

TRACE-METAL DYNAMICS IN RESPONSE OF INCREASED CO₂ AND IRON AVAILABILITY IN A COASTAL MESOCOSM EXPERIMENT

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A mesocosm experiment was performed in the Raunefjord (Norway) to study changes in dissolved Cu (dCu) and Fe (dFe), and in the elemental composition of particles during an *Emiliana huxleyi* dominated bloom. The CO₂ treatments consisted of present (LC; 390 ppmV) and predicted levels (HC; 900 ppmV) and iron conditions were created with the addition of the siderophore desferoxamine B (DFB). Our results showed the DFB addition enhanced the solubility of Fe in this fjord environment. Initially, dFe was comparable among treatments but after the addition, the HC and/or +DFB treatments presented higher levels and finally, the only ones maintaining high dFe were the +DFB treatments. Unlike dCu presented indistinguishable levels in all mesocosms over time. Particulate metals were normalised to P and Al to evaluate the relative influence of biotic and abiotic sources. The Fe:P ratios decreased with time and compared to published phytoplankton ratios suggest Fe storage. On the other hand, Fe:Al ratios were relatively closer to the crustal ratios suggesting that the abiotic source was more important for this metal. Trends for other metals will be discussed.