Ship-based Measurements of Momentum, Gas and Heat Fluxes in the Arctic

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In order to estimate the momentum, gas and heat fluxes in the Arctic, two methods are introduced and compared. The direct method is eddy covariance that derives the fluxes by computing the covariance between the vertical wind speed with the wind or scalar atmospheric data. The other one is a spectral technique called inertial dissipation. The inertial dissipation method makes use of the inertial sub-range to determine the appropriate structure function parameters. Since the measurements are made on a moving platform, contamination sources such as ship motion and flow distortion need to be considered and corrected. The eddy covariance method is very sensitive to ship motion and flow distortion(Edson, Hinton et al. 1998). In contrast, the inertial dissipation method is less sensitive to motion but several assumptions need to be verified (Sørensen and Larsen 2010).

REFERENCES
