



IMPORTANCE OF SAMPLING DEPTH FOR ESTIMATES OF THE CO₂ FLUX ACROSS AIR-WATER INTERFACE.

Jørgensen H.E.(1), **Larsen S.E.** (1), Sørensen, L.L (1), Borges A.V.(2), Frankignoulle M (2)

(1)Risø National Laboratory, Roskilde, Denmark ,(2)Université de Liège, Liège, Belgium

Estimation of CO₂-fluxes across the air-sea interface is associated with many sources of uncertainties. The flux is usually estimated from the concentration difference in CO₂ across the air-sea interface by equations of the form:

(1) $\text{Flux} = k(\Delta C)$,

where ΔC is the concentration difference across the interface, driving the flux, and k is a transfer velocity, being function of several parameters, notably the wind speed or the surface stress. Several forms of (1) are suggested in the literature. One issue is the importance of the measuring depth for the water value of the CO₂ concentration. We will here present an analysis of expected variability of the transfer velocity with measurement depth. The measuring depth is found to be less important than one should expect. The variability on the flux due to difference in measuring depth is illustrated using OMEXII-II CO₂ air-sea exchange data.