

Interactive comment on “Ice and AIS: ship speed data and sea ice forecasts in the Baltic Sea” by U. Löptien and L. Axell

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The author's compares ship speed based on AIS calculations with forecasted ice information and particularly ice drift, ice concentration and ice thickness. The paper is interesting as AIS provides a new data source with high resolution data and for the studied region a clear connection between AIS calculated ship speeds and severe ice conditions can be found. The relation to modeled ice drift data is not clear. I miss a discussion about the dynamics in the test region. The authors have used the Northern Bothnian Sea and the Northern Kvarf Strait as test area. This area is well known to be very dynamic with strong currents through the Strait (Green et al., 2006). Most 3D models have not addressed the dynamics in the Northern Kvarf Strait and we get no information in the paper if HIROMB can model the currents realistically in this region?

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The problem with modeling ice drift in connection to land fast ice is mentioned as a possible problem but has not been evaluated in the present article. Ice drift in shallow channels open also up problems related to modeling the ice rheology and here a standard Hibler approach developed for large scale ice dynamics will have problems. Will the ice floes at high ice concentrations pass the Northern Kvarf Strait or will it jam? Direct observations on ice drift through the test region and in particularly the Northern Kvarf Strait are therefore needed. The comparison between observed and modeled ice drift data needs more studies before it should be used in relation to AIS. I therefore recommend the authors to include a discussion on the ice and the current dynamics in the test region and introduce a section where HIROMB ice drift is compared with observations in the test region. An alternative approach could be to discuss the ice and current dynamics in the region and neglect the present part related to modeled ice drift.

References Green, M., J., A., Liljebladh, B., and A., Omstedt (2006). Physical oceanography and water exchange in the Northern Kvarf Strait. *Continental Shelf Research*, 26, 721-732. DOI 10.1016/j.csr.2006.01.012

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