

Supplement related to

Deconvolving the biogeochemical controls on coral Sr/Ca and Ba/Ca proxies:

New perspectives from paired stable Ca, Sr and Ba isotope compositions

Yang Yu^{1,2*}, Ed Hathorne¹, Xuefei Chen³, Gangjian Wei³, Florian Böhm¹, Alexander Heuser¹, Anton Eisenhauer¹, Christopher Siebert¹ & Martin Frank¹

¹ GEOMAR Helmholtz Centre for Ocean Research, Kiel, Germany

² School of Earth and Environmental Sciences, University of St Andrews, St Andrews, United Kingdom

³ State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China

*Corresponding author: Yang Yu (yy81@st-andrews.ac.uk)

Table S1: Observed coral geochemical data and results of model calculations.

		observed coral skeletal geochemical data					
SST	Age model	Sr/Ca	Ba/Ca	$\delta^{13}\text{C}$	$\delta^{44/42}\text{Ca}$	$\delta^{88/86}\text{Sr}$	$\delta^{138/134}\text{Ba}$
°C		mmol/mol	umol/mol	‰	‰	‰	‰
24.45	01/01/2004	9.19	4.838				
24.69	16/02/2004	9.18	4.578				
27.32	01/04/2004	9.03	4.525				
29.51	17/05/2004	8.98	4.421				
29.55	01/07/2004	8.96	4.486				
29.17	17/08/2004	8.99	4.441				
28.18	01/10/2004	8.98	4.396				
26.64	16/11/2004	9.00	4.359				
24.56	01/01/2005	9.13	4.720				
24.67	28/01/2005	9.06	4.535				
25.48	22/02/2005	9.05	4.676				
26.77	20/03/2005	9.06	4.670				
28.31	15/04/2005	9.06	4.676				
29.33	11/05/2005	8.96	4.428				
29.59	07/06/2005	8.93	4.547				
29.64	03/07/2005	8.97	4.380				
29.42	30/07/2005	8.97	4.542				
28.70	26/08/2005	9.00	4.532				
27.59	21/09/2005	9.02	4.460				
26.21	18/10/2005	9.06	4.659				
24.79	13/11/2005	9.12	4.657				
23.83	09/12/2005	9.15	4.666				
23.73	05/01/2006	9.18	4.611				
24.93	01/02/2006	9.09	4.562				
27.35	01/03/2006	9.02	4.355				
29.10	01/04/2006	8.97	4.320				
29.36	01/05/2006	8.99	4.270				
29.31	01/06/2006	8.97	4.171				
29.51	01/07/2006	8.98	4.252				
29.19	01/08/2006	9.02	4.291				
27.52	01/09/2006	9.09	4.511				
26.66	01/10/2006	9.13	4.510				
24.78	01/11/2006	9.16	4.628				
23.30	01/12/2006	9.19	4.737	-2.48			
24.10	01/01/2007	9.16	4.526	-2.30			
24.87	04/02/2007	9.11	4.491	-2.18			
27.32	07/03/2007	9.05	4.460	-2.11	0.34	0.21	0.40
29.09	09/04/2007	9.00	4.304	-2.19	0.35	0.19	0.39

29.38	12/05/2007	9.02	4.358	-2.20	0.42	0.20	0.39
29.26	15/06/2007	9.01	4.454	-2.24	0.39	0.19	0.40
29.09	18/07/2007	9.04	4.458	-2.37	0.38	0.19	0.38
28.13	21/08/2007	9.06	4.596	-2.45	0.40	0.20	0.38
27.06	23/09/2007	9.09	4.720	-2.51	0.44	0.20	0.38
24.98	26/10/2007	9.14	4.797	-2.61	0.42	0.21	0.40
23.78	28/11/2007	9.19	4.789	-2.43	0.42	0.20	0.39
24.08	01/01/2008	9.18	4.655	-2.26	0.43	0.21	0.41
25.95	06/02/2008	9.08	4.551	-2.10	0.38	0.18	0.40
28.10	12/03/2008	9.01	4.441	-2.11	0.38	0.20	0.39
29.03	17/04/2008	9.02	4.384	-2.12	0.38	0.19	0.37
29.40	24/05/2008	9.01	4.240	-2.08	0.39	0.16	0.41
29.23	28/06/2008	9.05	4.360	-2.11	0.40	0.16	0.39
28.70	04/08/2008	9.11	4.451	-2.20	0.34	0.18	0.38
27.48	09/09/2008	9.11	4.724	-2.12	0.36	0.18	0.39
26.08	15/10/2008	9.15	4.738	-2.38	0.39	0.19	0.39
24.52	20/11/2008	9.25	4.783	-2.17	0.40	0.21	0.38
24.19	26/12/2008	9.27	4.622	-2.01	0.42	0.20	0.38
25.67	01/02/2009	9.19	4.564	-1.99	0.40	0.21	0.41
27.46	04/03/2009	9.11	4.497	-2.00	0.40	0.21	0.39
29.25	06/04/2009	9.01	4.359	-2.02	0.40	0.20	0.39
29.77	09/05/2009	8.99	4.392	-1.99	0.36		0.39
29.57	12/06/2009	8.97	4.405	-1.86			
29.43	15/07/2009	9.06	4.538	-1.96			
28.37	18/08/2009	9.17	4.580	-2.15			
26.49	20/09/2009	9.22	4.649	-2.02			
25.29	24/10/2009	9.25	4.686	-2.06			
23.52	26/11/2009	9.26	4.623	-1.98			
25.21	01/02/2010	9.22	4.645				
27.48	08/03/2010	9.09	4.482				
28.78	14/04/2010	9.00	4.382				
29.14	22/05/2010	9.01	4.547				
29.26	28/06/2010	9.02	4.571				
29.38	04/08/2010	9.04	4.661				
27.98	11/09/2010	9.08	4.637				
25.75	18/10/2010	9.15	4.557				
23.85	24/11/2010	9.18	4.552				
25.52	01/01/2011	9.08	4.537				
27.79	21/02/2011	9.02	4.651				
28.79	14/04/2011	8.99	4.273				
29.19	05/06/2011	9.02	4.509				
28.54	28/07/2011	9.09	4.765				
26.26	18/09/2011	9.14	4.783				

25.15	10/11/2011	9.17	4.784
25.50	01/01/2012	9.12	4.746
26.88	10/02/2012	9.03	4.737
29.36	20/03/2012	8.98	4.777
29.67	28/04/2012	8.93	4.507
29.75	07/06/2012	8.99	4.663
29.55	16/07/2012	8.99	4.447
28.27	26/08/2012	9.04	4.481
26.08	04/10/2012	9.08	4.589
24.38	13/11/2012	9.12	4.643
23.78	23/12/2012	9.14	4.675
24.28	01/02/2013	9.14	4.595
26.11	01/03/2013	9.08	4.515
28.86	01/04/2013	9.01	4.516
28.94	01/05/2013	8.97	4.483
28.91	01/06/2013	8.95	4.340
29.12	01/07/2013	8.94	4.377
