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Supplement of

Sensitivity of ocean biogeochemistry to the iron supply from the Antarctic Ice Sheet explored with a biogeochemical model

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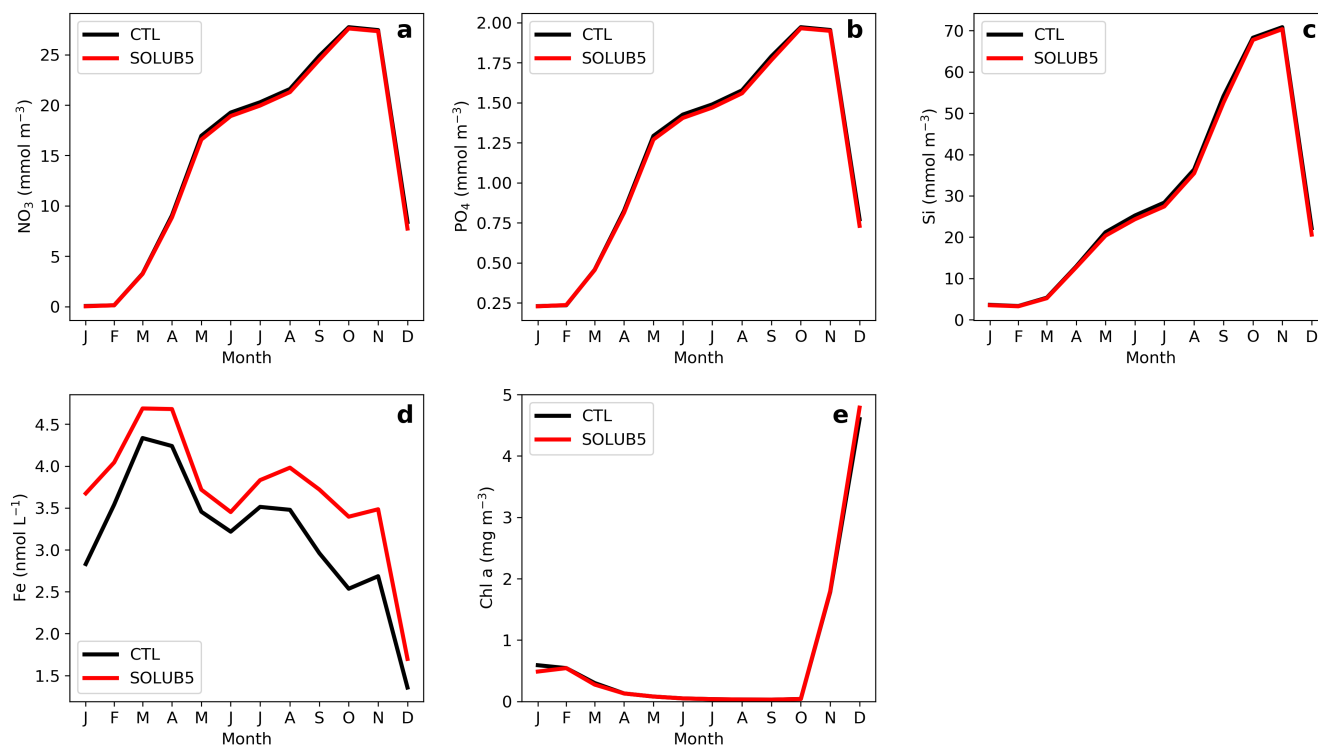
Figure S1. Seasonal cycles of surface (a) NO_3, (b) PO_4, (c) Si, (d) Fe, and (e) chlorophyll concentrations at a near shore station in the Amundsen Sea (106° W, 75° S) in the CTL experiment (black) and the SOLUB5 experiment (red).
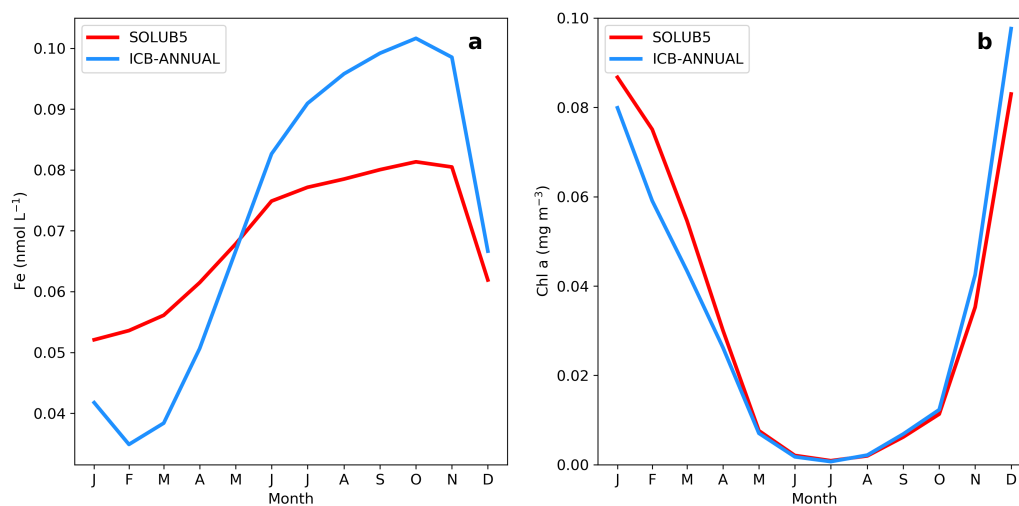
Figure S2. Seasonal cycles of anomalies of surface (a) Fe and (b) chlorophyll concentrations in the SOLUB5 experiment (red) and in the ICB-ANNUAL experiment (blue) relative to the CTL experiment over the SO, south of 50° S.

Table S1. Statistical Model-Data comparison for annual Fe concentrations in the upper 200 m in the Southern Ocean, south of 50°S, between observations (Tagliabue et al., 2012) and SOLUB1, SOLUB5, SOLUB10, ICB-SURF, ICB-ML, and ICB-ANNUAL experiments. R, AE, RMSE, STD, RI, and MEF are, respectively, the correlation coefficient, the average error, the root mean square error, the normalized standard deviation, the reliability index, and the modeling efficiency.

Experiments	Mean (nmol L^{-1})	R	AE (nmol L^{-1})	RMSE	STD	RI	MEF
OBS (n=282)	0.39						
CTL	0.32	0.30	-0.07	0.67	0.35	2.74	0.07
SOLUB1	0.33	0.30	-0.06	0.66	0.38	2.76	0.08
SOLUB5	0.37	0.30	-0.02	0.67	0.48	2.82	0.05
SOLUB10	0.41	0.29	0.02	0.70	0.60	2.91	-0.01
ICB-SURF	0.36	0.31	-0.03	0.67	0.47	2.80	0.07
ICB-ML	0.34	0.28	-0.05	0.67	0.41	2.77	0.06
ICB-ANNUAL	0.37	0.29	-0.02	0.68	0.47	2.81	0.05

Table S2. Statistical Model-Data comparison for surface chlorophyll concentrations in summer (DJF) in the Southern Ocean, south of 50°S, between satellite estimates (Modis-Aqua, Johnson et al. (2013)) and SOLUB1, SOLUB5, SOLUB10, ICB-SURF, ICB-ML, and ICB-ANNUAL experiments. R, AE, RMSE, STD, RI, and MEF are, respectively, the correlation coefficient, the average error, the root mean square error, the normalized standard deviation, the reliability index, and the modeling efficiency.

Experiments	Mean ($mg\ Chl\ m^{-3}$)	R	AE ($mg\ Chl\ m^{-3}$)	RMSE	STD	RI	MEF
OBS (n=15,533)	0.55						
CTL	0.43	0.50	-0.13	0.42	0.70	1.8	0.14
SOLUB1	0.43	0.51	-0.12	0.42	0.72	1.8	0.15
SOLUB5	0.46	0.52	-0.10	0.42	0.78	1.8	0.16
SOLUB10	0.48	0.53	-0.07	0.42	0.82	1.7	0.16
ICB-SURF	0.48	0.52	-0.07	0.43	0.86	1.75	0.12
ICB-ML	0.44	0.51	-0.11	0.42	0.75	1.8	0.15
ICB-ANNUAL	0.45	0.52	-0.10	0.41	0.75	1.75	0.17

References

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