “Transformation of an Agulhas eddy near the continental slope” by S. Baker-Yeboah et al.

Anonymous Referee #1

Received and published: 31 October 2009

The paper addresses changes and modifications to Agulhas eddies interacting with the topography of the Benguela shelf off south western Africa. These aspects of Agulhas eddies have not been studied in detail before. The Conclusions drawn provide a potential means of estimating the movement and mixing of water on and off the continental shelf during the interaction with an Agulhas eddy, knowledge of importance in this commercial fisheries oriented region. The study shows how the number and nature of the eddies in the Cape Basin are modified during the interaction, important to understanding the mixing processes in the South Atlantic, a controlling part of the global MOC. The assumptions appear valid and the theory and methods used are explained. The paper is well-structured and the material clearly presented. Some minor editorial work is required to correct English usage and typographical errors (see below—comments below are not exhaustive). The paper is acceptable with minor re-

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visions.

General Comments

There is repeated mention of “South Africa” through the paper. Note that some of the eddies in the study are on the continental shelf off Namibia. I suggest a change of “South Africa” to “southern Africa” or “southwest Africa” unless you are specifically talking about the coast off the country. Oceanographic processes do not respect national borders.

Frequent use of the phrase “off Cape Town, South Africa”, instead of “in the Cape Basin” or “on the continental shelf/slope”, may also be too limiting. “Off Cape Town” suggests scales of the order of the length of the Cape Peninsula (60–100 km) on the shallow continental shelf. Is this what is intended?

The following typos and errors of English usage caught my eye:

p1820, l20: “to understanding” => “to understand”.

p1820, l15: “the Walvis Bay” => “Walvis Bay”

p1821, l26: “caries” => “carries”

Comments on references

On p 1824, about line 5: also Lutjeharms et al [1991] observed an elongated filament from the shelf in association with an Agulhas eddy.

See Whittle et al 2008 for observations of a dipole on the western Agulhas Bank and off Cape Town.

“Steur” => “de Steur”

References

Lutjeharms, J. R. E., F. A. Shillington, and C. M. Duncombe Rae (1991), Observations of extreme upwelling filaments in the southeast Atlantic Ocean, *Science*, 253(5021),

774–776, doi:10.1126/science.253.5021.774.

Whittle, C., J. R. E. Lutjeharms, C. M. Duncombe Rae, and F. A. Shillington (2008), Interaction of Agulhas filaments with mesoscale turbulence: a case study, *S. Afr. J. Sci.*, 104(3/4), 135–139.

Interactive comment on *Ocean Sci. Discuss.*, 6, 1819, 2009.