

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

Anonymous Referee #2

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Logemann and Harms present an interesting modelling study of the flows around north-west Iceland that is generally well written and is close to ready for full publication in Ocean Science. It is a valuable contribution to the field mainly for its close analysis of the impact of the northerly wind-stress on the flow of the NIIC.

Section 3.3.2 Seasonal Variability

p1158 l10-13: I didn't completely understand the seasonal switch argument- I think they are explaining that the dramatic difference between summer and winter heat flux. Could they rewrite this slightly more clearly.

p1158 l23 - p1159 l2 : They identify a trend in the wind-stress and volume flux over the period of their study, which they then associate with a warming on the shelf of 0.49K.

But, as they discuss later, the final year -2003- is a high anomaly, is it clear that any trend is not dominated by the final year? Another question is whether the warming of 0.49K is directly diagnosed to be due to the heat flux (in the current) or is it 'observed' warming in the model. If it is the second of these, is there any component from surface heat fluxes that is important?

3.3.3. Interannual variability

Would it be easier to demonstrate the interannual variability if the mean seasonal cycles were removed from the time-series shown in Figure 11? One anomaly that I don't think they address is the low S south of the Denmark Strait in the summer following the 2003 'warm' winter. Is this related to what I guess would be a high northward salt flux in the 2003 winter?

3.4 Origins, pathways...

I like this back-track approach but to understand the results they need to explain a bit more about the climatology flow fields- is it simply the mean annual flow field or something else?. They showed in the previous sections that the current is quite seasonal, how might that affect any interpretation of origins? Particularly when comparing with other studies estimates of composition of the current(Jonsson& Valdimarsson, 2005). Additionally, how did they identify the NIIC-water in order to seed the section? It might help the reader if the section were shown in a figure.

p1161 I19-23 Are these changes significant? Please clarify what the changes are from and to. Is it comparison between the high and low year or relative to the climatology.

4 Discussion

p1162 I23-25 How did Jonsson and Valdimarsson 2005 calculate their source contributions? Can Logemann and Harms explain the difference compared to their result?

p1164 I1-14 & Fig 17 This paragraph discusses the correlation of NIIC transport with atmospheric forcing. The seasonal cycle dominates and I wonder whether some value

would be added by again removing the seasonal cycle from the analysis. For the correlation map it might be useful to see only significant correlations, particularly in view of the loss of degrees of freedom due to autocorrelation in each of the series.

Minor typographic/editorial issues.

Consistency of Faroe/Faeroe and p1161 l11 replace 'Faeroe Scotland channel' with 'Faroe Shetland channel'.

page 1151 line 11: replace 'among' with 'of'

p1152 l11: replace 'be' with 'by'

p1156 l26: replace 'despite of this recovery' with 'in spite of this recovery'

p1156 l27: delete 'too'

p1157 l6 : replace 'Like' with 'As'

p1161 l16: change 'two periods' to 'two one-year periods'; this is just a bit of extra clarification to help the reader.

p1162 l18: change 'recover' to 'recovers'

p1164 l8 : delete 'rather'

p1166 l19: replace 'good' with 'well'

p1166 l23 : I think this sentence should be removed.

Figure 10 - caption refers to figure 8, should this be figure 9?

Figure 12-14 - are the Faroe Islands missing on the maps? Is this from the model or just the plotting?

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