

**Table A: U-Th-Pb data from D'Entrecasteaux Islands and Goodenough No. 1 Well**

Grain	U	Th	Th/U	$^{204}\text{Pb}/^{206}\text{Pb}$	$^{207}\text{Pb}/^{206}\text{Pb}$	$^{238}\text{U}/^{206}\text{Pb}$	Age <sup>1</sup>
Z968 Felsic gneiss, Goodenough Island 89301							
1.0	149	40	0.27	$0.01658 \pm 0.00649$	$0.13584 \pm 0.00904$	$481 \pm 26$	$12.08 \pm 0.68$
2.0	191	105	0.55	$0.02947 \pm 0.01316$	$0.29232 \pm 0.03695$	$1726 \pm 141$	$2.73 \pm 0.27$
3.0	648	116	0.18	$0.00796 \pm 0.00307$	$0.09755 \pm 0.00632$	$1267 \pm 58$	$4.80 \pm 0.23$
4.0	218	193	0.88	$0.02631 \pm 0.01214$	$0.20506 \pm 0.02127$	$2052 \pm 153$	$2.60 \pm 0.21$
5.0	312	266	0.85	$0.02491 \pm 0.00950$	$0.22656 \pm 0.02035$	$2063 \pm 203$	$2.51 \pm 0.26$
6.0	216	153	0.71	$0.02380 \pm 0.01046$	$0.24095 \pm 0.01590$	$2001 \pm 133$	$2.54 \pm 0.18$
7.0	284	185	0.65	$0.02309 \pm 0.00726$	$0.17402 \pm 0.01084$	$2066 \pm 266$	$2.68 \pm 0.35$
8.0	285	127	0.45	$0.00192 \pm 0.00079$	$0.06213 \pm 0.00277$	$159 \pm 4$	$39.81 \pm 0.96$
9.0	110	31	0.28	$0.03562 \pm 0.01602$	$0.28508 \pm 0.03258$	$2005 \pm 237$	$2.38 \pm 0.30$
10.0	190	99	0.52	$0.01397 \pm 0.00861$	$0.16788 \pm 0.01917$	$1782 \pm 163$	$3.14 \pm 0.30$
11.0	184	66	0.36	$0.02665 \pm 0.00990$	$0.19034 \pm 0.02317$	$1771 \pm 162$	$3.07 \pm 0.30$
12.0	185	53	0.29	$0.01247 \pm 0.00738$	$0.22988 \pm 0.02180$	$2353 \pm 224$	$2.19 \pm 0.22$
13.0	105	50	0.48	$0.00296 \pm 0.00498$	$0.24198 \pm 0.03155$	$1474 \pm 174$	$3.44 \pm 0.43$
14.0	288	38	0.13	$0.02478 \pm 0.01569$	$0.18188 \pm 0.02900$	$1972 \pm 771$	$2.78 \pm 1.09$
Z1021 Felsic gneiss, Goodenough Island 89303							
5.0	807	395	0.49	$0.00486 \pm 0.00184$	$0.10592 \pm 0.00511$	$362 \pm 14$	$16.41 \pm 0.64$
6.0	201	85	0.42	$0.00576 \pm 0.00239$	$0.08995 \pm 0.00417$	$160 \pm 5$	$37.82 \pm 1.19$
7.0	174	63	0.36	$0.01544 \pm 0.00752$	$0.23462 \pm 0.01886$	$262 \pm 16$	$18.70 \pm 1.29$
8.0	376	275	0.73	$0.00219 \pm 0.00090$	$0.06253 \pm 0.00235$	$116 \pm 3$	$53.99 \pm 1.43$
9.0	155	132	0.85	$0.01938 \pm 0.00991$	$0.30873 \pm 0.03500$	$1378 \pm 146$	$3.12 \pm 0.39$
10.0	418	65	0.16	$0.00094 \pm 0.00055$	$0.05796 \pm 0.00269$	$104 \pm 3$	$60.50 \pm 1.62$
11.0	229	125	0.55	$0.01643 \pm 0.00768$	$0.28508 \pm 0.02925$	$223 \pm 14$	$20.05 \pm 1.65$
12.0	214	105	0.49	$0.00306 \pm 0.00145$	$0.05987 \pm 0.00382$	$66 \pm 3$	$95.57 \pm 3.68$
13.0	239	250	1.04	$0.05006 \pm 0.01404$	$0.37168 \pm 0.03144$	$1672 \pm 105$	$2.26 \pm 0.21$
14.0	136	36	0.27	$0.01182 \pm 0.00459$	$0.15323 \pm 0.01058$	$224 \pm 18$	$24.80 \pm 1.99$
15.0	234	265	1.13	$0.05982 \pm 0.01243$	$0.67272 \pm 0.03616$	$874 \pm 48$	$1.50 \pm 0.35$
16.0	228	321	1.40	$0.08180 \pm 0.01465$	$0.64998 \pm 0.03766$	$1143 \pm 83$	$1.31 \pm 0.29$
17.0	193	193	1.00	$0.01509 \pm 0.01141$	$0.32827 \pm 0.02956$	$1521 \pm 166$	$2.72 \pm 0.34$
18.0	88	68	0.77	<0.02	$0.35417 \pm 0.07509$	$1586 \pm 300$	$2.47 \pm 0.61$
19.0	135	104	0.77	$0.05366 \pm 0.02044$	$0.23523 \pm 0.03458$	$1635 \pm 143$	$2.99 \pm 0.31$
20.0	476	187	0.39	$0.00658 \pm 0.00286$	$0.09263 \pm 0.00602$	$182 \pm 6$	$33.26 \pm 1.12$
Z1022 Omara granodiorite 89652							
1.1	1188	1934	1.63	$0.03019 \pm 0.01555$	$0.24424 \pm 0.03140$	$2670 \pm 319$	$1.89 \pm 0.24$
1.2	1213	1959	1.62	$0.00708 \pm 0.00647$	$0.24584 \pm 0.05166$	$2642 \pm 312$	$1.91 \pm 0.26$
1.3	1699	2465	1.45	$0.00474 \pm 0.00274$	$0.13774 \pm 0.00981$	$3236 \pm 169$	$1.79 \pm 0.10$
1.4	1653	2421	1.46	<0.01	$0.15644 \pm 0.01445$	$2980 \pm 280$	$1.90 \pm 0.18$
2.1	1305	1966	1.51	$0.01566 \pm 0.00724$	$0.11971 \pm 0.01287$	$3056 \pm 204$	$1.94 \pm 0.13$
2.2	1319	1961	1.49	$0.02742 \pm 0.00874$	$0.14439 \pm 0.01314$	$2803 \pm 405$	$2.05 \pm 0.30$
3.1	1814	3439	1.90	$0.00694 \pm 0.00405$	$0.08997 \pm 0.00972$	$2982 \pm 272$	$2.06 \pm 0.19$
4.1	1571	2592	1.65	$0.00315 \pm 0.00144$	$0.07975 \pm 0.00400$	$3106 \pm 222$	$2.03 \pm 0.15$
5.1	2202	3156	1.43	$0.00383 \pm 0.00163$	$0.05758 \pm 0.00420$	$3083 \pm 84$	$2.06 \pm 0.06$
Z1137 Normanby granodiorite 89329							
1.1	197	222	1.13	$0.23109 \pm 0.05537$	$0.44001 \pm 0.04401$	$3036 \pm 647$	$1.21 \pm 0.28$
2.1	110	92	0.84	$0.09570 \pm 0.03834$	$0.52607 \pm 0.08647$	$2704 \pm 734$	$1.13 \pm 0.38$
3.1	738	1090	1.48	$0.02897 \pm 0.00980$	$0.16233 \pm 0.01874$	$3397 \pm 457$	$1.66 \pm 0.23$
4.1	1698	3355	1.98	$0.00862 \pm 0.00391$	$0.08118 \pm 0.00641$	$3547 \pm 355$	$1.75 \pm 0.18$
5.1	164	156	0.95	$0.06411 \pm 0.04100$	$0.65054 \pm 0.17864$	$579 \pm 85$	$3.78 \pm 2.24$
6.1	1925	3195	1.66	$0.02711 \pm 0.00897$	$0.19584 \pm 0.01501$	$2870 \pm 380$	$1.88 \pm 0.25$
7.1	1189	1864	1.57	$0.00643 \pm 0.00398$	$0.10263 \pm 0.01170$	$3672 \pm 552$	$1.65 \pm 0.25$
8.1	295	323	1.09	$0.05903 \pm 0.02145$	$0.17773 \pm 0.02721$	$3776 \pm 1427$	$1.46 \pm 0.55$
9.1	1220	1750	1.43	$0.01212 \pm 0.00424$	$0.08407 \pm 0.00875$	$3615 \pm 445$	$1.71 \pm 0.21$
10.1	94	71	0.76	$0.08024 \pm 0.03093$	$0.70999 \pm 0.09649$	$332 \pm 37$	$5.33 \pm 2.13$

Grain	U	Th	Th/U	$^{204}\text{Pb}/^{206}\text{Pb}$	$^{207}\text{Pb}^*/^{206}\text{Pb}^*$	$^{238}\text{U}/^{206}\text{Pb}^*$ Age <sup>2</sup>
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(\*These data have had common lead subtracted.)

Z1136 Goodenough Well No. 1.

1106 - 1109 m

1.1	92	64	0.70	$0.00020 \pm 0.00006$	$0.1940 \pm 0.0021$	$1.83 \pm 0.03$	$2777 \pm 18$
2.1	68	38	0.55	$0.00008 \pm 0.00005$	$0.1955 \pm 0.0018$	$1.87 \pm 0.04$	$2789 \pm 15$
3.1	77	45	0.59	$0.00003 \pm 0.00004$	$0.1962 \pm 0.0023$	$1.85 \pm 0.09$	$2795 \pm 19$
4.1	63	44	0.69	$0.00013 \pm 0.00010$	$0.1937 \pm 0.0032$	$1.84 \pm 0.06$	$2773 \pm 27$
5.1	85	49	0.58	<0.0001	$0.1939 \pm 0.0016$	$1.82 \pm 0.05$	$2775 \pm 14$
6.1	77	44	0.57	$0.00006 \pm 0.00006$	$0.1958 \pm 0.0025$	$1.87 \pm 0.05$	$2791 \pm 21$
7.1	67	32	0.48	$0.00239 \pm 0.00048$	$0.1884 \pm 0.0082$	$2.21 \pm 0.09$	$2728 \pm 74$
8.1	58	33	0.57	$0.00149 \pm 0.00025$	$0.1920 \pm 0.0051$	$1.81 \pm 0.04$	$2760 \pm 44$
9.1	57	30	0.52	$0.00010 \pm 0.00008$	$0.1956 \pm 0.0034$	$1.84 \pm 0.08$	$2790 \pm 28$
10.1	66	37	0.57	$0.00049 \pm 0.00012$	$0.1917 \pm 0.0037$	$1.80 \pm 0.04$	$2757 \pm 32$

360 - 366 m

11.1	108	78	0.72	$0.00010 \pm 0.00004$	$0.1945 \pm 0.0015$	$1.85 \pm 0.06$	$2781 \pm 12$
12.1	63	29	0.45	<0.0001	$0.1848 \pm 0.0040$	$1.69 \pm 0.06$	$2697 \pm 36$
13.1	71	52	0.73	<0.0001	$0.1961 \pm 0.0014$	$1.88 \pm 0.04$	$2794 \pm 12$
14.1	82	59	0.72	$0.00011 \pm 0.00006$	$0.1960 \pm 0.0020$	$1.84 \pm 0.06$	$2793 \pm 17$
15.1	61	37	0.60	$0.00010 \pm 0.00014$	$0.1919 \pm 0.0044$	$1.75 \pm 0.05$	$2758 \pm 38$
16.1	114	69	0.60	$0.00048 \pm 0.00026$	$0.1867 \pm 0.0057$	$1.75 \pm 0.08$	$2714 \pm 52$
17.1	43	18	0.41	$0.00011 \pm 0.00013$	$0.1968 \pm 0.0047$	$1.82 \pm 0.07$	$2800 \pm 39$
18.1	112	81	0.72	$0.00025 \pm 0.00007$	$0.1941 \pm 0.0016$	$1.92 \pm 0.06$	$2777 \pm 14$
19.1	69	40	0.58	<0.0001	$0.1909 \pm 0.0034$	$1.67 \pm 0.09$	$2750 \pm 29$

1  $^{238}\text{U}/^{206}\text{Pb}$  age based on extrapolation to concordia from Broken Hill common Pb.

2  $^{207}\text{Pb}/^{206}\text{Pb}$  age after correction for common Pb based on  $^{204}\text{Pb}/^{206}\text{Pb}$