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Ocean Science Discussions

Interactive comment on "High resolution modelling of the North Icelandic Irminger Current(NIIC)" *by* K. Logemann and I. H. Harms

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The last referee provided detailed and helpful comments for two major topics that were also addressed by referee #1 and #2. We therefore agree on all suggested improvements.

(i) The referee is basically correct saying that a restoring with a time constant of 30 days is rather short and that temperature restoring is unusual in state-of-the-art (ocean climate) models. However, the model was designed to produce realistic (high-frequent) regional flow fields for cod egg dispersion models. For that purpose, it seems appropriate to use as much data as possible and to constrain the model using a rather short time relaxation constant. For the short-term dispersion modelling (6-8 months), this approach was very successful. We are aware, that the investigation of NIIC inflow is of course more sensitive to long-term trends and we will emphasize in our new version,

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that the simulated long period variability or observed trends are only lower estimates. We discuss simulated trends now more thoroughly but we also present a new figure that supports our model findings e.g. for interannual variability on the north Icelandic shelf (see also referee #1 and #2). Furthermore, we include a new figure that shows the frequency dependent damping of temporal variability in order to enable the referee/reader to quantify the underestimation of long period variability.

(ii) Like referee #2, also referee #3 criticize the paragraph on correlation and spectral analysis of NIIC volume flux and local wind fields. We agree on that and we will completely rewrite this paragraph in the new version. We will change Fig. 17 (now Fig. 19) by adding a normalized spectral analysis in order to support our arguments concerning the dependency of NIIC transport variability on wind field variability. This concerns in particular the peak for 20-30 days periods which we think is not noise but the effect of recurring weather situations. For this analysis, we will also remove the seasonal cycle (suggestion by referee #2 and #3) in order to make the correlation beyond 300 days more clear.

All other minor points of criticism will be considered.

Interactive comment on Ocean Sci. Discuss., 3, 1149, 2006.

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Interactive Comment