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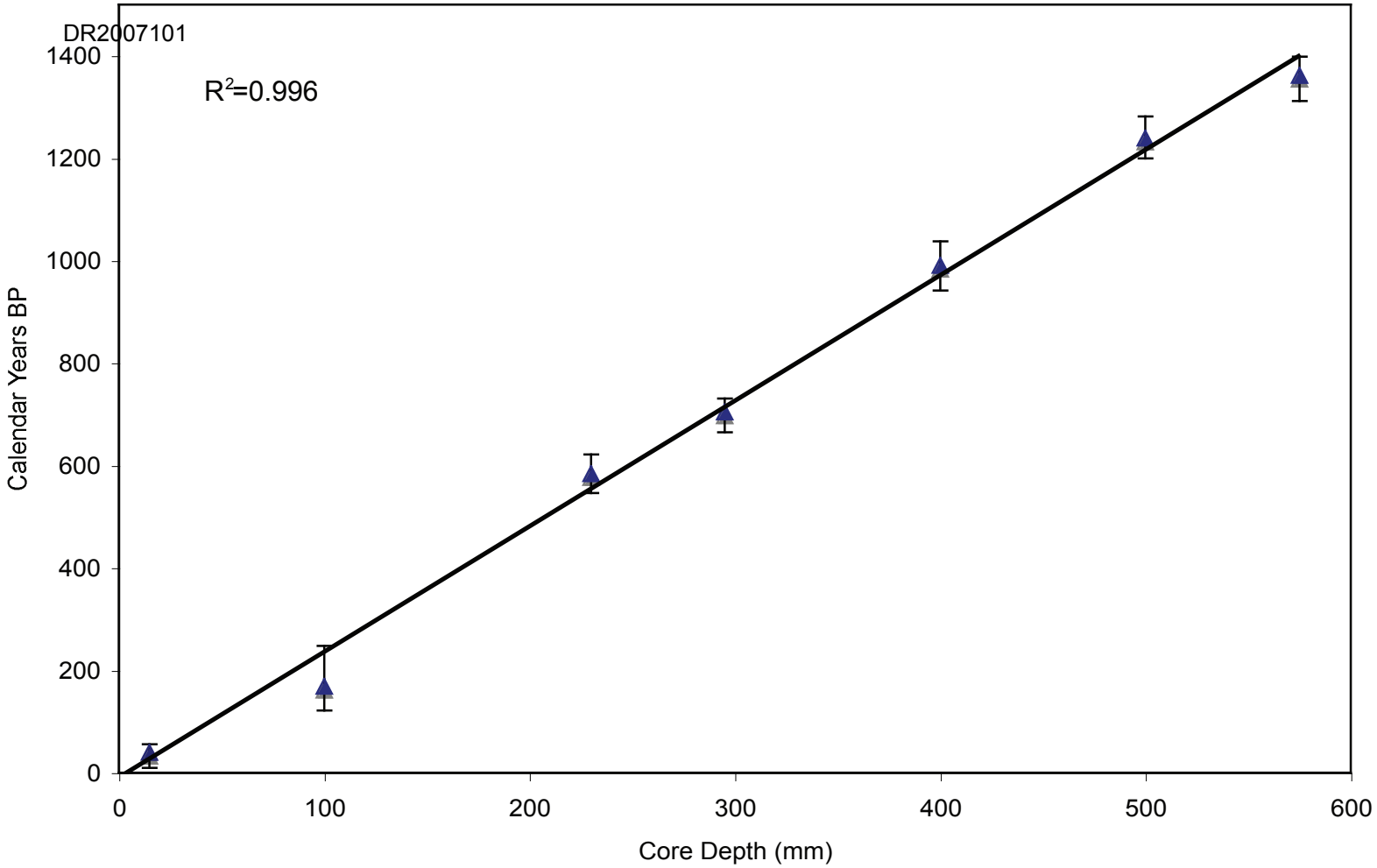
Cal yr B.P	Depth (mm)	Mg/Ca	SST	$\delta^{18}O$(calcite)	% sacc	$\delta^{18}O$(sw)
0.0	0	4.398	25.35	-1.530	2.81	0.92
12.3	5	4.290	25.08	-1.175	2.08	1.22
24.7	10	3.927	24.10	-1.871	2.07	0.32
37.0	15	4.040	24.41	-1.305	3.88	0.95
49.3	20	3.983	24.25	-1.053	3.47	1.17
61.7	25	3.993	24.28	-0.988	5.52	1.24
74.0	30	3.876	23.95	-1.174	3.73	0.98
86.3	35	3.681	23.38	-1.046	3.00	0.99
98.7	40	3.831	23.82	-1.031	2.04	1.10
111.0	45	3.892	24.00	-1.009	2.54	1.16
123.3	50	3.872	23.94	-1.064	4.53	1.09
135.7	55	3.860	23.91	-1.248	4.55	0.90
148.0	60	3.583	23.08	-1.451	4.42	0.52
160.3	65	3.703	23.44	-1.012	1.61	1.04
172.7	70	3.774	23.65	-1.169	2.29	0.93
185.0	75	3.777	23.66	-0.871	5.11	1.22
197.3	80	4.020	24.35	-1.140	6.56	1.10
209.7	85	3.498	22.81	-1.291	2.38	0.63
222.0	90	3.777	23.66	-1.392	4.56	0.70
234.3	95	3.841	23.85	-1.463	5.17	0.67
246.7	100	3.310	22.20	-0.983	3.87	0.81
259.0	105	3.533	22.92	-1.204	7.48	0.74
271.3	110	3.563	23.02	-0.836	7.10	1.12
283.7	115			-1.183	5.39	
296.0	120	3.782	23.68	-0.785	3.52	1.31
308.3	125	3.685	23.39	-0.923	6.21	1.12
320.7	130	3.371	22.40	-1.318	7.26	0.51
333.0	135			-1.017	6.77	
345.3	140	3.998	24.30	-1.396	7.87	0.83
357.7	145	3.675	23.36	-1.556	7.69	0.48
370.0	150	3.794	23.71	-1.040	7.74	1.07
382.3	155	4.133	24.66	-1.458	5.48	0.85
394.7	160	3.789	23.70	-1.086	4.81	1.02
407.0	165	4.015	24.34	-1.425	7.16	0.81
419.3	170	3.733	23.53	-1.506	6.19	0.56
431.7	175	3.737	23.55	-1.390	6.25	0.68
444.0	180	3.739	23.55	-1.217	8.57	0.86
456.3	185	3.466	22.71	-1.592	6.41	0.31

579.7	235	3.878	23.95	-1.258	5.41	0.90
592.0	240	4.075	24.51	-1.410	5.03	0.86
604.3	245	4.019	24.35	-1.550	8.88	0.69
616.7	250	3.909	24.05	-1.398	8.11	0.78
629.0	255	4.042	24.42	-1.634	8.01	0.62
641.3	260	3.797	23.72	-1.307	10.13	0.80
653.6	265	3.830	23.82	-1.432	7.23	0.70
666.0	270	3.652	23.29	-1.406	9.51	0.61
678.3	275	3.631	23.22	-1.557	9.44	0.45
690.6	280	3.668	23.34	-1.677	9.88	0.35
703.0	285	3.880	23.96	-1.302	11.39	0.86
715.3	290			-1.321	13.04	
727.6	295	3.863	23.91	-1.528	9.12	0.62
740.0	300	3.878	23.96	-1.449	8.62	0.71
752.3	305	4.116	24.62	-1.696	6.82	0.60
764.6	310	3.825	23.80	-1.401	9.94	0.72
777.0	315	3.626	23.21	-1.606	7.79	0.39
789.3	320	3.854	23.89	-1.598	10.12	0.54
801.6	325	3.933	24.11	-1.580	8.44	0.61
814.0	330	4.034	24.39	-1.430	9.97	0.82
826.3	335	4.259	25.00	-1.505	6.42	0.87
838.6	340	3.631	23.22	-1.458	7.21	0.55
851.0	345	3.861	23.91	-1.357	5.64	0.79
863.3	350	3.433	22.60	-1.457	8.23	0.42
875.6	355	3.778	23.67	-1.545	8.14	0.55
888.0	360	3.476	22.74	-1.792	11.04	0.11
900.3	365	4.061	24.47	-1.797	8.25	0.47
912.6	370	4.190	24.82	-1.444	9.97	0.89
925.0	375	4.053	24.45	-1.485	6.04	0.77
937.3	380	3.380	22.43	-1.347	5.14	0.49
949.6	385	4.039	24.41	-1.277	6.40	0.97
962.0	390	4.977	26.73	-1.656	7.28	1.08
974.3	395	4.265	25.01	-1.881	8.84	0.50
986.6	400	4.188	24.81	-1.176	7.55	1.16
999.0	405	4.919	26.60	-1.592	14.93	1.12
1011.3	410	3.957	24.18	-1.455	9.90	0.75
1023.6	415	3.977	24.24	-1.189	7.44	1.03
1036.0	420	4.706	26.11	-1.084	9.09	1.52
1048.3	425	5.062	26.92	-1.207	9.49	1.57

1171.6	475	4.168	24.76	-1.404	6.65	0.92
1184.0	480	4.178	24.79	-1.442	9.78	0.89
1196.3	485	4.847	26.43	-1.390	11.73	1.28
1208.6	490	4.633	25.93	-1.468	8.82	1.10
1221.0	495	3.841	23.85	-1.351	6.29	0.78
1233.3	500	3.907	24.04	-1.644	8.75	0.53
1245.6	505	4.576	25.79	-1.197	6.34	1.34
1258.0	510	4.581	25.81	-1.711	11.14	0.83
1270.3	515	4.708	26.11		8.52	
1282.6	520	4.891	26.53		6.44	
1295.0	525	4.618	25.90	-1.642	7.59	0.92
1307.3	530	4.833	26.40	-1.755	11.19	0.91
1319.6	535	4.806	26.34	-1.464	7.64	1.19
1332.0	540	4.787	26.30	-1.760	10.20	0.88
1344.3	545	4.572	25.78	-1.553	7.59	0.99
1356.6	550	4.851	26.44	-1.532	6.98	1.14
1369.0	555	4.368	25.28	-1.600	3.29	0.83
1381.3	560	4.356	25.25	-1.186	5.35	1.24
1393.6	565	4.348	25.23	-1.453	4.91	0.97
1406.0	570	4.224	24.91	-1.324	10.49	1.03
1418.3	575	4.088	24.54	-1.614	8.67	0.67
1430.6	580	4.112	24.61	-1.563	7.14	0.73
1443.0	585	3.956	24.18	-1.125	7.33	1.08
1455.3	590	3.752	23.59	-1.714	8.42	0.37



Depth (mm)	Raw ^{14}C age	Analytical error	Cal Age (yrs BP)	+	-
15-20	350	40 yrs	40	16	31
100-105	535	40 yrs	169	79	48
230-235	1000	40 yrs	584	37	38
295-300	1160	35 yrs	704	27	39
400-405	1445	40 yrs	991	47	49
500-505	1680	40 yrs	1239	43	39
575-580	1825	35 yrs	1362	36	50

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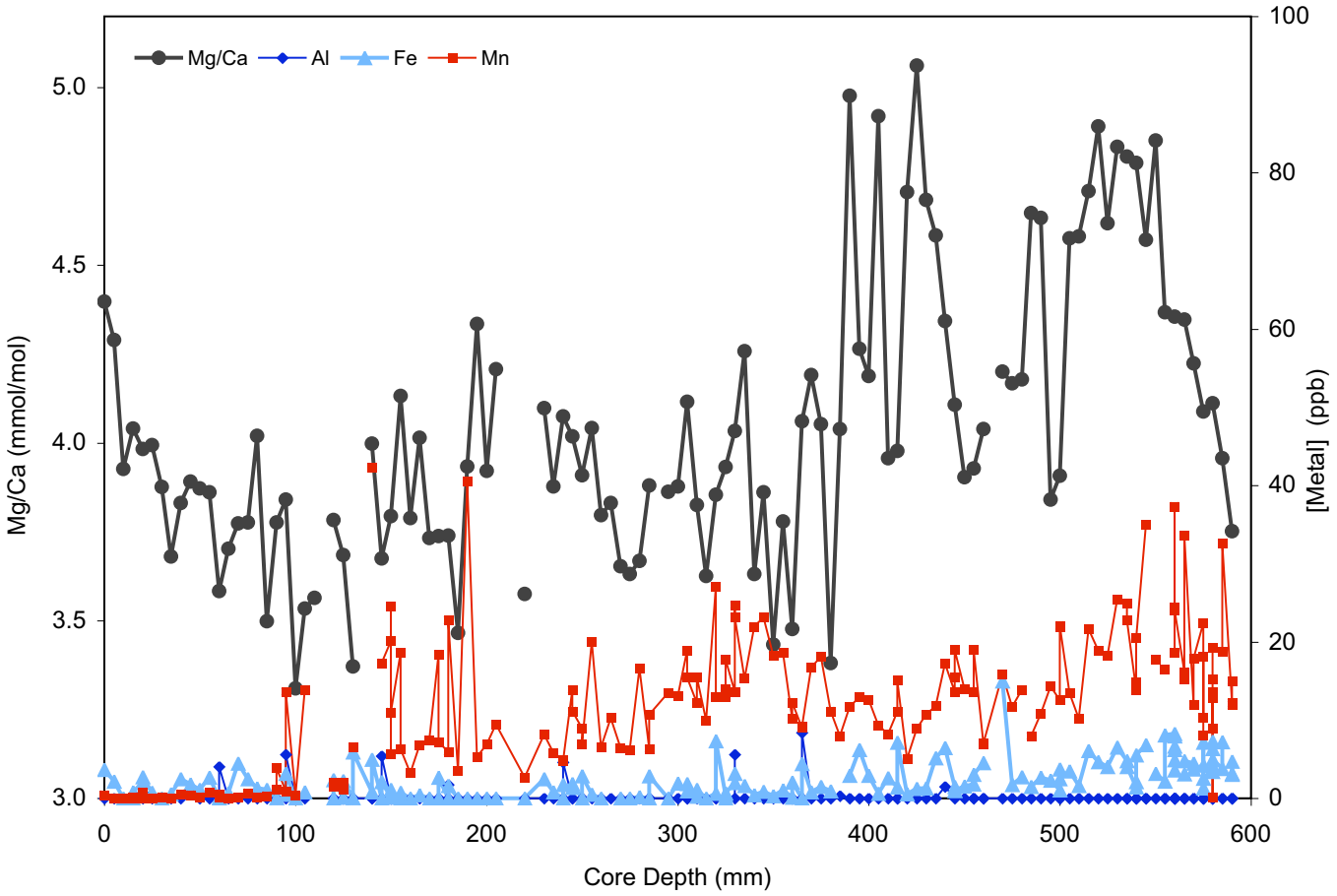
Mg/Ca
Al
Fe
Mn
Mg/Ca (mmol/mol)
[Metal] (ppb)
Core Depth (mm)
5.0
4.5
4.0
3.5
3.0
100
80
60
40
20
0
0
100
200
300
400
500
600

Sample Processing

The relative abundance of *G. sacculifer* in the planktic foraminifer assemblage for each sample was determined from faunal census counts of ~300 specimens in the >150 µm size fraction. For oxygen isotope and Mg/Ca analysis, 40-80 individual *G. ruber* (white variety) were picked from the 250-300 µm size fraction of each sample.

Morphotype Variability

Steinke et al. (2005) raised the issue of different morphotypes of *G. ruber* and the possibility that changes in the SST record were in part due to changes in the relative abundance of the different morphotypes. We scanned a subset of our faunal slides to check for variation in the 2 morphotypes. We found that both morphotypes are present in most assemblages and estimate that the sensu lato morphotype comprised up to 1/3 of some assemblages. We found no relationship between Mg/Ca and morphotype variation.

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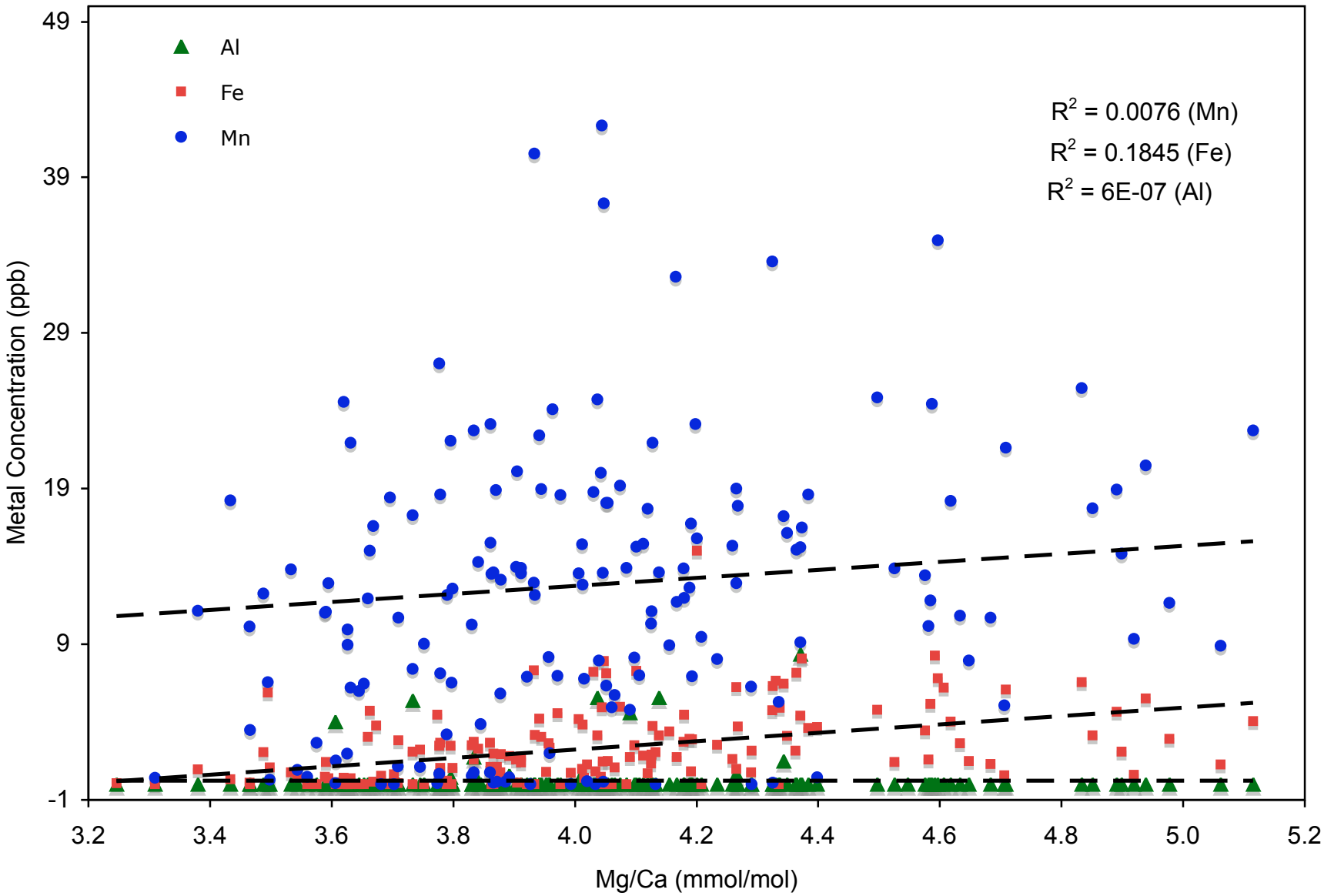
Al
Fe
Mn
R^2 = 0.0076 (Mn)
R^2 = 0.1845 (Fe)
R^2 = 6E-07 (Al)
Metal Concentration (ppb)
49
39
29
19
9
-1
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
Mg/Ca (mmol/mol)