

Uncertainties in global surface flux datasets in high latitudes

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We have intercompared 12 bulk aerodynamic algorithms to compute ocean surface turbulent fluxes for numerical weather forecasting, climate modeling, and global surface flux dataset production globally versus field experiment data. A couple of the field campaigns (FASTEX and CATCH) were in high latitudes performed to investigate high wind speed regimes. The algorithms were shown to have the highest biases in the high wind regime ($U \geq 10$ m/s), especially for wind stress and latent heat flux. This analysis is expanded to investigate the relative roles of algorithm uncertainty and differences in the bulk variables in contributing to global surface flux datasets biases including those from MERRA, ECMWF, and NCEP reanalyses for these high latitude field experiments. Results over sea ice during the SHEBA experiment will also be briefly discussed.