



Ship speeds and sea ice forecasts – how are they related?

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The Baltic Sea is a shallow marginal sea, located in northern Europe. A seasonally occurring sea ice cover has the potential to hinder the intense ship traffic substantially. There are thus considerable efforts to fore- and nowcast ice conditions.

Here we take a somewhat opposite approach and relate ship speeds, as observed via the Automatic Identification System (AIS) network, back to the prevailing sea ice conditions. We show that these information are useful to constrain fore- and nowcasts. More specifically we find, by fitting a statistical model (mixed effect model) for a test region in the Bothnian Bay, that the forecasted ice properties can explain 60-65% of the ship speed variations (based on 25 minute averages).