

Interactive comment on “Quantifying the impact of ocean acidification on our future climate” by R. J. Matear and A. Lenton

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New figures added to the paper to compare to the observations

Figure 1: thickness of suboxic water

Figure 2: surface phosphate concentrations

Figure 3: zonally averaged alkalinity and pre-industrial dissolved inorganic carbon

Figure 4: globally averaged profiles of a) pre-industrial dissolved inorganic carbon; b) dissolved oxygen and apparent oxygen utilization; c) phosphate and d) alkalinity.

Figure 5: Revised Taylor Diagram with additional diagnostics plotted. Taylor diagram of the comparison of the simulated fields with the observations for surface phosphate (1),

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dissolved oxygen at 500 m (2), surface aragonite saturation state (3), lysocline depth (4), and the 3-dimensional alkalinity (5), pre-industrial dissolved organic carbon (6), dissolved oxygen (7), phosphate (8) and apparent oxygen utilization (9).

Revised table to go with Taylor Diagram

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Table 1. Summary statistics of the comparison of the REF 1995 simulated fields with the observations shown in Figure ??.

Field	Observations versus REF simulation in 1995							
	Observed Average	Simulated Average	Observed σ	Mean Error	Normalized RMS ^a	RMS	σ	Correlation Coefficient
Phosphate at 0 m (0)	0.51	0.44	0.49	-0.13	0.58	0.60	1.25	0.89
Oxygen at 500 m (0)	157.6	190.1	81.0	0.40	0.54	0.68	1.0	0.85
Aragonite Saturation State at 0 m	2.97	2.75	0.85	-0.29	0.26	0.39	1.06	0.97
Lysocline Depth (m)	1024	1407	679	0.56	0.63	0.84	1.04	0.81
3-D Alkalinity (0)	2418.1	2418.1	44.2	0.0	0.45	0.45	1.15	0.92
3-D pre-industrial DIC (0)	2299.8	2285.6	93.8	-0.15	0.50	0.52	1.19	0.91
3-D Phosphate (0)	2.09	2.09	0.67	0.00	0.68	0.68	1.28	0.85
3-D Oxygen (0)	172.4	191.6	64.5	0.29	0.52	0.60	1.04	0.87
3-D AOU (0)	146.9	129.3	C9270	-0.26	0.54	0.60	1.05	0.86

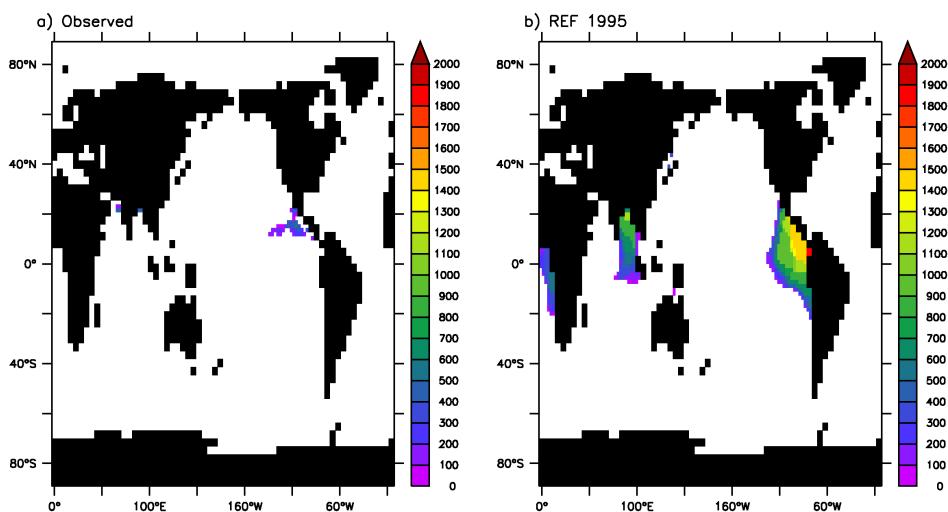


Fig. 1.

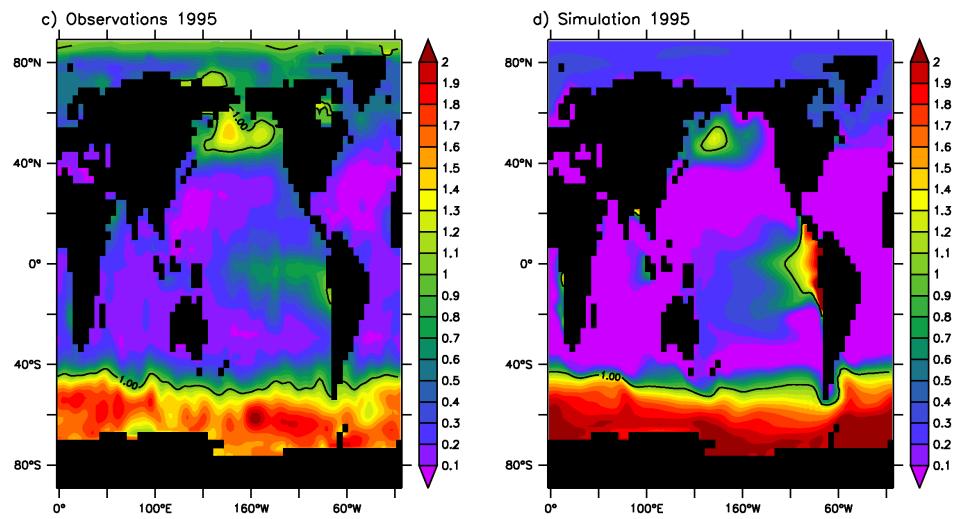


Fig. 2.

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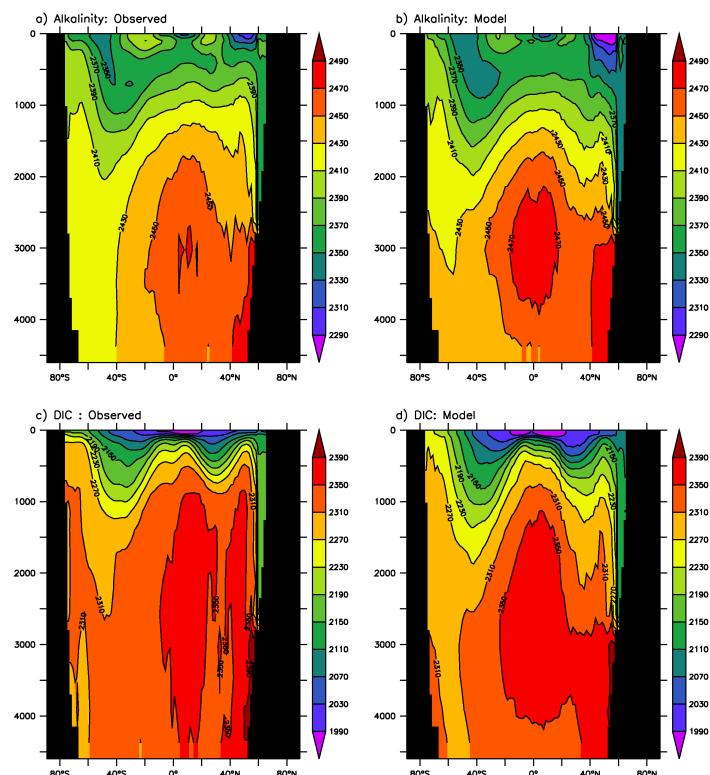


Fig. 3.

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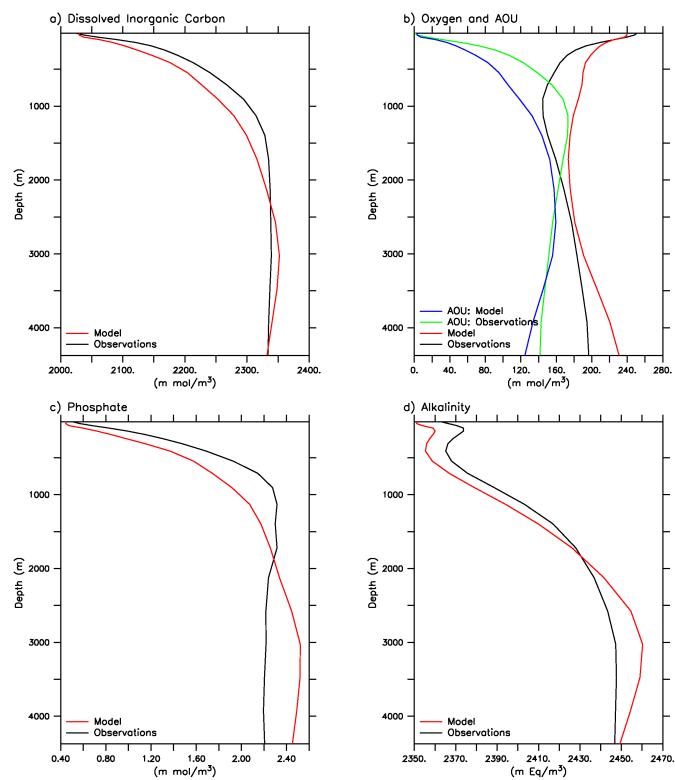


Fig. 4.

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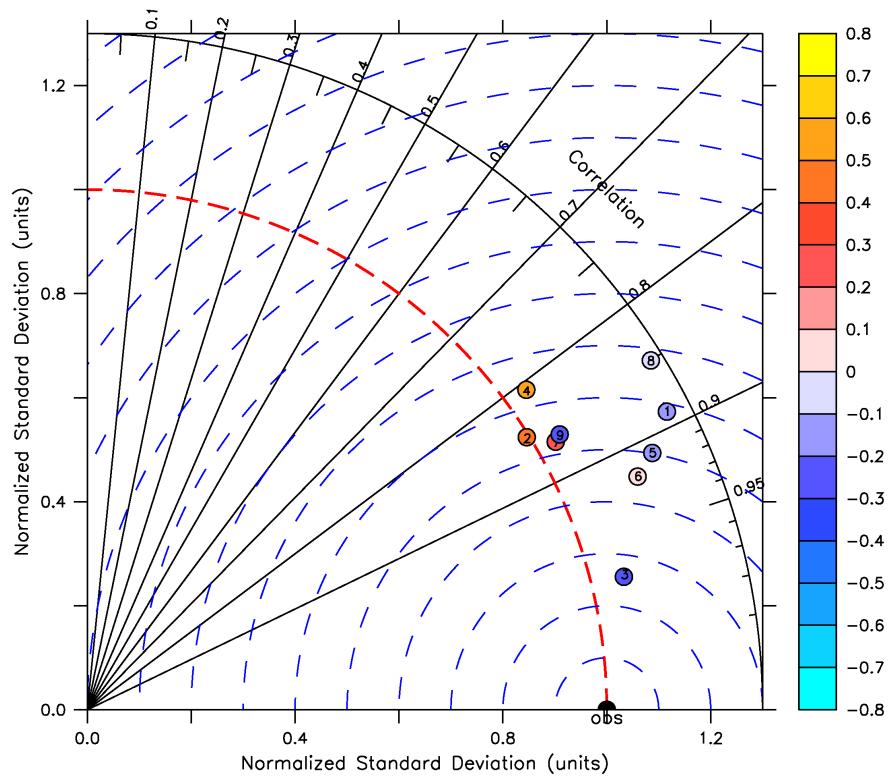


Fig. 5.

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