

Interactive comment on “Empirical correction of XBT fall rate and its impact on heat content analysis” by M. Hamon et al.

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Received and published: 2 March 2011

This paper modeled both the depth error and thermal error in historical XBT data, was an improvement of Wijffels et al. 2008, which only took account of depth error. Besides, the surface offset which the authors introduced was a good try based on recent studies, since more and more studies showed this type of error.

Several comments:

1. About depth offset, the authors use mean depth bias between 30m to 200m. I do not understand why 200m? Gouretski et al. 2010 shows that the falling will get stable at a shallow depth (not deeper than 100m). So, I suggest the authors check this choice again. Besides, as shown in Fig.7, even after the depth-offset is removed, the depth-

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error at 0-100m still exists, that means your method may optimize the depth model below 100m, not from 0 to 100m. But, as we expected, if surface offset is removed, depth-error near the surface will be corrected!! So I recommend authors recalculate the offset term.

2. About the OHC estimation, I suggest introducing a comparison between this paper's results and other individual results such as Gouretski and Reseghetti 2010; Domingues. 2008; Ishii et al. 2009.

3. Further, the paper mainly presented the time-varying errors (both thermal error and depth error) in XBT data, concerning two other variables: XBT category (Shallow or deep) and temperature (high or low). However, The models in Gouretski et al, 2010 presented much more details concerning these factors. I suggest authors present more figures comparing the differences between this model and Gourestski's, and shows their improvements.

Interactive comment on Ocean Sci. Discuss., 8, 291, 2011.

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