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Sea ice information for the Greenlandic community

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Sea ice information for the near coastal areas of the Greenlandic waters is of high importance for the local communities and the maritime industry. The “truth” within sea ice information has traditionally been associated with Manual Ice Charts; however, the demand for accurate forecasts is increasing.
At first, this study will introduce a variety of satellite-based Copernicus marine service products waters with a special focus on a novel automated ice chart that runs on a daily basis at the Danish Meteorological Institute (DMI). The new product is based on a Convolutional Neural Network (CNN), which combines passive microwave and SAR imagery in order to optimize retrieval. By doing so, it produces the best possible sea ice concentration with a resolution comparable to the manual ice charts.
Secondly, this study presents an improved operational forecast system for the Arctic sea ice focusing on the Greenlandic waters. The physical basis of the system is close to the Arctic Marine forecasting system within the Copernicus Marine System. This presentation will present the forecast system and introduce the first attempts to assimilate a combination of level two data from
the automated ice charts gap-filled with level 2 passive microwave data.
We validate the sea ice edge forecast systems and the individual remotely sensed observational products by computing the Integrated Ice Edge Error metric. This comparison is focused primarily on the initial state and secondly on a comparison with the initial state.