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Discussions

Interactive comment on "Surface drifters in the German Bight: Model validation considering windage and Stokes drift" *by* Ulrich Callies et al.

Anonymous Referee #3

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Surface drifters in the German Bight: Model validation considering windage and Stokes drift

This paper presents a comparison of the model BSHcmod and TRIM with six near-surface drifters with little or no windage. The paper is well written (albeit too lengthy), the English is good and the figures are readable. I would recommend publication after minor corrections.

Comments

- The work shows that the BSHcmod needs the addition of either about 50% of the surface Stokes drift or about 0.6% windage. The authors concede that this is probably a reflection of the poor vertical resolution of the model as much as it reflects missing windage and/or Stokes drift. I would recommend clarifying that the Stokes drift really *is* missing whereas the windage is probably negligible as the drifter is subsurface save for the antenna.
- The TRIM results should be studied a little further. Please consider adding Stokes drift to these as well and report which percentage works best. This would help answer the question of how much the Stokes drift really should contribute to an object which sits in the upper metre or so of the water column. Ideally the Stokes drift should be vertically averaged over the upper metre (see Li et al, 2017), but a Stokes drift representative of the midpoint (say 0.5 m) will probably be close enough.
- Please mention in the text after Eq (1) that the full windage is actually a rotation (called the leeway divergence) and not simply a factor β.
- Section 3.2 is too lengthy. Please consider moving some of this verbiage to an appendix.

References

- Allen, A. and J. V. Plourde, 1999: Review of Leeway: Field Experiments and Implementation. Tech. Rep. CG-D-08-99, US Coast Guard Research and Development Center, 1082 Shennecossett Road, Groton, CT, USA, available through http://www.ntis.gov.

• Li, Q., B. Fox-Kemper, Ø. Breivik, and A. Webb, 2017: Statistical Models of Global Langmuir Mixing. *Ocean Model*, **113**, 95–114, 10.1016/j.ocemod.2017.03.016.

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