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Ocean Science
Discussions

Interactive comment on "Mean circulation and EKE distribution in the Labrador Sea Water level of the subpolar North Atlantic" *by* Jürgen Fischer et al.

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Autor Response 1: We first would like to thank the reviewer (1) for the detailed review and the very encouraging remarks to this manuscript. We appreciate the recommendations in form and content; which we generally accepted – this has led to a considerable improvement of the paper. Although; the reviewer in his final statement requests only minor textual changes, we feel some of the comments are too important not to be discussed in more detail. Regarding the comments pertaining to the figures, we followed the recommendation to brighten the colormap in Figure 8, such that the contrast of the vector field is enhanced and the circulation is better visible. We further changed the

internal labels in Figure 3 to mean velocity and to eddy velocity and now use a blue color shading for the topographic slope along the steep areas of the bathymetry.

The reviewer asked for some substantial alterations which we will discuss in the following:

RC1 a) The reviewer identified the derivation of the Peclet Number as the only scientific contribution of the paper.

AR1 a) In fact, we feel that the estimation of a mid-depth EKE field is the major finding and has important scientific consequences for the distribution of mid depth water masses in circulation system with sufficiently different regimes of advection and diffusion at mid depths. The Pe, as it is estimated here, should be seen as a relative (qualitative) quantity that allows to detect regional differences in the advection/diffusion distribution at mid-depth (also recommended by reviewer 2).

RC1 b) The reviewer requested more details about the underlying dataset (YoMaHa) particularly with regard to biases that may occur during the profiling time of the floats.

AR1 b) Sources of uncertainties are in fact manifold, and we elaborated on that subject in the paper and extended that discussion. We also included the underlying technical report (Lebedev et al., 2007) in which some of the error sources are also discussed.

RC1 c) The reviewer requested to directly put the geographical locations inside the text, even when listed in the Table.

AR1 c) We agree that there should be better guidance to some of the locations, but we feel just giving lat/lon data are less illustrative than for example a more descriptive note: (mooring CIS located in the center of the Irminger Sea). However, this is for mooring locations that are part of the Table and included are geographical locations. For other locations like OWS Bravo and 'Orphan Knoll' we included lat/lon in the text as recommended.

RC1 d) The reviewer requested some additional references. He argued that such a

well documented region requires some additional references of both observational and numerical studies.

AR1 d) Thus, we added several additional citations.

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