

Interactive comment on “A new method for forming approximately neutral surfaces” by A. Klocker et al.

A. Klocker et al.

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Comments on the review by anonymous referee #1

The reviewer suggested to show results using observational data in addition to model output. This has been done by including a new figure (Fig. 66) and an additional paragraph (in section 3).

p.424, l.11-14: This is true and the paragraph has been deleted.

p.426, l.6: An additional sentence has been added at the beginning of section 4 .

p.428-430: We don't think that this part should go into an Appendix because the algorithm described here is the main work in this paper.

p.434, l.6: An additional sentence mentioning other depth ranges has been added.

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p.438, l.24: The formulation of the sentence mentioned has been changed.

p. 439, section 4.4: Along a neutral tangent plane we have thumb-nail relationships that describe the gradients of potential density, and of specific volume anomaly. In one case this gradient is the difference in potential temperature times the pressure gradient, and in the other case it is the pressure difference times the gradient of potential temperature. Since there is no way of knowing which of the two surfaces is the better approximation to a more neutral surface, it makes sense to assume they are equally in error, and this is what this method does. This is why it is more neutral than either a potential density surface or a specific volume anomaly surface on their own.

p. 444, Appendix C: We have found in the past that these two-dimensional gradients are a stumbling block for some readers, and we think that we should spell this out so that readers do not give up thinking that we have been fast and loose with our differentiation.

Figures: Fig. 2 and Fig. 7 have been dropped. We want to keep Figures 10-12 as they are, otherwise spatial information on the distribution of slope errors is lost.

Interactive comment on Ocean Sci. Discuss., 5, 419, 2008.

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