



Monitoring of sea ice drift and area flux in the Fram Strait

S. Sandven, K. Kloster, and J. Wåhlin

Nansen Environmental and Remote, N-5006 Bergen, Norway (stein.sandven@nersc.no, 0047-5-20-)

The western part of the Fram strait is normally covered with sea ice throughout the year. The ice is stationary as fast ice out to 70 -140km from the Greenland coast. Outside is a zone with drifting ice with a gradual increase in drift speed further eastwards to the centre of the strait. Since 2004 NERSC has used ENVISAT ASAR Wideswath images with 150 m resolution to estimate ice drift with three days interval. To resolve the zonal variability in the ice drift field, strait is divided into four different zones. Zone I has usually fastice, zone II is the transition zone with a zonal ice drift gradient, Zone III is only drifting ice and zone IV includes the shelf break and the marginal ice zone where the ice drift is normally at a maximum. This is zone is also more difficult for ice drift for ice drift retrieval from satellites because of quite homogeneous ice cover. The ice area flux is calculated from the detailed ice drift- and concentration-profiles at 79N, as the integral in longitude of the product of ice concentration and ice displacement. The data shows an increased ice flux over the last four seasons since 2004-05. The SAR derived ice drift data are compared with similar ice drift data from AMSRE and merged QuikScat and SSMI data for the winter season October to April when passive microwave and scatterometer data can be used for ice drift retrieval. The comparison shows that the SAR data resolves the zonal structure and gives a general higher ice drift compared the other data sets. SAR also provides year-round data on ice drift, which allows a more precise estimation of monthly and annual ice area fluxes. The study is supported by the DAMOCLES project.