Supplement of Biogeosciences, 21, 773–788, 2024
https://doi.org/10.5194/bg-21-773-2024-supplement

Biogeosciences Open Access EGU

Supplement of

Iron "ore" nothing: benthic iron fluxes from the oxygen-deficient Santa Barbara Basin enhance phytoplankton productivity in surface waters

De'Marcus Robinson et al.

Correspondence to: De'Marcus Robinson (demarcus1.robinson@atmos.ucla.edu) and Tina Treude (ttreude@g.ucla.edu)

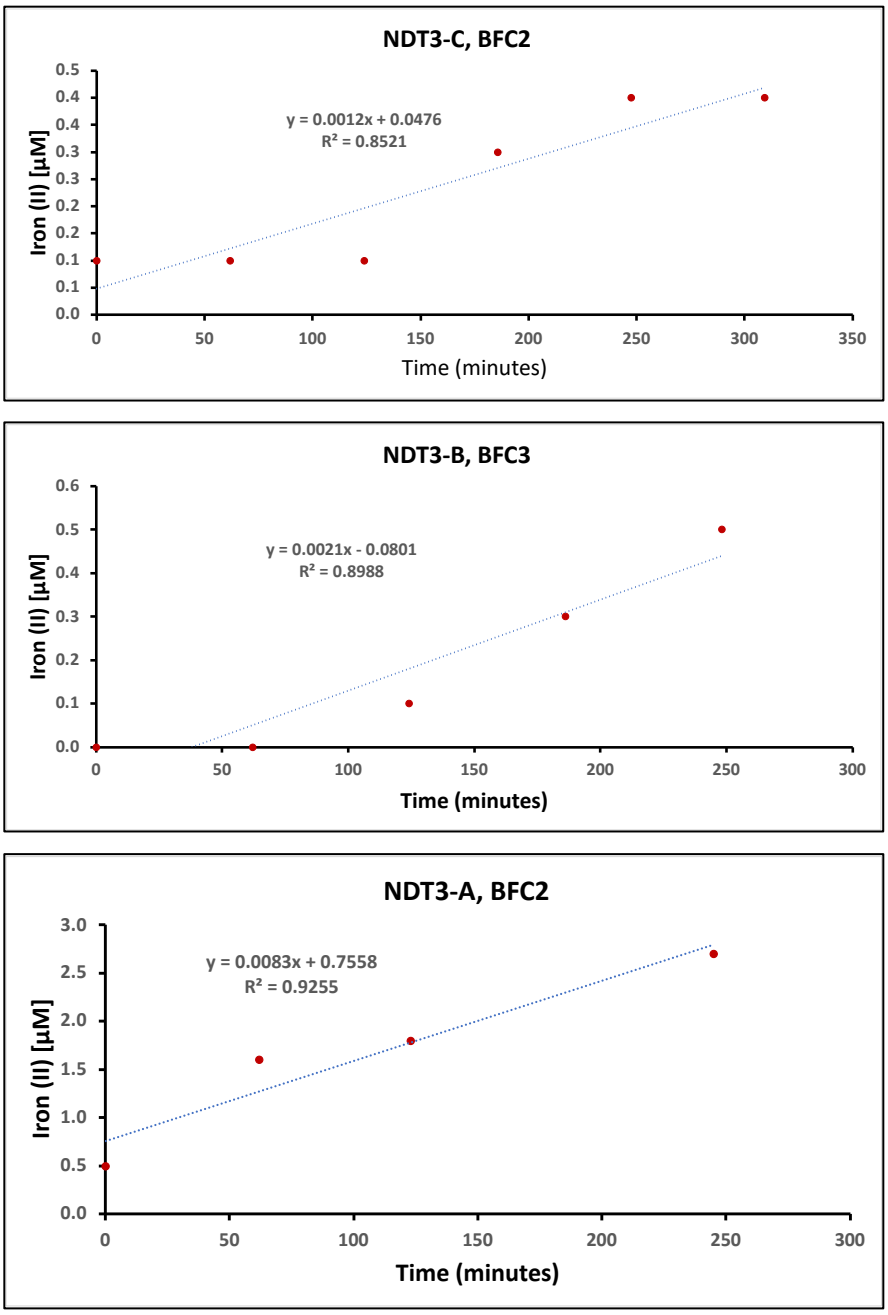

Figure S1. Development of dissolved Fe(II) concentration in the supernatant water of benthic flux chambers (BFC) deployed at the studied stations in the Santa Barbara Basin during the AT42-19 expedition (see also data in **Table 1**). The increase (slope) in Fe(II) over time was used for the calculation of benthic Fe(II) fluxes.

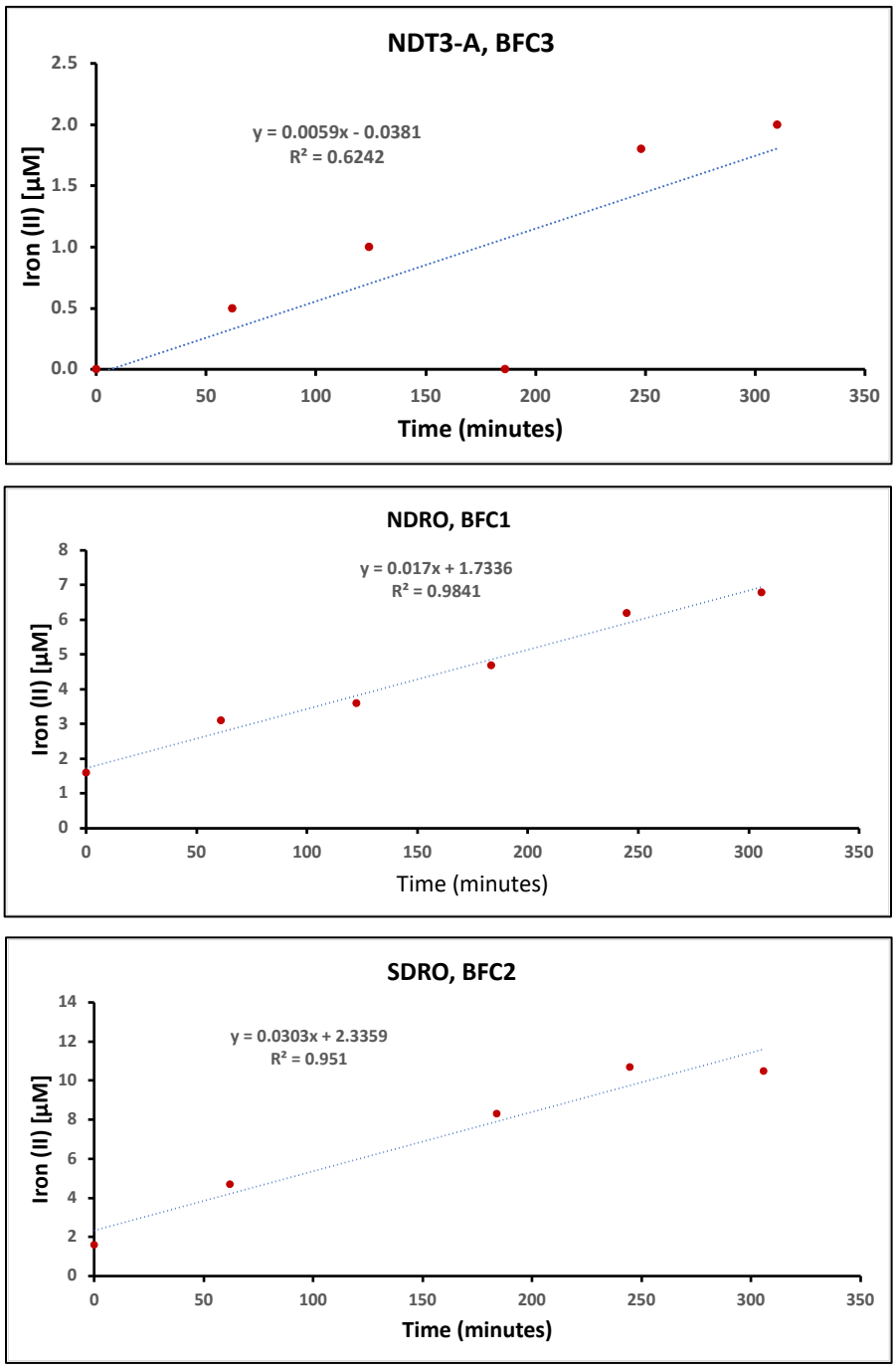

Figure S1. Continued.

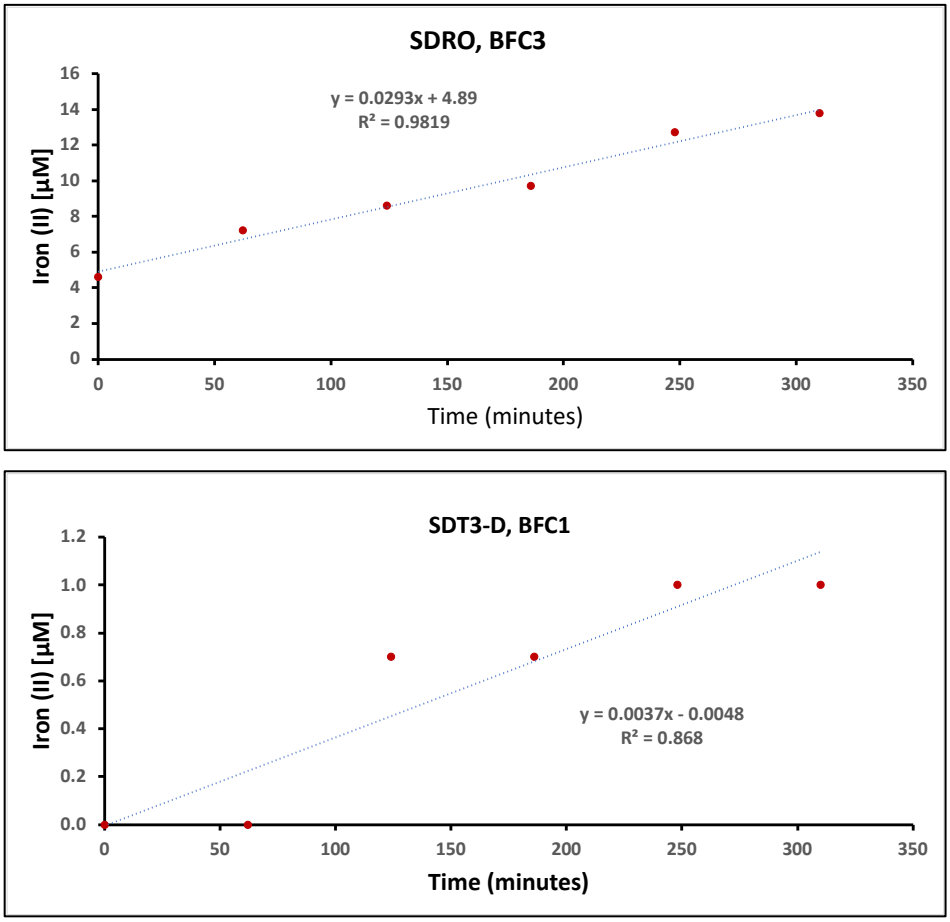

Figure S1. Continued.

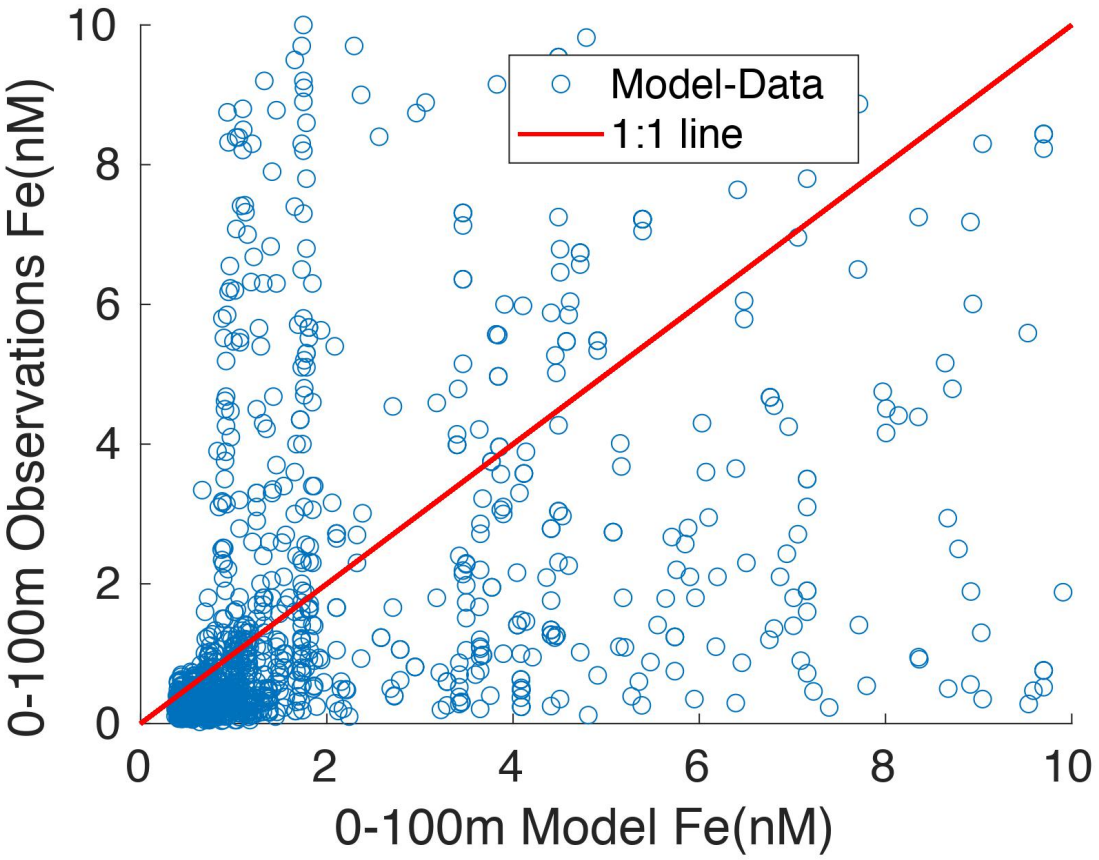

Figure S2. Scatter plot for the dissolved iron concentrations in the upper 100 m of the ocean from field measurements along the US West Coast (y-axis) and from the ROMS-BEC model, where we have field measurements (x-axis). Model data are sampled seasonally according to field measurements. R = 0.5

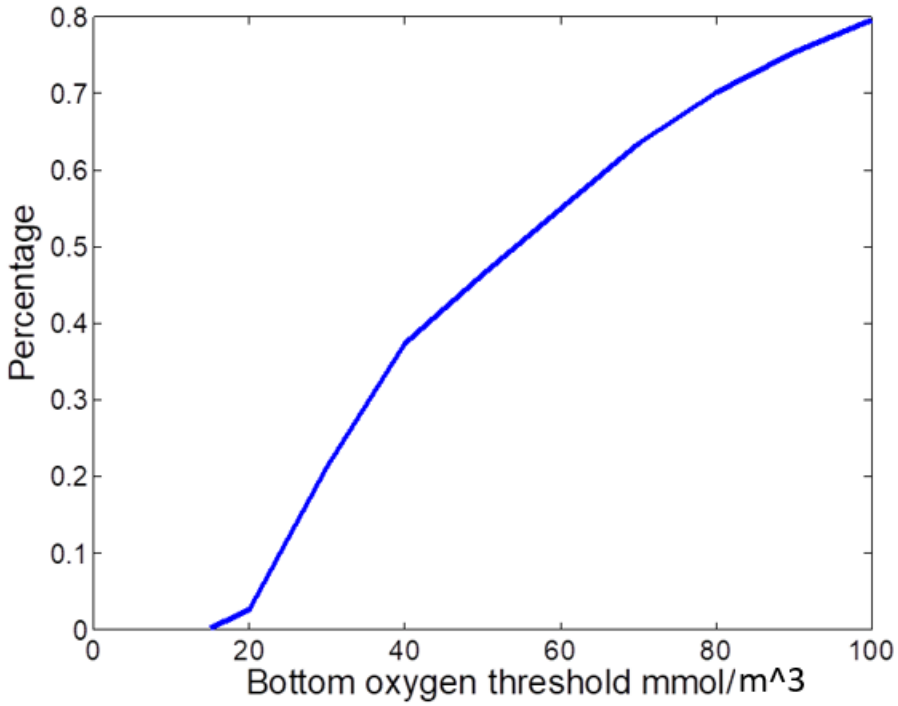

Figure S3. Modeled oxygen concentration throughout the domain where 80 percent of the oxygen concentration is between 20 to 100 μM.

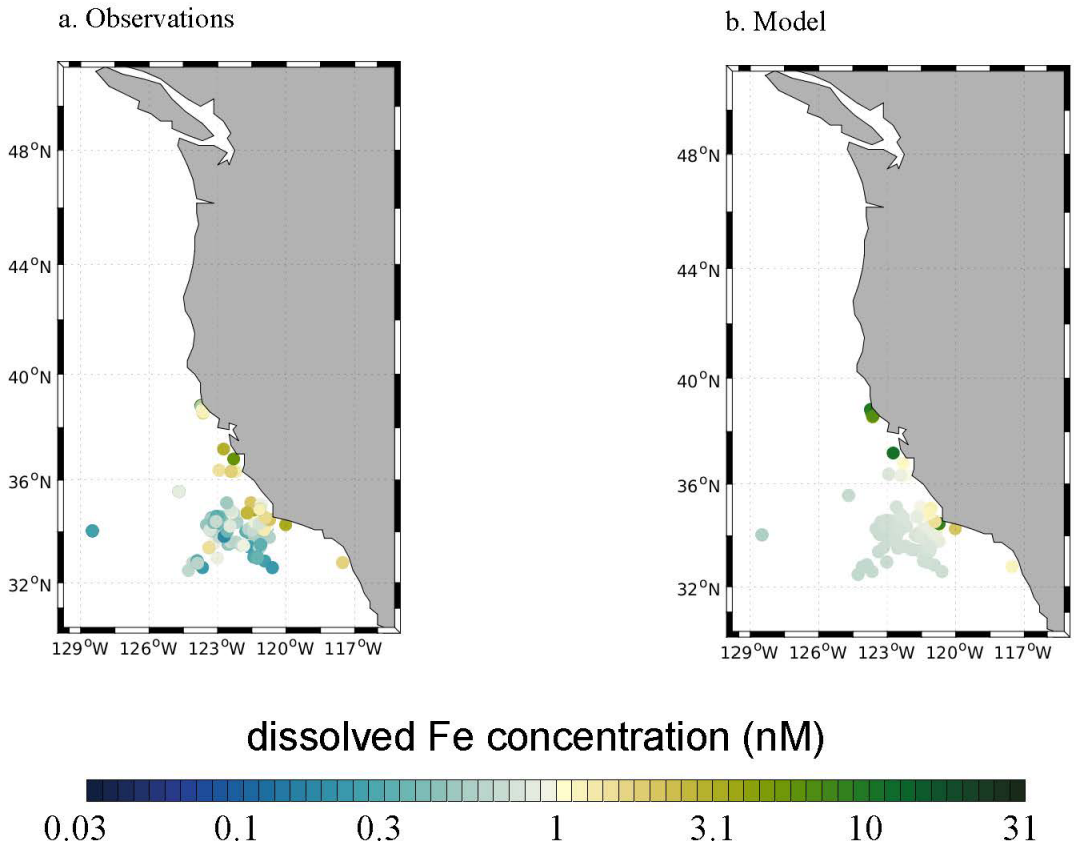

Figure S4. Dissolved iron (dFe) concentrations averaged between 100-200 m: (a) measured data (see manuscript section 2.4), (b) model results.

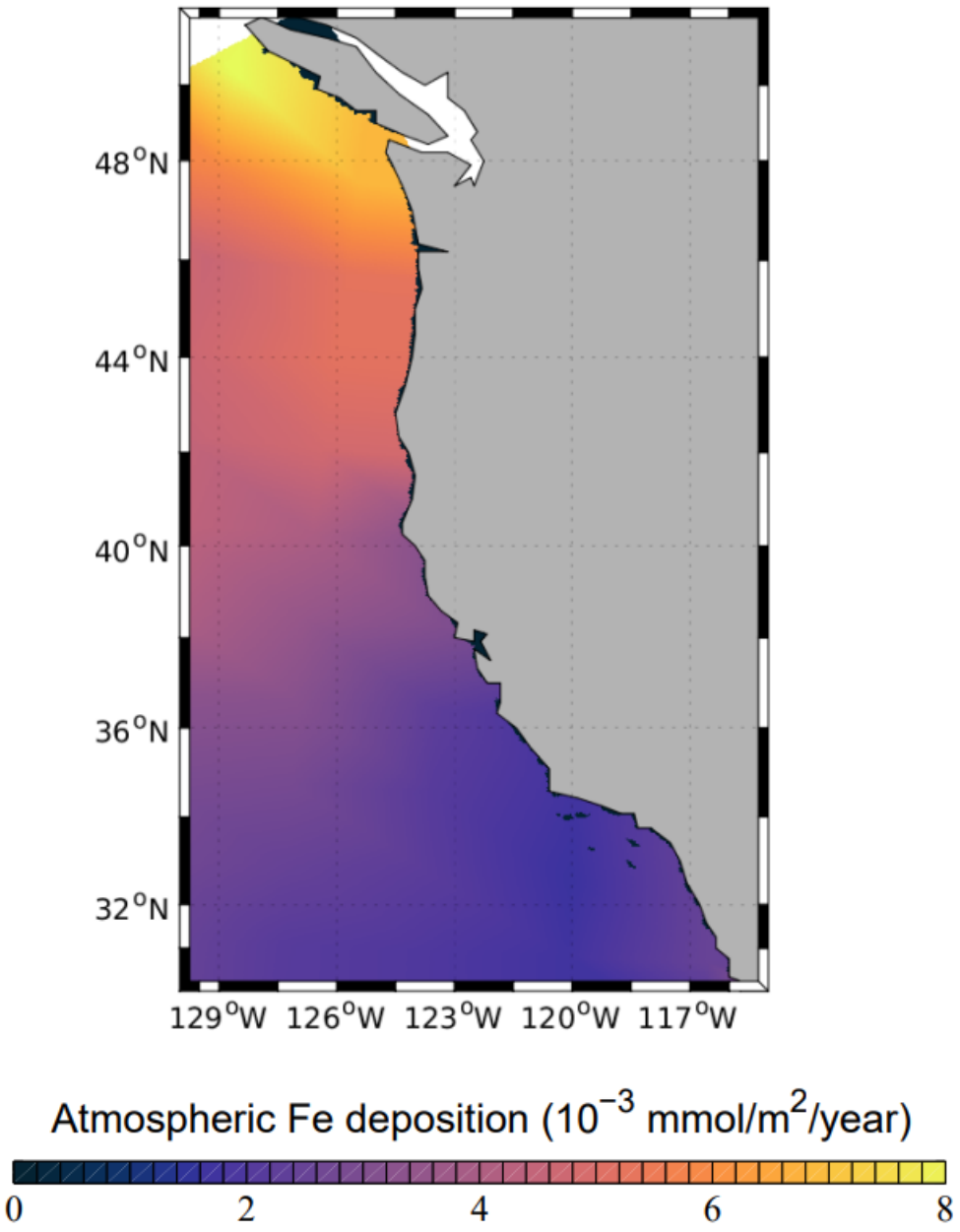

Figure S5. Atmospheric dFe deposition into the surface ocean of the CCS (32-48N). Higher atmospheric dFe deposition is observed north of 42°N.

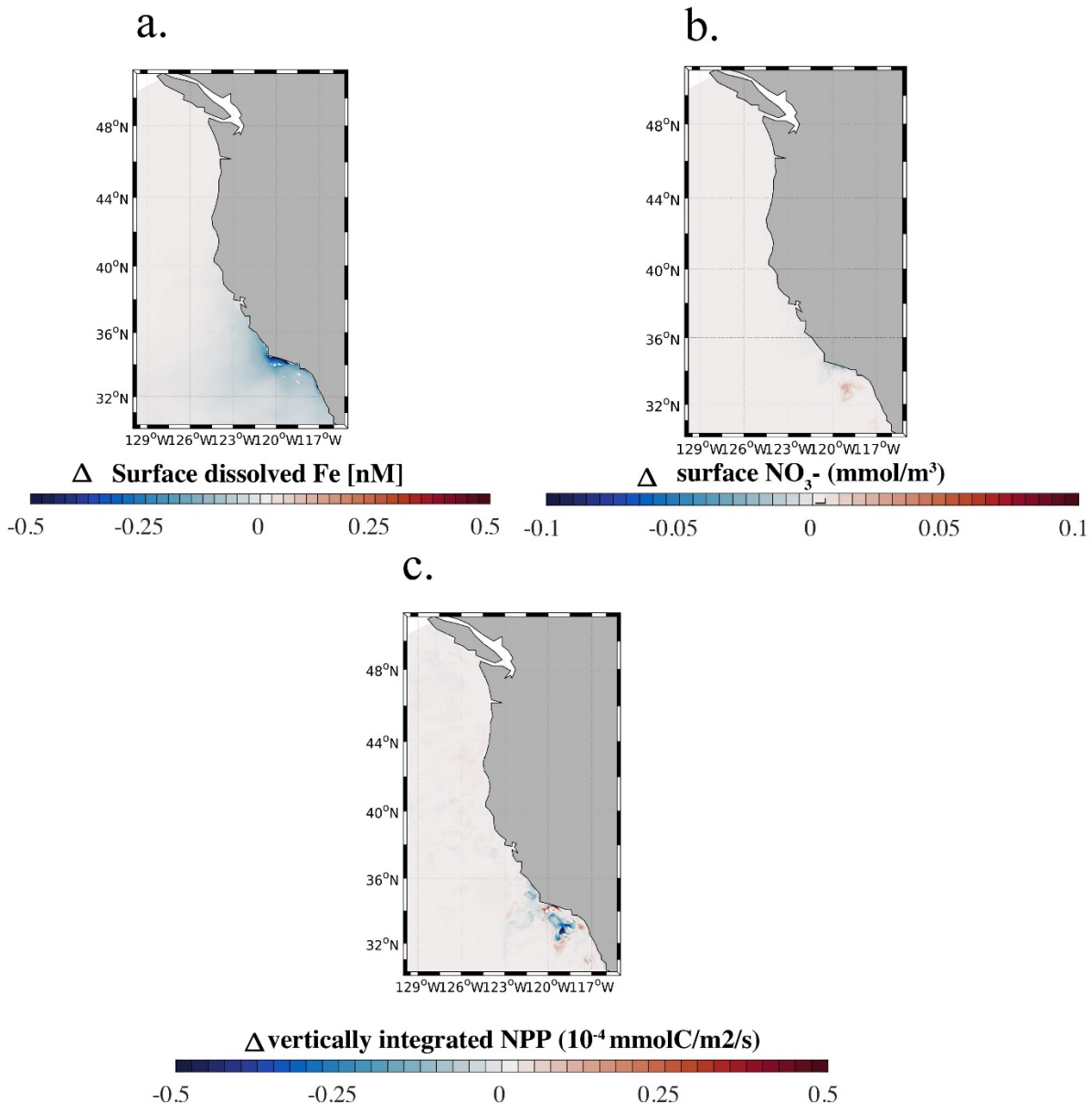

Figure S6. (a) Surface dFe anomalies, (b) Surface NO_3^- anomalies, and (c) vertically integrated net primary production (NPP) in the full domain from the *Hypoxia-off* model run relative to the *High flux* model run