



CMEMS Baltic Sea Landfast Ice Downstream Service Demonstration

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The Baltic Sea is partly covered by sea ice in every winter. Also landfast ice occurs every winter along the coasts of Finland, Sweden, Estonia and Russia (Bay of Bothnia, Sea of Bothnia, Gulfs of Finland and Riga). During a severe winter it is also present in the Southern Baltic Sea. Earlier Baltic Sea landfast ice extent and thickness information in fine scale (around 1 km) has not been directly available from any source. Finnish Meteorological Institute (FMI) has developed a CMEMS landfast ice coastal downstream service for the Baltic Sea (called BALFI). This service includes a derived product (landfast ice extent and thickness) based on two existing CMEMS Baltic Sea products (modeled sea ice thickness and SAR-based sea ice drift), and additionally on SENTINEL-1 and RADARSAT-2 SAR imagery, an in-house thermodynamic sea ice model developed by and run at FMI, completed by available operational in-situ snow and sea ice data. The service additionally gives information on the ice deformation, including the ship tracks, over landfast ice. The Baltic Sea landfast ice service has been developed and will be maintained by FMI. The service demonstration is hosted at the Finnish National Satellite Data Centre (NSDC) operated and managed by FM (<http://nsdc.fmi.fi/>). Targeted end-users include people living along the Baltic Sea coast and on islands needing information on landfast ice properties for recreational and professional activities such as skiing, ice fishing, transportation of people and goods along ice roads and for governmental and local authorities/institutions such as national ice services, icebreaker management, harbor authorities, search and rescue operators, and commercial activities such as tourism and marine wind power design and production. The operational demonstration has been running on an FMI operational server since mid-December 2018 and will be run until the end of the Baltic Sea ice season 2018-2019. Snow and ice mass balance buoys (SIMBA's) have been deployed at two locations on the landfast ice in the northern Baltic Sea. Snow depth and ice thickness retrieved from SIMBA's will be used for evaluation of the products. In the presentation the service and the products will be introduced and the products for this winter 2018-2019 will be presented and assessed. Also some improvements to the current operational production and products will be suggested.