

***Interactive comment on* “On available energy in the ocean and its application to the Barents Sea” by R. C. Levine and D. J. Webb**

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As described in the three reviewer’s comments, this paper has some serious issues that need to be addressed. None of the reviewers are convinced that the paper is well founded theoretically, and given this and the almost total lack of referencing of previously published papers on this topic of available energy, considerable revision is required before submission to Ocean Science.

I also add the following comments.

1. In going from (12) to (13) the hydrostatic balance is invoked. But under the hydrostatic balance the last term in (13) that involves a density difference does not appear. Since this term dominates the subsequent discussion in the paper, I conclude that the

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paper must be incorrect.

2. In equation (11) the gradient of specific enthalpy is written as being proportional to the gradient of specific volume. This is incorrect; the gradient of specific enthalpy is a linear combination of the gradients of specific volume, salinity and temperature.

I concur with the three reviewers that this paper seems to not be based on correct theoretical fundamentals.

Interactive comment on Ocean Sci. Discuss., 4, 897, 2007.

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