

Topical Editor's decision on "A high-resolution ocean and sea-ice modelling system for the Arctic and North Atlantic Oceans"

by Dupont et al.

April 9th 2015

Dear author,

Given the two reviews and the new manuscript and replies you provided, I consider your paper should be published after addressing the following requests and suggestions, which are based on the reviews and on my personal analysis. The pages and lines indicated correspond to the ones of the document "gmd-2014-229-author_response-version1.pdf"

Major remarks:

- Please pay close attention to the Paper Types page: http://www.geoscientific-model-development.net/submission/manuscript_types.html and make changes as required; consider in particular, in the "Model Description papers" section, the first item on the model name and version number in the title and the seventh item on the code availability.
- p.13, L416 (see also Referee 2 "p17.l18" comment): "small" and "considerably" still seem contradictory to me; consider changing "considerably" for "noticeably"
- p.13, L431: can you give details on how the uncertainty is estimated to about 9%?
- p.15, L497: as stated in your reply "p.19, l.26" to Reviewer 1, please complete the sentence "the negative trend is in general closer to observations than in H05" with « even though the period for comparison is too short to be statistically significant.»
- p.15, L498-500: this argumentation should make a clearer link with the initialisation of the ice categories in CICE as detailed on p.8 L241-244.
- p. 16, L523-527 and Fig. 15: which period is the average done? This should be mentioned in the text and on the figure.
- p.16, L540: can you explain what you mean by "The error bars are not known but could be up to 25%." Where did you get this estimate?
- p.17 3.3.2 first paragraph needs some rewriting and more explanations (see also Referee 2 "Section 3.2.2 Figure 19" and "Figure 19" comment).
 - More details are needed to back up the assertion on L. 559 "One can see the improvement from hindcast H02 to H05" and on L. 561 « In the ORCA12-T321 solution, ... actually yields the best modelled velocity fields.". Looking at Fig. 18, this is not at all obvious, at least not to me.
 - You use "drift" in the text but "velocity" or "speed" on Fig 18 and Fig. 19; using the same word would be better.
 - Consider moving "at 25 km resolution" from L.557 just after satellite estimates on L.556
 - On L. 563, using the words "the different products" to designate H02, H05 and ORCA12-T321 does not sound appropriate to me.
- Your reply to Reviewer 1 "p.9, l.23: What is the volume of observations?": your argumentation is fine but could you consider adding the Smith et al. (2014) and Belair et al. (2006) in the text?

Minor remarks:

- p.1, L13, L15, L16, L18: put a semicolon instead of a period before “2)”, “3)”, “4)” and “5)”
- p.2, L28: remove the parenthesis before “2015a)”
- p.6, L163: consider changing “including” for “as in”
- p10, L305: if correct, change “SSH anomalies” for “SSH AVISO anomalies” for more clarity
- p.11, L346: consider changing “corresponding with” for “corresponding to”
- on Fig 6, change “right)” for “(right)”
- p13, L431: consider changing “can not” for “cannot reproduce”
- p14, L447: change “for each instrument” for “of each instrument”
- p15, L489: consider changing “(to ease data exchange and comparison, ORCA12-T321 was provided too on the CREG12 grid)” for “(to ease comparison, ORCA12-T321 data is considered only on the CREG12 domain)”
- p.16, L532 and Fig. 16: the period mentioned on the figure (October-November 2007) should be also in the text
- On Fig. 16, “ICESat” should be “ICESat”
- p. 17, L544: consider changing “with a month lag” for “with a one-month lag”
- Remarks to answer the