

Interactive comment on “Bi-directional air-sea exchange and accumulation of POPs (PAHs, PCBs, OCPs and PBDEs) in the nocturnal marine boundary layer” by Gerhard Lammel et al.

Anonymous Referee #2

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This study presents bi-directional fluxes of a number of POPs generated from gradient measurements made at a remote coastal site. Such data are needed for improving our understanding of the sources and fates of POPs over ocean surfaces, although the measurements could cover longer periods and for more POPs species with high-volume sampling. A box chemistry model is also used to explain the observed data and to improving the understanding of the air-surface exchange processes. The paper is generally well written and only some minor comments are provided below.

Line 211 and lines 182-185: Briefly explain if the insignificant gradients were caused by uncertainties in the measurement, or they represent the situation that fluxes were minimal.

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Line 391 and line 399: two contradictory statements. “0.0043 cm/s, significantly deviating from zero”, and “0.020 cm/s, not distinguishable from zero”.

Lines 427-428: “wet deposition not significant” - because of small amount of precipitation, or particle size range?

Lines 439-440: delete the statement. V_d is sensitive to friction velocity (and wind speed) over any surface (see Zhang and He, 2014, ACP 14, 3729-3737).

Line 449-450: should not compare a single size since any particle species covers a size range (i.e., a size distribution). A representative size does not mean it has a representative deposition velocity (see Ruijgrok et al., 1997, Tellus 47B 587-601). Same case for Line 463. Also 0.3 cm/s seems to be on the high end for submicron particles.

Proofread the paper for fixing the editorial issues, e.g., Line 71 “to to”; line 73 “the highest”; line 458 “of for”.

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