Ocean Science

Discussions

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Interactive comment on "What can seabirds tell us about the tide?" *by* Matthew Cooper et al.

Anonymous Referee #1

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I really enjoyed this article. It was well-written and showed how unexpected results of potentially great value can be extracted from data collected for entirely different purposes. There were a few minor things that, if addressed, could increase the value of the article, but it's already acceptable for publication. Here are my comments:

Introduction: the authors should cite Poulain (2013) as an example of mapping tidal currents with drifters. JGR Oceans 118, 1434-1444, doi: 10.1002/jgrc.20147.

121-126: the caveats are well stated here, as well as later in the manuscript. Likely more could be done to statistically assess windage and Stokes drift in a follow-up, but this first study is sufficient to show convincingly that the tidal signal is extractable.

148: it would help a reader not familiar with the tides of the area to state what fraction of the tidal variance at Liverpool is explained by M2.

246-247: later in the manuscript, this factor of 0.85 is called into question. Thus, it would add great value if the authors added at least a couple of sentences here summarizing how Pugh deduced this factor.

279-280: is there any evidence that the birds preferentially seek times when the tidal current is fastest? If so, there might also be a spatial bias toward higher-current regimes.

286-295: this is probably crazy, but is the M2 current signal in the model purely sinusoid? Could nonlinear effects alter this? The authors note that other, weaker constituents can also play a role in modifying this signal.

General question: is there any evidence of a time-mean current superimposed on the tidal signal? This is likely much more contaminated by windage and Stokes drift that the tidal signal, but it would be fascinating to see what the residual velocities look like after fitting and removing the M2 signal.

Interactive comment on Ocean Sci. Discuss., https://doi.org/10.5194/os-2018-99, 2018.