Supplemental Material

Particulate trace metal dynamics in response to increased CO_2 and iron availability in a coastal mesocosm experiment

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Supplemental Table 1S. *P*-values for the effects of CO_2, DFB, their interaction and time on the Al-normalized metal quotes during the development of the bloom of *Emiliania huxleyi*. Statistically significant differences are indicated with asterisk (* if p <0.05; ** if p <0.01 and *** if p<0.001). The comparison reflects if the the filters treated with oxalate wash present more factors with statistically significant differences and blank values means that both treatments present the same significative factors.

A)

Factor	Fe:Al	Cu:Al	Co:Al	Zn:Al	Cd:Al	Mn:Al	Mo:Al	Pb:Al	Ti:Al
Carbon	ns	ns	ns	*	ns	ns	ns	ns	ns
DFB	*	ns	**	***	**	**	***	ns	*
Carbon x DFB	ns	ns	ns	*	ns	*	ns	ns	ns
Time	**	*	**	**	**	ns	*	*	*

B)

Factor	Fe:Al	Cu:Al	Co:Al	Zn:Al	Cd:Al	Mn:Al	Mo:Al	Pb:Al	Ti:Al
Carbon	*	ns	ns	**	***	ns	ns	ns	ns
DFB	*	*	**	***	***	**	**	ns	**
Carbon x DFB	ns	ns	ns	*	**	ns	*	ns	ns
Time	***	***	***	***	***	*	***	*	**
Compare with oxalate wash	Yes	Yes	-	-	Yes	No	Yes	-	-

*ns: not significant; * p <0.05; ** p <0.01; *** p<0.001*

22 **Supplemental Table 2S**. Identified Zn-Metalloproteins genes in the genome of *Emiliania huxleyi* (Read et al.
23 2013), encoding for the corresponding following proteins.
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Gene name	**ID**
Alkaline phosphatase	17253330
Carbonic anhydrase	17257927
α carbonic anhydrase	17284926
α -type carbonic anhydrase	17277840
β carbonic anhydrase	17269168
δ carbonic anhydrase	17265607
γ carbonic anhydrase	17260688
γ carbonic anhydrase	17282862
DNL zinc finger protein	17285443
DNL zinc finger protein	17254351
Mitochondrial RNA polymerase	17251597
NAD(P)H dehydrogenase	19046606
NADPH-cytochrome P450 reductase	17280251
Phytochelatin synthase	
Putative alkaline phosphatase	17271603
Putative DNAJ	17273860
Putative DNAJ	17263200
Putative zinc transporter	17276740
Superoxide dismutase, Cu-Zn	17260763
Zinc finger-containing protein	17280277
Zinc finger-containing protein	17272883
Zinc finger-containing protein	17282784
Zinc finger-containing protein	17262888

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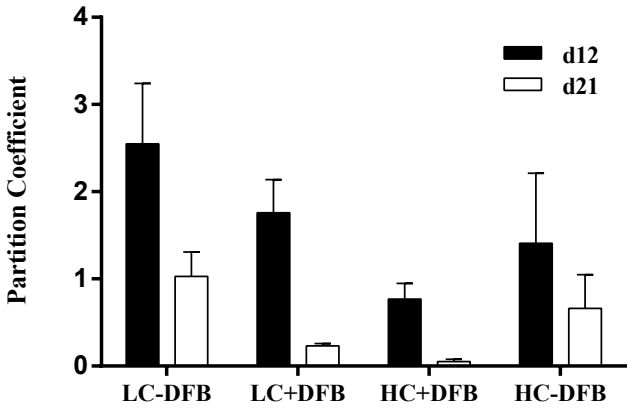
Supplemental Figure 1S. The partition coefficients in the different treatments; LC: ambient CO_2 (390 µatm); HC: increased CO_2 (900 µatm); -DFB (ambient dFe); +DFB (increased dFe) at the beginning and the end of the bloom.



Supplemental Figure 2S. Comparison of Al-normalized metal quotas (mmol:mol Al) of particles from different treatments; LC: ambient CO_2 (390 µatm); HC: increased CO_2 (900 µatm); -DFB (ambient dFe); +DFB (increased dFe) during the development of a bloom of *Emiliania huxleyi*. The x-axis parallel solid lines represent the crustal ratio (Taylor, 1964) (A) Fe:Al, (B) Cu:Al, (C) Co:Al, (D) Zn:Al, (E) Cd:Al, (F) Mn:Al, (G) Mo:Al, (H) Ti:Al, (I) Pb:Al.