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# Decadal Variability of Sea Ice Motion in the Weddell Sea for the Period of 1979 to 2006

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The knowledge and understanding of sea ice drift variability is essential for an assessment of, e.g., varying ice production rates, deformation processes, ice export and also stratification changes in the ocean. The goal of this study is the determination of the decadal variability of sea ice motion in the Weddell Sea and its relation to atmospheric forcing. Yearly and monthly mean drift vector fields for every 10-year period are computed from observations from 1979-2006 and from simulations with the Finite Element Sea ice-Ocean Model (FESOM) for 1948-2008. Ice motion patterns are analysed with respect to the long-term mean in order to identify decadal changes in the typical drift patterns. Observed motion vector fields for Antarctic sea ice are provided by the National Snow and Ice Data Center (NSIDC). The vector fields are created from a combination of satellite data from the 37 GHz and 85 GHz channels of the Scanning Multichannel Microwave Radiometer (SMMR, 1978-1987) and the Special Sensor Microwave/Imager (SSM/I, 1987-2006) as well as from the Advanced Very High Resolution Radiometer (AVHRR, 1981-2000). The gridded data sets have a spatial resolution of 25 km and are available for a temporal resolution of one day. Data from the NCEP/NCAR reanalysis have been used to force the model simulations and are also used to identify the driving forces for ice drift variability.