

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	Observed Average	Simulated Average	Observed σ	Observations versus REF simulation in 1995				Correlation Coefficient
				Mean Error	Normalized RMS'	RMS	σ	
Phosphate at 0 m ()	0.51	0.44	0.49	-0.13	0.58	0.60	1.25	0.89
Oxygen at 500 m ()	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 ()	2418.1	2418.1	44.2	0.0	0.45	0.45	1.15	0.92
3-D pre-industrial DIC ()	2299.8	2285.6	93.8	-0.15	0.50	0.52	1.19	0.91
3-D Phosphate ()	2.09	2.09	0.67	0.00	0.68	0.68	1.28	0.85
3-D Oxygen ()	172.4	191.6	64.5	0.29	0.52	0.60	1.04	0.87
3-D AOU ()	146.9	129.3	98.0	-0.26	0.54	0.60	1.05	0.86

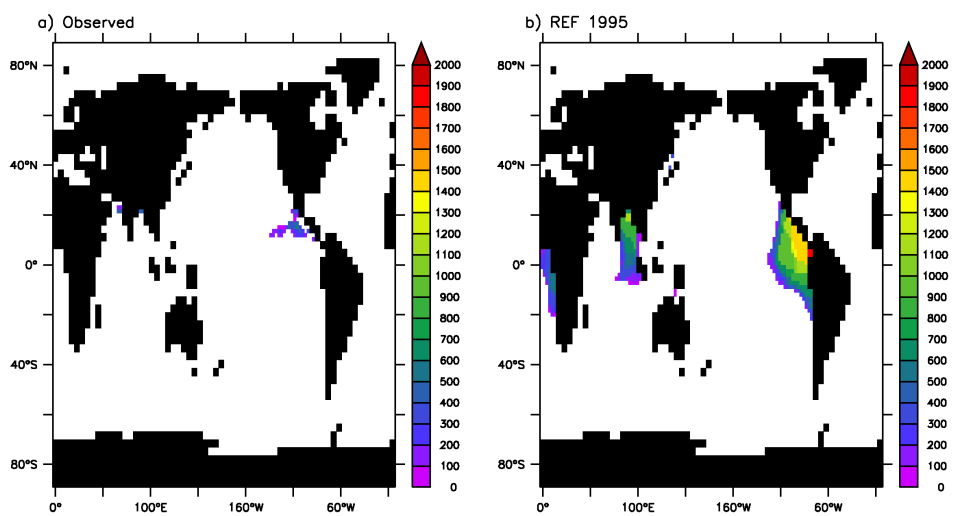


Fig. 1.

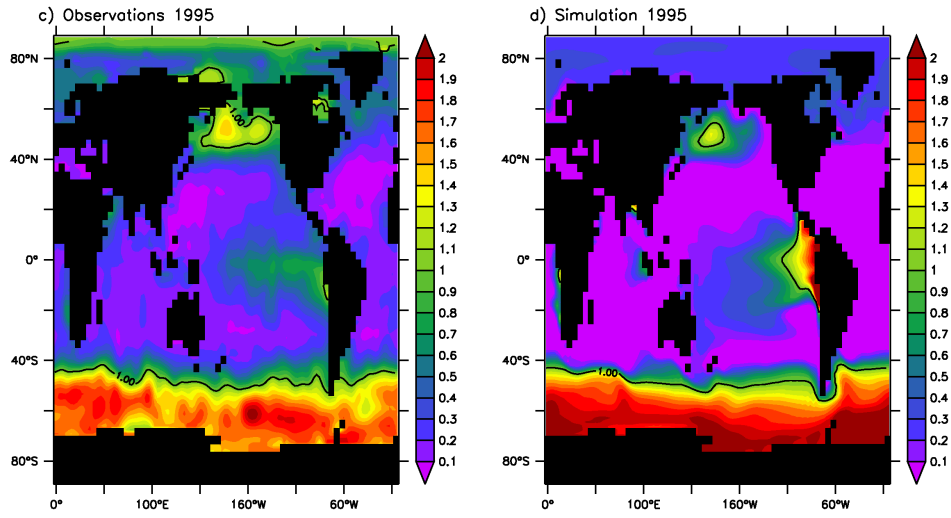


Fig. 2.

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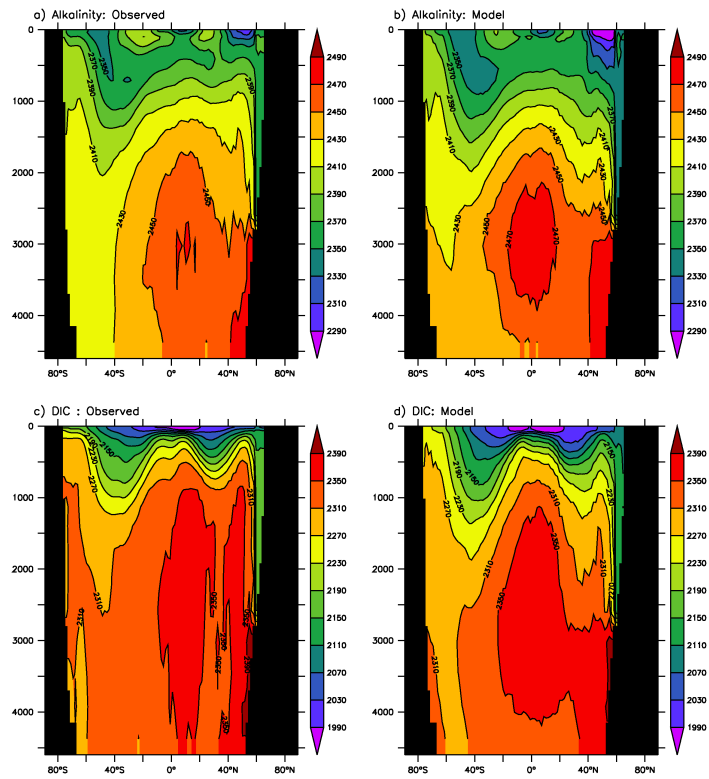


Fig. 3.

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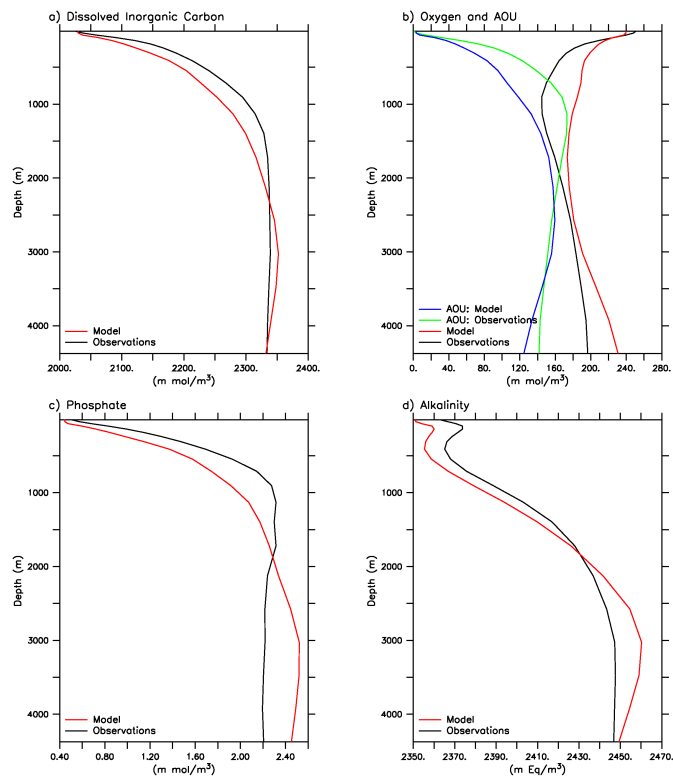


Fig. 4.

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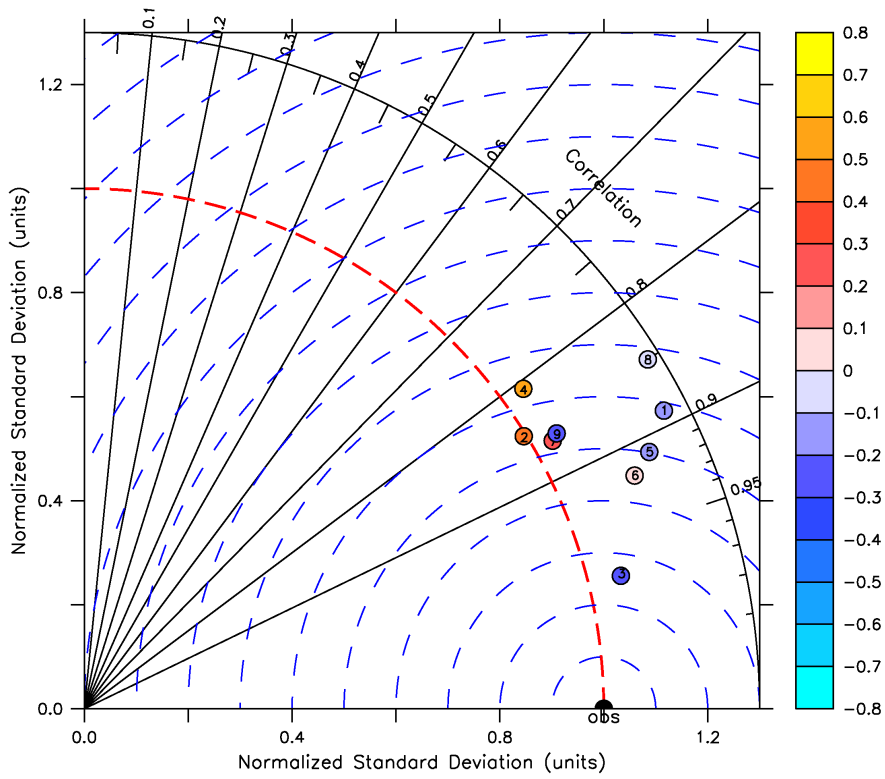


Fig. 5.

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