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### **TanDEM-X measurement of sea ice drift and sea surface current in the Fram Strait and in the Baltic Sea**

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In meteorology it is routine to assimilate real time data in models and to use data from observations and measurements to validate the models; a necessity for making realistic prognoses. In oceanography the same needs exist, but due to the physical difficulties and the large cost for marine observations, the observation network is underdeveloped. As a consequence, there is a strong need for more data from observations and measurements. Satellite measurements can contribute with information that has so far not been used. This paper focus on the possibilities to use along track interferometry (ATI) from TanDEM-X for measurements of sea ice drift and sea surface currents. At the Swedish Meteorological and Hydrological Institute (SMHI), circulation models like HIROMB are used to drive drift forecasts for sea ice, blooming algae, oil spill and search and rescue. The HIROMB model has been set up for most of the seas in Northern Europe and most recently for parts of the Arctic Ocean. The study has been limited to two areas in the Baltic Sea and two areas in the Fram Strait between Greenland and Svalbard where both TanDEM-X data with baselines suitable for ATI and comparable model runs of HIROMB are available. One of these areas has been used for sea ice drift and the remaining three for sea surface currents. The paper will present the first results from this study.