

Interactive comment on “Wave-turbulence scaling in the ocean mixed layer” by G. Sutherland et al.

Anonymous Referee #1

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As the authors rightly mention, observations of profiles of turbulent kinetic energy dissipation rate are very rare. For this reason, this paper is highly significant. I enjoyed reading the paper but failed to see how the statement made in the abstract that the depth dependence of epsilon is consistent with the purely shear-driven wall layer with what was said in section 3 and in the summary. From what I can see, both the purely shear-driven wall layer and the Stokes drift-generated shear model have merits and neither were always consistent.

Minor comments:

p 3771, line 16: Numerical wave model output are not six hour averages, they are usually instantaneous values corresponding to a model estimate of the geo-physical quantities with a scale at best of the order of the model grid size (usually coarser due to numerical smoothing).

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p 3771, line 11: how were the observed U15 reduced U10?

P 3778, line 15: some recent work by Peter Janssen might also be relevant: Janssen, P. A.E.M. (2012), Ocean Wave Effects on the Daily Cycle in SST, J. Geophys. Res., doi:10.1029/2012JC007943, in press.

Fig.2 legend: 17.6m -> -17.6m

Fig.4 legend: the text mention ECMWF analysis but legend mentions forecast. Which one is it? The dash line connecting the model data gives a false impression of the model as they are at much coarser temporal resolution. Using symbols instead might be more appropriate.

Fig. 10 legend: which three wave turbulence profiles? (the one based on partition I and II and the full spectrum ?)

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