Effects of experimental CO_2 leakage on solubility and transport of seven trace metals in seawater and sediment.

Murat V. Ardelan, Eiliv Steinnes, Syverin Lierhagen and Sven Ove Linde

Supporting information

pH, TIC, Tot. Alk and pCO2

pH and total alkalinity (Talk) were measured regularly with a combined glass electrode with an Ag/AgCl reference electrode (Radiometer), and partial pressure /fugacity of CO_2 (pCO_2), and total inorganic carbon (TIC) were calculated based on the measurements of pH and total alkalinity (Öztürk et al, 2003). The pH electrode was calibrated using NBS buffer solutions at 6 °C. In order to convert measured pH (pH_{NBS}) to pH_{total}, the apparent activity coefficient of H^+ (f_{H+}) was determined by four-point titration of 50 ml seawater by 15 ml standard acid with normality in the range of 0.008–0.014N HCl. Partial pressure /fugacity of CO_2 (P_{CO2}), TIC was calculated after conversion of pH_{NBS} to pH_{total} (Öztürk et al, 2003).

References

1. Öztürk, M., Vadstein, O., and Sakshaug, E. 2003. The effects of enhanced phytoplankton production on iron speciation and removal in mesocosm phases in a landlocked basin of Hopavågen, Norway. Marine Chemistry 84:3-17.

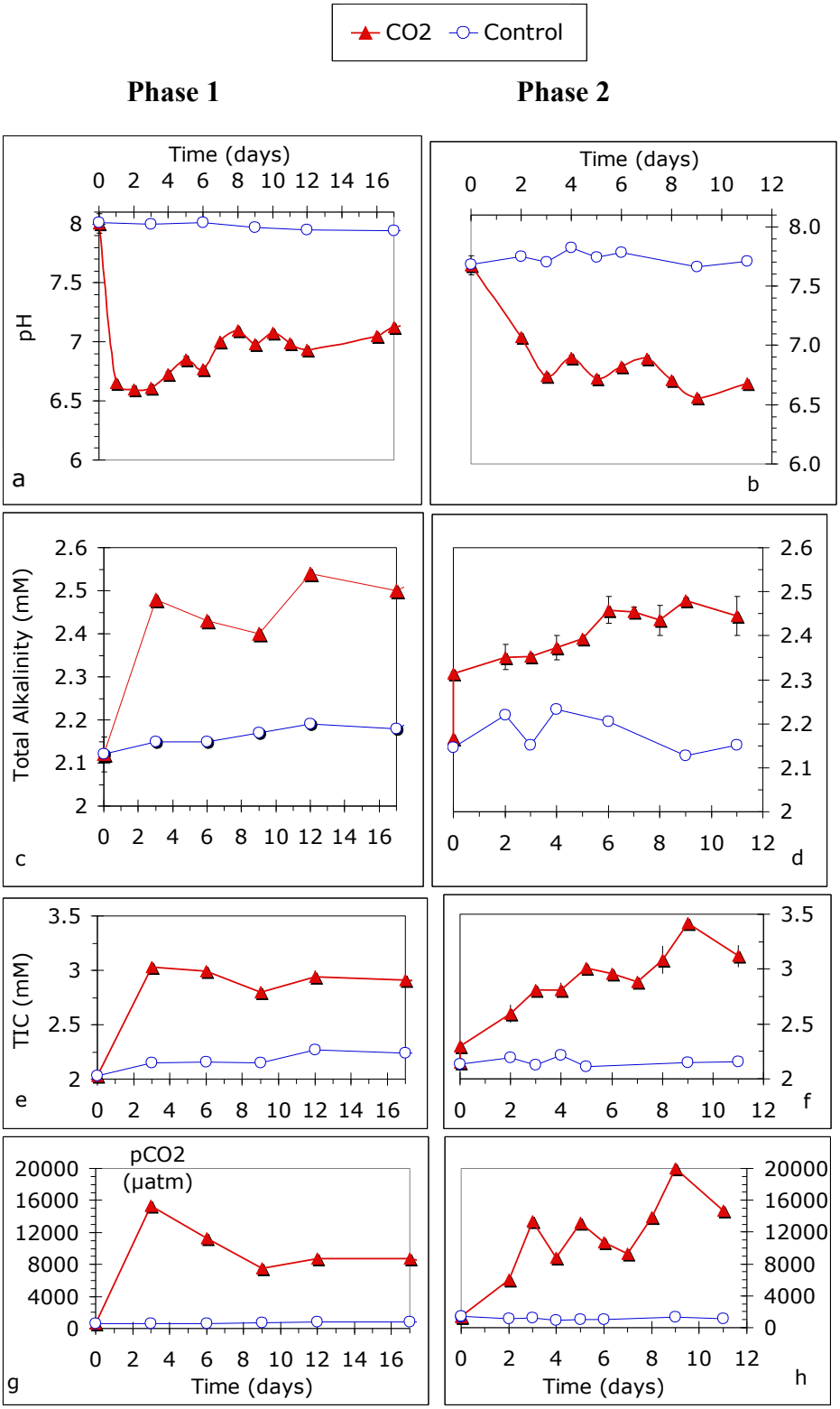

Figure S1.: Variation of pH (a and b), total alkalinity (c and d), Total inorganic carbon (e and f) and partial pressure/fugacity of CO_2 (pCO_2) (g and h) during both phases in CO2 seepage (full triangles) and in the control (open circles) chambers

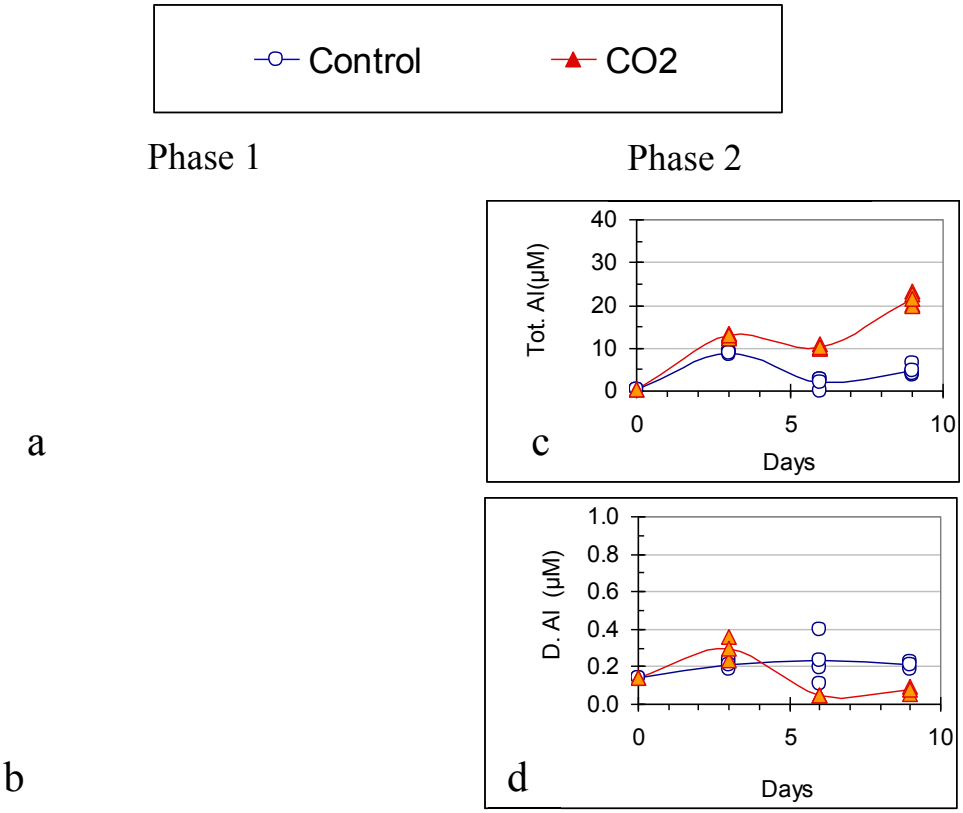

Figure S2: Concentrations of total Al (Tot.Al) and dissolved Al (D.Al) in water during the first (a, b) and second (c, d) phases in CO_2 seepage (full triangles) and in the control (open circles) chambers.

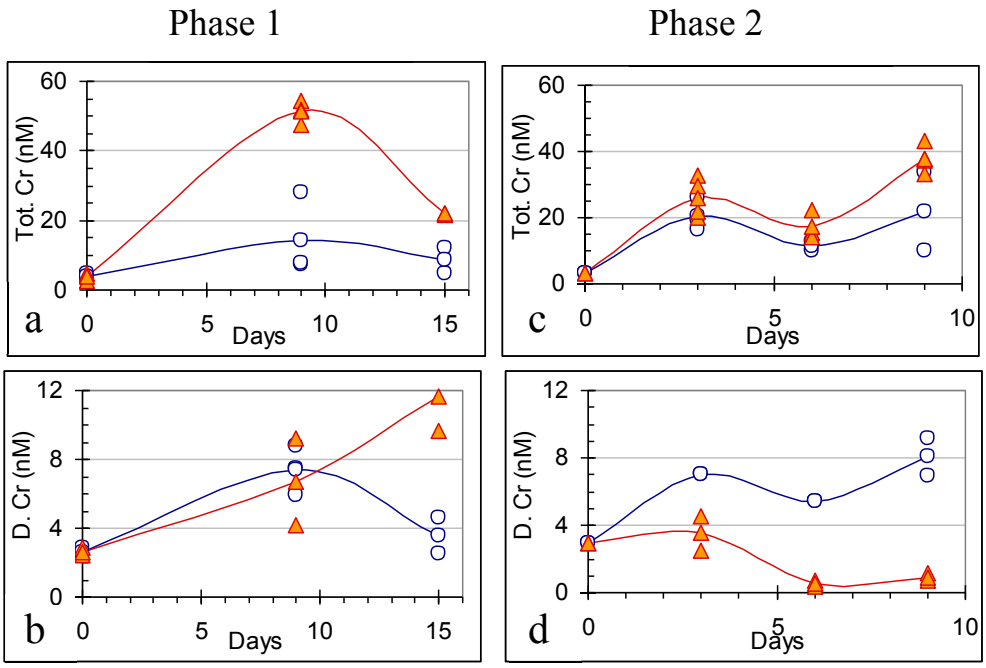

Figure S3: Concentrations of total Cr (Tot. Cr) and dissolved Cr (D.Cr) in water during the first (a, b) and second (c, d) phases in CO_2 seepage(full triangles) and in the control (open circles) chambers.

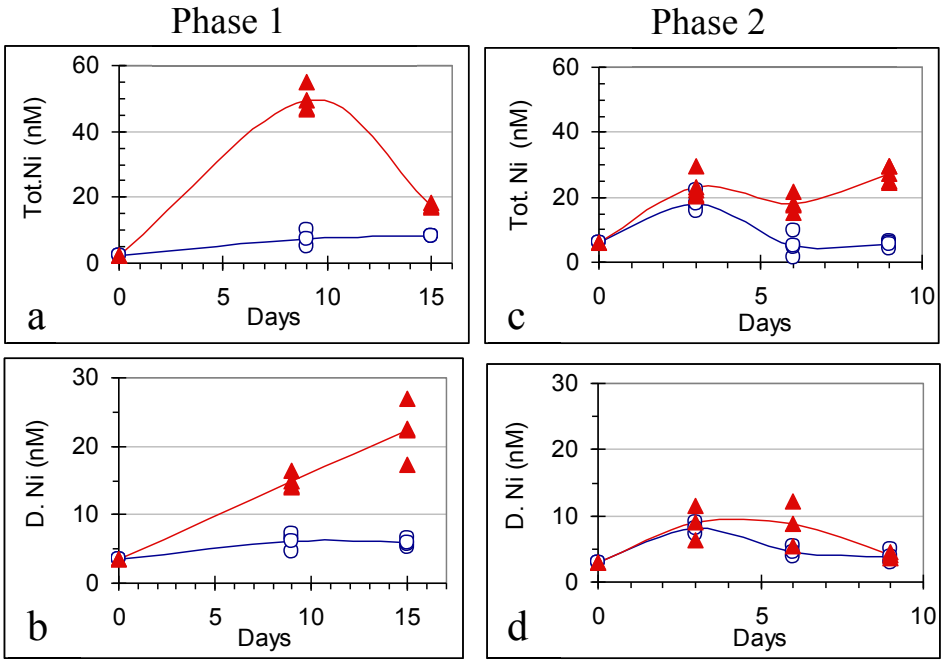

Figure S4: Concentrations of total Ni (Tot. Ni), and dissolved Ni (DNi) in water during the first (a, b) and second (c, d) phases in CO_2 seepage(full triangles) and in the control (open circles) chambers.

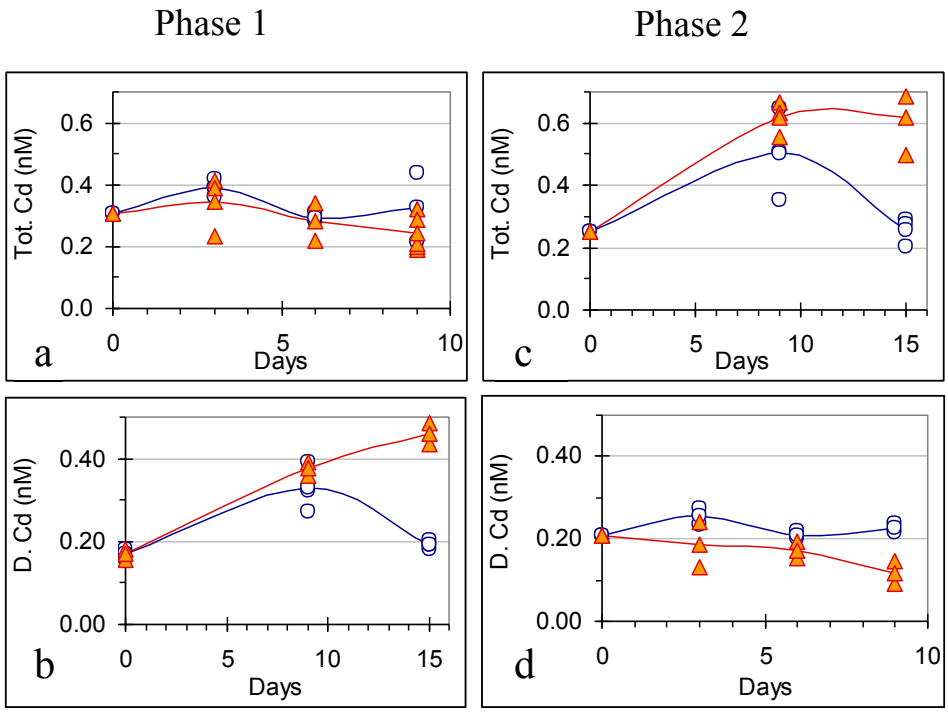

Figure S5: Concentrations of total Cd (Tot.Cd) and dissolved Cd (DCd) in water during the first (a, b) and second (c, d) phases in CO_2 seepage(full triangles) and in the control (open circles) chambers.

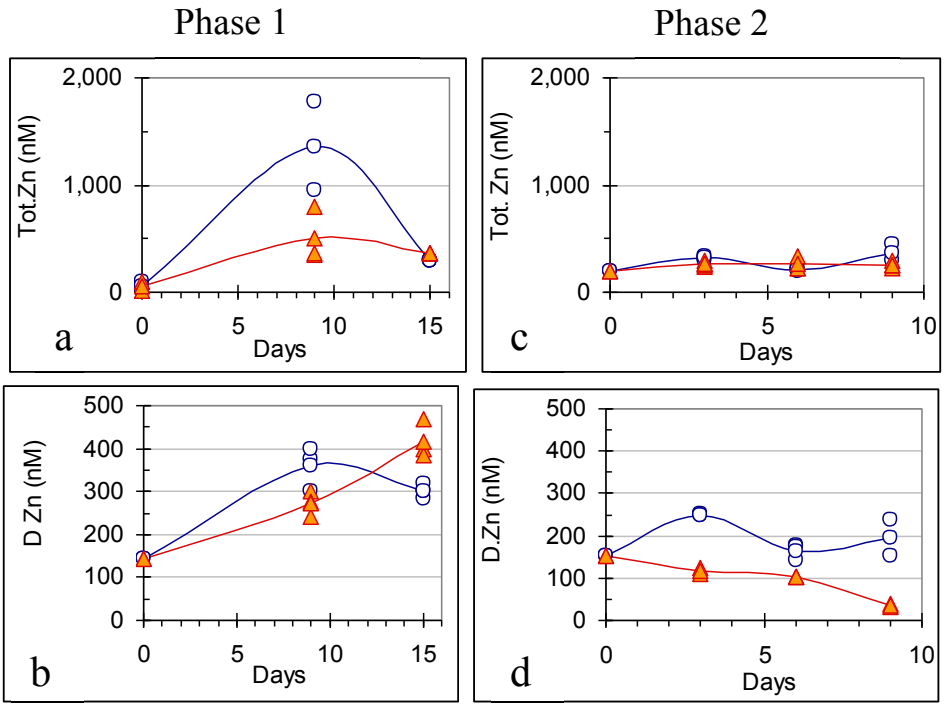

Figure S6: Concentrations of total Zn (Tot.Zn) and dissolved Zn(D.Zn) in water during the first (a, b) and second (c, d) phases in CO_2 seepage(full triangles) and in the control (open circles) chambers.

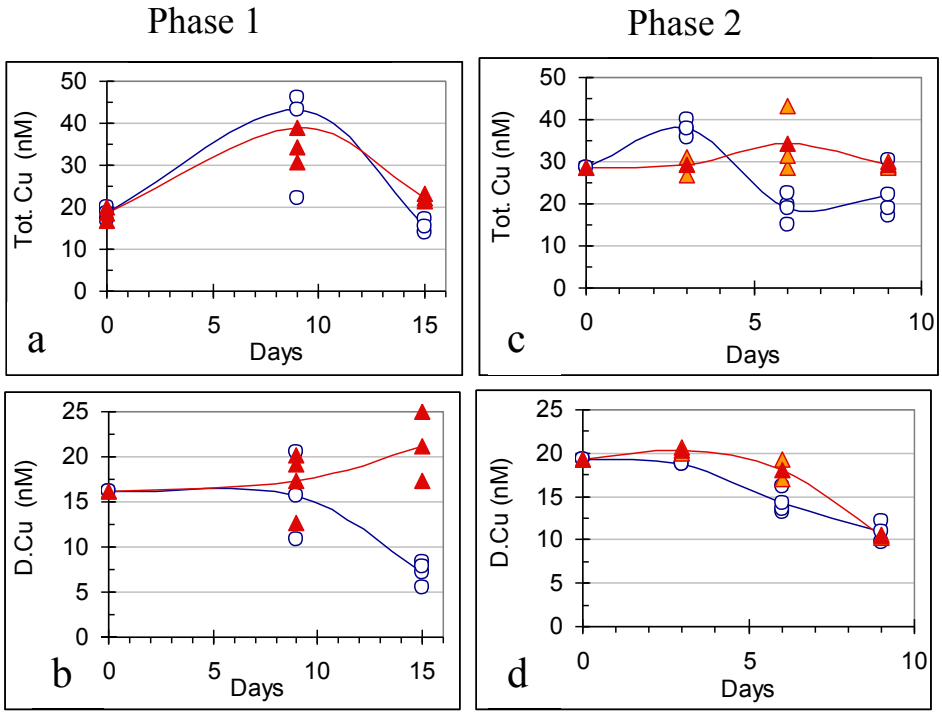

Figure S7: Concentrations of total Cu (Tot.Cu) and dissolved Cu (D.Cu) in water during the first (a, b) and second (c, d) phases in CO_2 seepage(full triangles) and in the control (open circles) chambers.

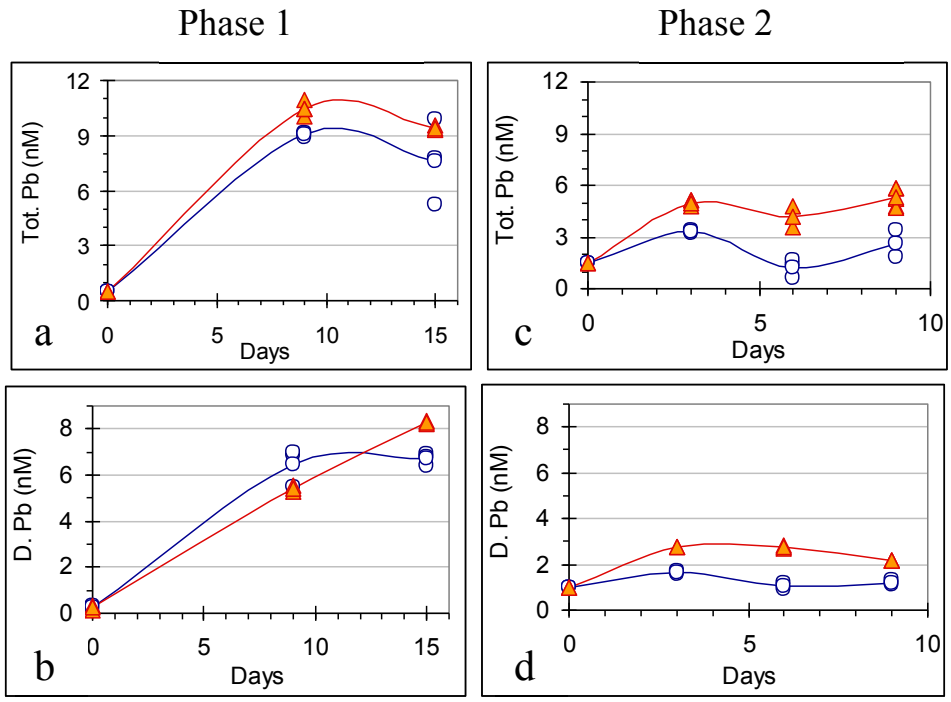

Figure S8: Concentrations of total Pb (Tot.Pb) and dissolved Pb (D.Pb) in water during the first (a, b) and second (c, d) phases in CO_2 seepage(full triangles) and in the control (open circles) chambers.