

Interactive
Comment

Interactive comment on “Observations of surface momentum exchange over the marginal-ice-zone and recommendations for its parameterization” by A. D. Elvidge et al.

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p10, line 24: Charnock is not constant because it is sea state dependent. Bidlot et al. 2014 show a nice example, where a wave model was used to calculate Charnock, including areas with sea ice. In that paper, the drag experienced by the atmosphere was shown for all wind conditions for both Arctic and Antarctic combined. For small ice fractions, C_d varies by almost one order of magnitude with a median value of $1.5 \cdot 10^{-3}$. The mean Charnock was around 0.01 for winds below 5m/s and 0.03 for wind above 18m/s with a linear to quadratic growth in between (Bidlot private communication). p15, line 22: COARE 4 is a better reference Edson, J., V. Jampana, R. Weller, S. P. Bigorre,

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Discussion Paper



A. J. Plueddemann, C. W. Fairall, S. D. Miller, L. Mahrt, D. Vickers, and H. Hersbach (2013), On the exchange of momentum over the open ocean, *J. Phys. Oceanogr.*, 43, 1589–1610, doi:10.1175/JPO-D-12-0173.1.

Would it have been possible to analyse the data to also present a parameterisation for z_0 in terms of sea ice cover as presented for ECMWF. Weather models tend to represent the surface properties in terms of roughness length scale.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 15, 26609, 2015.

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