

Interactive comment on “Micrometeorological measurement of hexachlorobenzene and polychlorinated biphenyl compound air-water gas exchange in Lake Superior and comparison to model predictions” by M. D. Rowe and J. A. Perlinger

Anonymous Referee #2

Received and published: 1 March 2012

General: The manuscript focuses on measurements of HCB and PCBs using novel chemical concentration measurements, this enables using micrometeorological measurements and evaluating fluxes and gas transfer velocities. In addition the “measured fluxes” are compared with model predictions from two different models.

The measurements are unique, well presented and a thorough error analysis is performed. It is motivated to use the models for comparison with the measurements. The

C338

models are, however, well described elsewhere and the text is too dominated by model descriptions.

I question the use of equations 7 and 8. It is well known that a C_{en} value of 2.6 is too high, the authors support the high value by suggesting that bubbles or buoyancy effects are important. The measurements are taken at low winds and buoyancy effects on k_w is not expected to impact C_{en} , so I do not agree with this motivation for present data. For stable strat C_{en} is expected to be even lower than the neutral value. For CO₂ more recent literature than Wanninkhof 1991 suggests other expressions.

The paper presents interesting results and is well written and is recommended for publication.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 983, 2012.

C339