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Title of article Dating recent Hawaiian lava flows using paleomagnetic secular variation

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Contents 10 pgs.

Tables A, B. and C

Explanatory Notes for Tables A and B

1. Dash in place of entry means that no measurement was made.

2. Site ID code: Sites sampled in 1978 or 1979 have initial digit of 8 or 9; B is laboratory (U.S.G.S., Menlo Park) code for project. Last three digits denote cores, numbered each year from 001 in order of collection, each site given number of its first core. Subsites denoted by A or B when tabulated separately

3. Location: Latitude and longitude in deg and min to nearest 0.01 min.

4. Field directions. Declination (D) and inclination (I) for present, ancient fields denoted respectively by subscripts p, a.

5. J_{NRM} is mean intensity of natural remanent magnetization, in A/m.

6. Paleomagnetic laboratory parameters: Column $\tilde{H}$ indicates peak AF intensity, in milliteslas (mT), chosen for cleaning. Column F gives results of F-test comparison of subsites; S, N indicate that subsite means are or are not, respectively, significantly different at 95% confidence level; I means F-test invalid. Column n gives number of specimens used for final site mean, after elimination of anomalous specimens. k is within-site precision; α_{95} is circle of 95% confidence around ancient mean direction.

7. Age data: Most entries in Table A indicate age in years B.P. (before A.D. 1950) and U.S.G.S. radiocarbon laboratory (Reston) ID number of ^{14}C sample. Dates without laboratory number denote year (A.D.) of eruption. Entries in Table B are inferred ages, in years B.P.

8. Site type: Code as explained in Table B.

Table A: Paleomagnetic Results from Dated Lava Flows (Page 1)

Site ID	Site Location N. Lat.		Site Location W. Long.		Present field D_p	Present field I_p	J_{NRM}	Lab parameters $\tilde{H}$	Lab parameters F	Lab parameters n	Lab parameters k
8B001	19	36.48	155	01.77	14.9±2.8	38.0	9	20	N	12	701
8B025	19	26.61	154	51.99	10.8±1.5	39.0	7	20	N	11	827
8B061	19	35.42	155	00.90	5.9±3.1	39.0	8	10	N	11	1535
8B301	19	22.43	154	58.01	14.4±4.0	37.0	12	15	N	12	552
8B325	19	23.87	154	57.62	10.3±4.4	36.5	14	15	I	12	470
8B337	19	30.94	154	54.76	10.9±3.7	39.0	6	20	S	12	846
8B385	19	18.16	155	18.34	20.4±23	37.5	-	60	N	8	452
8B397	19	18.10	155	18.38	14.4±1.1	37.5	8	20	N	11	354
8B409	19	18.11	155	18.37	13.7±2.8	37.5	6	60	N	11	796
8B421	19	28.20	155	10.22	11.8±1.9	36.5	7	30	I	18	872
8B433	19	42.80	155	07.09	15.4±2.9	35.0	16	15	N	12	467
8B541	19	20.44	155	13.41	12.7±3.9	36.5	13	15	N	11	1363
8B553	19	29.25	155	23.19	8.7±2.3	38.0	17	30	I	24	377
8B577	19	21.90	155	23.10	10.6±2.4	35.0	9	20	N	12	320
8B589	19	19.98	155	24.34	12.0±2.0	33.0	7	30	I	20	1037
8B601	19	20.04	155	24.49	14.6±2.7	36.0	9	30	I	23	354
8B613	19	26.73	155	19.12	15.5±5.3	40.5	15	15	S	9	515
8B625	19	27.32	155	17.60	11.4±2.9	38.0	8	20	N	12	1091
8B661	19	13.43	155	27.94	15.2±1.6	37.0	5	20	N	12	893
8B673	19	13.94	155	27.58	17.2±2.4	-	10	30	S	23	840
8B685	19	27.06	155	14.32	11.3±2.4	38.0	8	15	N	11	901
8B697	19	11.23	155	29.15	12.3±3.2	36.0	14	30	S	24	580
8B709	19	11.36	155	31.70	9.2±2.6	38.3	6	30	N	12	547
8B721	19	09.19	155	32.77	13.4±2.0	36.0	10	15	N	12	933
8B757	19	23.24	155	17.84	13.2±1.8	39.5	4	20	N	11	1602
8B793	19	32.71	155	05.30	12.6±2.1	37.0	8	15	N	12	630
8B829	19	33.10	155	18.10	10.8±6.9	40.5	19	20	N	11	2162
8B841	19	27.32	155	17.07	12.1±4.4	35.5	14	20	S	11	171
8B853	19	22.49	155	22.68	11.3±1.1	36.0	11	10	N	11	515
8B865	19	13.03	155	27.10	12.9±0.9	37.0	5	30	I	24	661
8B877	19	12.73	155	28.16	14.0±0.8	36.0	5	15	N	11	559
8B889	19	07.07	155	34.46	9.4±4.2	38.0	10	10	N	11	624
8B901	19	32.57	155	07.46	9.4±1.5	-	6	20	S	12	829
8B913	19	08.28	155	33.14	12.2±2.4	39.3	10	20	N	9	1385
8B925	19	04.19	155	36.91	4.7±2.3	40.5	18	15	N	11	530
8B937	19	09.46	155	32.58	10.2±2.1	36.5	9	15	N	11	873
8B949	19	09.65	155	32.55	-	37.0	8	20	I	18	1328
9B013	19	35.85	155	08.82	6.4±2.8	36.5	13	20	N	11	1748
9B037	19	38.38	155	02.55	11.6±1.5	35.5	8	20	N	12	361
9B049	19	41.06	155	06.55	7.6±6.1	36.0	8	20	N	11	686
9B061	19	38.52	155	07.64	11.1±3.9	37.0	14	30	N	9	777
9B073	19	21.68	155	22.85	5.1±2.0	36.0	9	20	N	10	819
9B085	19	35.71	155	21.37	13.9±1.9	36.5	13	20	N	12	411
9B097	19	34.86	155	21.03	14.6±2.2	38.5	19	20	N	9	679

Table A: Paleomagnetic Results from Dated Lava Flows (Page 2)

Site ID	Ancient field α_{95}	D_a	I_a	Yr AD or Yrs BP	14C ID	Site type
8B001	1.6	2.0	43.3	260±70	W-3881	PT4
8B025	1.6	8.3	37.5	ca. 1790	-	PT5
8B061	1.2	3.8	41.5	450±60	W-3941	PT4
8B301	1.8	6.3	33.6	ca. 1750	-	A2
8B325	2.0	6.3	36.9	ca. 1750	-	PT5
8B337	1.5	6.8	37.5	1840	-	PS2
8B385	2.6	357.8	29.5	4820±90	W-3798	L,PT1
8B397	2.4	353.6	21.1	1130±60	W-3827	A4
8B409	1.6	3.6	35.9	3480±80	W-3831	L,PT1
8B421	1.2	3.0	42.5	310±70	W-4162	PT4
8B433	1.1	4.5	33.4	4050±200	W-3803	PT1
8B541	1.2	0.7	41.9	620±70	W-4337	PT1
8B553	1.5	357.9	37.4	910±70	W-4047	A1
8B577	2.4	4.6	38.5	4340±80	W-3844	PT3
8B589	0.4	4.1	38.5	450±60	W-3842	PT2
8B601	1.6	1.9	32.8	2950±80	W-3841	PT2
8B613	2.3	0.6	37.8	230±60	W-3871	A2
8B625	1.3	1.3	15.2	2190±70	W-3876	A2
8B661	1.5	4.3	24.3	1400±60	W-3858	PT4
				1470±60	W-3857	
8B673	1.0	1.7	35.6	670±60	W-3860	PT2
8B685	1.5	4.2	37.2	730±80	W-3999	PT2
8B697	1.3	353.0	31.9	1810±80	W-3850	PT4,A2
8B709	1.9	355.3	41.2	3900±80	W-4009	A2
8B721	1.4	356.9	37.8	640±50	W-4025	A2
8B757	1.1	8.9	39.1	1790	-	P1,PS2
8B793	1.7	5.5	41.3	260±70	W-3881	PT1
8B829	1.0	7.2	36.4	450±60	W-3793	PS1
				420±60	W-3790	
8B841	3.5	3.3	36.5	830±60	W-3879	P2,PT1
8B853	2.0	4.3	26.0	1330±70	W-3000	PT1
8B865	1.2	3.9	37.0	330±60	W-3811	P1,PT
8B877	1.9	6.6	37.0	3610±60	W-3884	PS2
8B889	1.8	11.0	15.4	2180±60	W-4015	A2
8B901	1.5	5.5	33.6	5650±90	W-3862	A2
8B913	1.4	359.5	37.7	740±60	W-4012	PS3
8B925	2.0	7.4	29.7	3620±250	W-2016	PT3
				3740±250	W-856	
8B937	1.5	5.9	7.0	2300±60	W-4008	A2
8B949	0.9	1.2	28.0	3900±90	W-4132	PS3
9B013	1.1	359.3	22.2	2890±70	W-4174	PS3
9B037	2.3	357.8	25.6	2890±70	W-4174	A2
9B049	1.5	359.7	18.6	1280±70	W-4343	PT2
9B061	1.8	5.4	40.0	570±60	W-5098	PT3
9B073	1.7	1.3	38.5	230±60	W-3871	A2
9B085	2.1	1.9	18.9	1400±70	W-4340	PT1
9B097	2.0	0.0	17.3	1490±50	W-4357	PT1

Table A: Paleomagnetic Results from Dated Lava Flows (Page 3)

Site ID	Site Location N. Lat.		Site Location W. Long.		Present field D_p	Present field I_p	J_{NRM}	Lab parameters $\tilde{H}$	Lab parameters F	Lab parameters n	Lab parameters k
9B109	19	33.84	155	20.64	12.3±1.6	37.5	17	20	N	12	401
9B121	19	34.80	155	03.72	10.4±2.0	-	5	20	N	12	906
9B133	19	35.26	155	01.03	15.0±1.6	-	5	30	N	11	528
9B205	19	29.81	154	52.44	5.7±1.6	-	11	10	S	10	1075
9B253	19	29.86	155	19.10	13.2±2.4	37.8	19	30	N	11	1316
9B265	19	28.73	155	22.01	7.8±2.4	38.0	13	30	N	11	1658
9B277	19	29.16	155	23.13	11.3±4.5	36.5	13	70	N	11	240
9B349	19	13.03	155	27.70	11.8±2.1	37.0	4	30	N	11	6217
9B373	19	08.87	155	30.97	5.1±2.5	37.5	14	30	S	11	245
9B409	19	17.48	155	24.13	12.4±1.9	37.0	8	40	S	12	361
9B433	19	34.29	155	03.57	11.8±3.0	-	2	20	N	11	418
9B445	19	09.64	155	32.55	11.4±5.0	-	15	20	N	12	466
9B457	19	08.50	155	33.28	13.2±2.7	38.5	11	30	N	10	3134
9B469	19	09.04	155	33.94	12.1±2.3	37.0	5	20	S	11	2232
9B505	19	04.28	155	40.96	10.8±3.5	36.0	5	40	S	9	785
9B517	19	03.79	155	39.56	9.7±1.9	36.5	11	20	N	11	1063
9B529	19	03.98	155	42.98	13.3±4.4	38.0	12	20	N	12	501
9B577	19	28.94	155	21.74	12.7±5.5	41.0	22	30	N	11	559
9B697	19	15.57	155	24.63	14.0±2.1	39.0	15	40	N	11	1722
9B721	19	33.45	154	52.87	11.8±1.0	-	4	10	S	11	1558
9B757	19	07.79	155	50.50	15.0±2.3	37.0	6	25	N	11	1120
9B889	19	35.04	155	01.84	11.2±1.6	37.5	6	30	N	11	1721
9B925	19	24.74	155	20.54	10.7±2.5	38.0	13	10	N	10	532

Table A: Paleomagnetic Results from Dated Lava Flows (Page 4)

Site ID	Ancient field α_{95}	D_a	I_a	Yr AD or Yrs BP	14C ID	Site type
9B109	2.2	2.2	18.2	1320±50	W-4237	PT1
9B121	1.4	3.2	44.2	260±70	W-3881	P1,PT
9B133	2.0	4.2	45.6	450±60	W-3941	PT3
9B205	1.4	359.7	41.8	ca.1360	-	V1
9B253	1.3	9.9	36.9	200	W-4331	PT1
9B265	1.1	6.0	40.5	580±80	W-4118	A1
9B277	3.0	354.9	15.9	1840±60	W-4116	PT1,L
9B349	0.5	3.4	38.3	330±60	W-3811	P1,PT
9B373	2.9	355.3	31.1	3800±90	W-4152	PT3
9B409	2.3	2.8	36.6	200	W-3937	PS1
9B433	1.7	4.2	46.0	260±70	W-3881	PT5
9B445	2.0	3.5	27.6	5160±10	W-4135	PT2
9B457	0.9	359.1	40.5	890±60	W-4137	PS3
9B469	1.0	358.2	41.4	740±60	W-4156	PS3
9B505	1.8	6.9	33.0	330±70	W-4238	PS2
9B517	1.4	1.1	33.8	490±80	W-4234	A2
9B529	1.9	350.3	29.5	780±70	W-4232	A2
9B577	1.9	358.4	39.8	420±70	W-4049	A1
9B697	1.1	4.3	38.6	210±60	W-3938	PS1
9B721	1.2	4.9	40.7	1840	-	A2
9B757	1.4	8.6	37.9	200	W-4198	A2
9B889	1.1	0.8	36.1	3690±70	W-4177	PT1
9B925	2.1	4.7	42.1	290±70	W-4006	PT2

Table B: Paleomagnetic Results from Undated Lava Flows (Page 1)

Site ID	Site Location N. Lat.		W. Long.		Present field D_p	I_p	J_{NRM}	Lab parameters $\tilde{H}$	F	n	k
8B013	19	25.68	154	53.12	11.1±1.8	38.5	5	20	I	12	1137
8B037	19	30.08	154	50.17	13.1±3.2	37.5	9	15	S	12	1744
8B049	19	35.82	155	01.23	11.4±1.4	38.0	6	15	N	11	1182
8B073	19	34.62	155	00.31	13.5±2.8	37.5	9	20	S	12	2047
8B085	19	33.70	154	59.62	12.4±0.6	40.5	14	20	N	11	2197
8B097	19	29.37	154	57.51	10.9±2.0	39.2	4	50	N	11	965
8B109	19	29.64	154	57.74	11.6±5.0	37.0	13	40	N	11	1331
8B121	19	19.72	155	16.93	9.7±1.2	38.8	12	50	N	11	768
8B133	19	19.74	155	16.89	10.9±4.7	38.3	7	50	N	11	1475
8B145	19	25.13	155	14.76	7.4±2.6	33.0	13	15	N	11	959
8B157	19	25.13	155	14.76	9.9±0.8	33.0	10	20	I	12	233
8B169	19	35.01	155	00.59	16.6±3.3	37.5	8	30	S	11	2169
8B181	19	30.78	154	57.76	14.0±5.0	36.8	7	30	S	10	1616
8B193	19	32.96	154	58.81	14.8±2.0	41.8	10	30	N	12	1804
8B205	19	30.27	154	50.17	13.7±5.2	36.0	11	20	N	10	548
8B217	19	34.94	155	01.77	11.5±1.4	39.0	9	30	N	10	1549
8B229	19	17.56	155	06.64	12.0±1.6	37.5	10	30	N	10	1041
8B241	19	19.31	155	02.88	9.9±2.1	37.5	9	30	N	11	779
8B253	19	21.17	155	02.51	12.1±1.7	35.2	7	10	S	12	586
8B265	19	20.56	155	00.55	8.8±2.0	36.0	9	15	S	12	826
8B277	19	20.64	155	00.37	6.5±2.1	37.0	8	15	S	12	1132
8B289	19	21.04	154	59.56	13.7±2.9	38.0	10	20	N	11	843
8B313	19	22.34	154	58.07	5.2±1.9	37.5	8	20	N	12	1164
8B349	19	24.63	154	54.59	9.5±4.3	41.0	25	20	N	12	1214
8B361	19	25.50	154	53.42	11.4±3.3	38.5	12	30	I	12	112
8B373	19	27.56	154	51.00	10.0±3.2	39.0	9	30	N	10	1050
8B445	19	17.09	155	20.09	11.4±2.0	37.5	13	20	I	12	901
8B457	19	16.88	155	20.32	16.5±4.4	38.5	20	20	N	10	928
8B469	19	16.56	155	20.81	12.8±3.7	37.5	14	20	I	11	828
8B481	19	16.43	155	21.17	15.2±4.9	39.5	26	50	N	12	162
8B493	19	16.06	155	21.67	11.9±3.3	37.0	10	20	N	10	864
8B505	19	14.41	155	22.33	11.5±2.4	37.5	8	20	S	12	861
8B517	19	14.40	155	22.37	9.3±4.3	37.3	4	30	I	8	3395
8B529	19	14.56	155	24.72	12.5±2.7	38.5	5	20	N	10	1990
8B565	19	21.10	155	23.36	9.2±3.6	36.0	10	10	I	10	610
8B637	19	18.23	155	25.21	10.5±2.5	40.5	11	15	S	12	943
8B649	19	17.46	155	25.61	11.1±5.5	38.5	9	15	S	12	980
8B733	19	24.98	155	14.47	11.9±1.2	36.0	9	10	N	11	1147
8B745	19	23.67	155	18.59	15.3±3.4	38.0	10	15	N	9	905
8B769	19	22.82	155	17.26	13.5±2.8	38.5	8	20	N	9	490
8B781	19	22.75	155	14.37	9.7±2.3	38.5	11	15	S	12	577
8B805	19	30.73	155	00.48	8.9±0.8	39.0	7	15	I	12	1164
8B817	19	28.32	154	50.04	12.4±2.9	39.5	12	15	N	10	542
8B973	19	32.69	154	50.83	11.4±4.2	37.5	15	25	N	10	306
9B145A	19	35.07	154	56.96	12.8±1.6	-	9	30	-	6	1384
9B145B	19	35.02	154	57.00	12.8±1.6	-	13	30	-	6	877
9B157	19	22.25	155	10.56	12.0±2.1	-	10	20	I	12	513

Table B: Paleomagnetic Results from Undated Lava Flows (Page 2)

Site ID	Ancient field α_{95}	D_a	I_a	Inferred age yrs BP	Site Type
8B013	1.3	10.6	21.4	2000-2500	PT1
8B037	1.0	3.3	42.0	250- 500	PT4
8B049	1.3	1.3	32.9	500-1000	PT4
8B073	1.0	0.5	35.1	500-1000	PT4
8B085	1.0	3.1	42.6	250- 500	PT1
8B097	1.5	2.5	37.0	500-1000	PT1
8B109	1.3	4.9	43.5	250- 500	PT4
8B121	1.6	357.0	39.2	500-1000	PT2
8B133	1.2	57.5	37.9	500-1000	PT2
8B145	1.5	355.4	24.7	1500-2000	CW,PT4
8B157	3.4	359.5	35.9	500-1000	CW,PS2
8B169	1.0	4.8	45.7	250-500	PT4
8B181	1.2	2.7	44.1	250-500	PT4
8B193	1.0	5.2	45.2	250-500	PT4
8B205	2.1	3.9	40.2	250-500	A2
8B217	1.2	4.0	36.4	500-1000	PT1
8B229	1.5	358.8	39.1	500-1000	PT1
8B241	1.6	354.8	39.6	500-1000	PT1
8B253	1.8	354.3	29.2	1500-2000	A2
8B265	1.5	358.0	14.5	1500-2000	PT3
8B277	1.3	355.9	31.2	1500-2000	A2
8B289	1.6	355.0	30.9	1500-2000	PT2
8B313	1.3	352.3	30.4	1500-2000	PT4
8B349	1.2	356.0	29.8	1500-2000	PT1
8B361	4.1	6.7	34.8	ca. 1000	A3
8B373	1.5	5.0	31.3	500-1000	PT1
8B445	1.4	3.3	35.4	250-500	PT1
8B457	1.6	5.2	39.9	250-500	A1
8B469	1.6	4.7	34.2	500-1000	PS1
8B481	3.4	4.6	42.2	250-500	A4
8B493	1.6	359.8	37.7	500-1000	PT1
8B505	1.5	3.9	36.1	500-1000	PT1
8B517	1.0	8.5	37.5	0-250	PT1
8B529	1.1	359.7	38.5	500-1000	PT1
8B565	2.0	7.6	37.9	250-500	PT4
8B637	1.4	5.3	39.8	250-500	PT3
8B649	1.4	5.5	39.6	250-500	PT3
8B733	1.3	6.3	43.4	250-500	PS3
8B745	1.7	5.0	42.0	250-500	V2
8B769	2.3	4.7	34.9	0-250	V2
8B781	1.8	4.8	44.0	250-500	V2
8B805	1.3	354.7	21.2	1500-2000	PT3
8B817	2.1	354.0	31.5	1500-2000	PT2
8B973	2.8	359.9	34.8	-	A3
9B145A	1.8	8.4	43.4	250-500	PT1
9B145B	2.4	7.5	36.1	-	PT1
9B157	1.9	3.3	32.5	500-1000	CW,A2

Table B: Paleomagnetic Results from Undated Lava Flows (Page 3)

Site ID	Site Location N. Lat.		Site Location W. Long.		Present field D_p	Present field I_p	J_{NRM}	Lab parameters $\tilde{H}$	Lab parameters F	Lab parameters n	Lab parameters k
99B169	19	19.77	155	16.85	11.4±1.7	-	8	30	N	10	968
9B181	19	32.88	154	51.03	13.3±2.8	39.5	7	20	N	11	265
9B193	19	17.86	155	18.95	11.0±3.4	-	5	30	N	8	319
9B217	19	22.94	155	13.64	13.3±5.1	-	7	20	N	11	419
9B229A	19	25.64	155	17.07	14.9±2.9	-	5	20	-	6	725
9B229B	19	25.67	155	17.05	16.5±1.7	-	5	20	-	6	671
9B241	19	22.25	155	10.56	11.0±2.3	-	12	30	S	12	603
9B385	19	22.47	155	13.62	13.2±2.3	-	9	30	S	10	290
9B397	19	26.48	155	07.98	15.6±1.8	-	8	20	N	11	173
9B421	19	28.24	155	05.07	11.3±2.1	-	10	20	I	9	2277
9B493	19	25.48	154	53.36	13.0±3.1	-	-	40	(?)	12	97
9B589	19	20.03	155	02.36	12.1±3.3	36.5	11	40	I	9	1812
9B673	19	29.52	155	02.69	11.2±2.3	-	17	30	S	12	722
9B685	19	14.93	155	25.65	8.8±3.6	38.0	17	30	S	70	332
9B709	19	29.16	154	54.55	16.6±3.8	-	14	30	S	11	512
9B829	19	17.92	155	24.21	10.7±2.4	39.5	11	10	N	11	435
9B841	19	18.30	155	24.44	13.2±4.0	38.5	23	40	S	12	640
9B853	19	33.68	154	53.36	12.0±2.4	-	8	25	I	10	532
9B865	19	18.28	155	24.38	11.9±1.9	-	18	30	N	9	2751
9B877	19	17.92	155	24.14	12.3±2.3	-	7	30	N	11	947
9B913	19	22.96	155	12.50	8.6±6.0	42.0	5	20	(?)	9	238

Table B: Paleomagnetic Results from Undated Lava Flows (Page 4)

Site ID	Ancient field α_{95}	D_a	I_a	Inferred age yrs BP	Site Type
89B169	1.6	357.9	37.4	500-1000	PT1
9B181	2.3	355.7	25.3	-	A3
9B193	3.1	4.0	41.1	250-500	PT1
9B217	2.2	359.3	33.9	500-1000	CW,PT4
9B229A	2.5	356.8	31.4	1500-2000	CW,PT4
9B229B	2.6	351.5	17.6	1500-2000	CW,PT4
9B241	1.8	355.7	36.6	500-1000	CW,PT4
9B385	2.4	348.8	27.2	1500-2000	CW,A2
9B397	3.5	5.6	45.6	250-500	PT5
9B421	1.1	4.5	43.3	250-500	PT2
9B493	4.4	2.6	26.5	ca. 1000	A3
9B589	1.2	356.2	37.6	500-1000	PT3
9B673	1.6	1.6	39.8	250-500	PT1
9B685	2.7	347.3	30.2	-	PS4
9B709	2.0	1.8	41.1	250-500	PS3
9B829	2.2	2.7	29.2	1000-1500	PS4
9B841	1.7	5.1	39.9	250-500	PS1
9B853	2.1	356.4	28.4	1500-2000	PT2
9B865	1.0	2.7	34.1	500-1000	PS1
9B877	1.5	2.1	37.6	250-500	PT1
9B913	3.3	2.5	46.4	250-500	V2

Table C

Sites for Which Results are Doubted*

Site	Reasons for doubt
8B385	Topographic magnetic anomaly
8B397	Topographic magnetic anomaly
8B409	Topographic magnetic anomaly
8B709	Anomalous inclination; tenuous correlation with ^{14}C site
8B841	Topographic anomaly; broad dispersion; conflicting dates
9B505	Field evidence that date is too old
9B517	Field evidence that date is too young
9B529	Anomalous direction; field evidence that date is too young
9B889	Tenuous correlation with ^{14}C site
8B361	Wide dispersion from internal aa spines
9B493	Wide dispersion from internal aa spines
9B913	Vent anomaly; rift zone anomaly

*There are reasons for doubting some other sites as well, but these are the sites most doubted according to a numerical ranking system that we devised for comparing different sites.