1988

Paleomagnetism of Eocene plutonic rocks, Matanuska Valley, Alaska /

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PALEOMAGNETISM OF EOCENE PLUTONIC ROCKS, MATANUSKA VALLEY, ALASKA

by

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A Thesis

Presented to the Graduate Committee

of Lehigh University

in Candidacy for the Degree of

Masters of Science

in

Geological Sciences

Lehigh University

1988

This thesis is accepted and approved in partial fulfillment of the requirements for the degree of Masters of Science.

April 19, 1988
(date)

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ACKNOWLEDGEMENTS

I wish to thank my wife and my family for their patience and encouragement throughout this project. I am equally indebted to my friend and advisor, Dr. Ken P. Kodama. His faculty, enthusiasm and support were invaluable. The guidance of my thesis committee members, Dr. Terry L. Pavlis and Dr. Paul B. Myers is deeply appreciated. I also wish to thank Dr. Jack Hillhouse for his comments and for the use of his lab in Menlo Park, California. Discussions with Dr. David Anastasio on the structural constraints of the block rotation models were enlightening. This work was supported by NSF grant EAR-8417312.

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ABSTRACT

Paleomagnetic analysis of 88 samples from 14 sites in four Eocene sills in the Matanuska Valley, south central Alaska, yields a paleomagnetic pole at lat 72.9°N, long 281.1°E, precision parameter (k) = 15.4. The paleolatitude of this result suggests that this part of the Alaskan crust was at or near its present position with respect to North America in the middle Tertiary. This pole also indicates that the region has been rotated clockwise by approximately 50°. These results can be explained by local block rotations of fault-bounded blocks in response to regional right-lateral shear along both the Castle Mountain and Border Ranges faults.

INTRODUCTION

The Matanuska Valley in south-central Alaska forms the northeastern part of the Cook Inlet Basin, a large intermontane basin located seaward of the Alaskan-Aleutian volcanic arc (Kirschner and Lyon, 1973). In the eastern part of this valley Cretaceous and early Tertiary sedimentary rocks are intruded by a series of unnamed Eocene-age plutonic rocks. These intrusions crop out in a narrow arcuate band between the Castle Mountain and Border Ranges faults, just within the southern boundary of the Peninsular terrane. A paleomagnetic investigation of these rocks was conducted in order to establish an Eocene paleomagnetic pole for this region. Implications from the location of this pole provide further constraints on terrane-accretion models for southern Alaska.

GEOLOGIC SETTING AND PALEOMAGNETIC SAMPLING

Eocene plutonic rocks in the Matanuska Valley occur as dikes, sills, and stocks of both mafic and felsic composition intruded into Mesozoic and Tertiary shallow marine and nonmarine sedimentary rocks (Martin and Katz, 1912; Capps et al., 1927) (Fig. 1). The largest sills cover approximately 8 km^2, are up to 300 m thick and form steep-sided, elongate ridges. Whole-rock K-Ar ages for these intrusive rocks range from 37.5 ±1.2 Ma to 45.5 ±2.3 Ma (Silberman and Grantz, 1984). These dates are consistent

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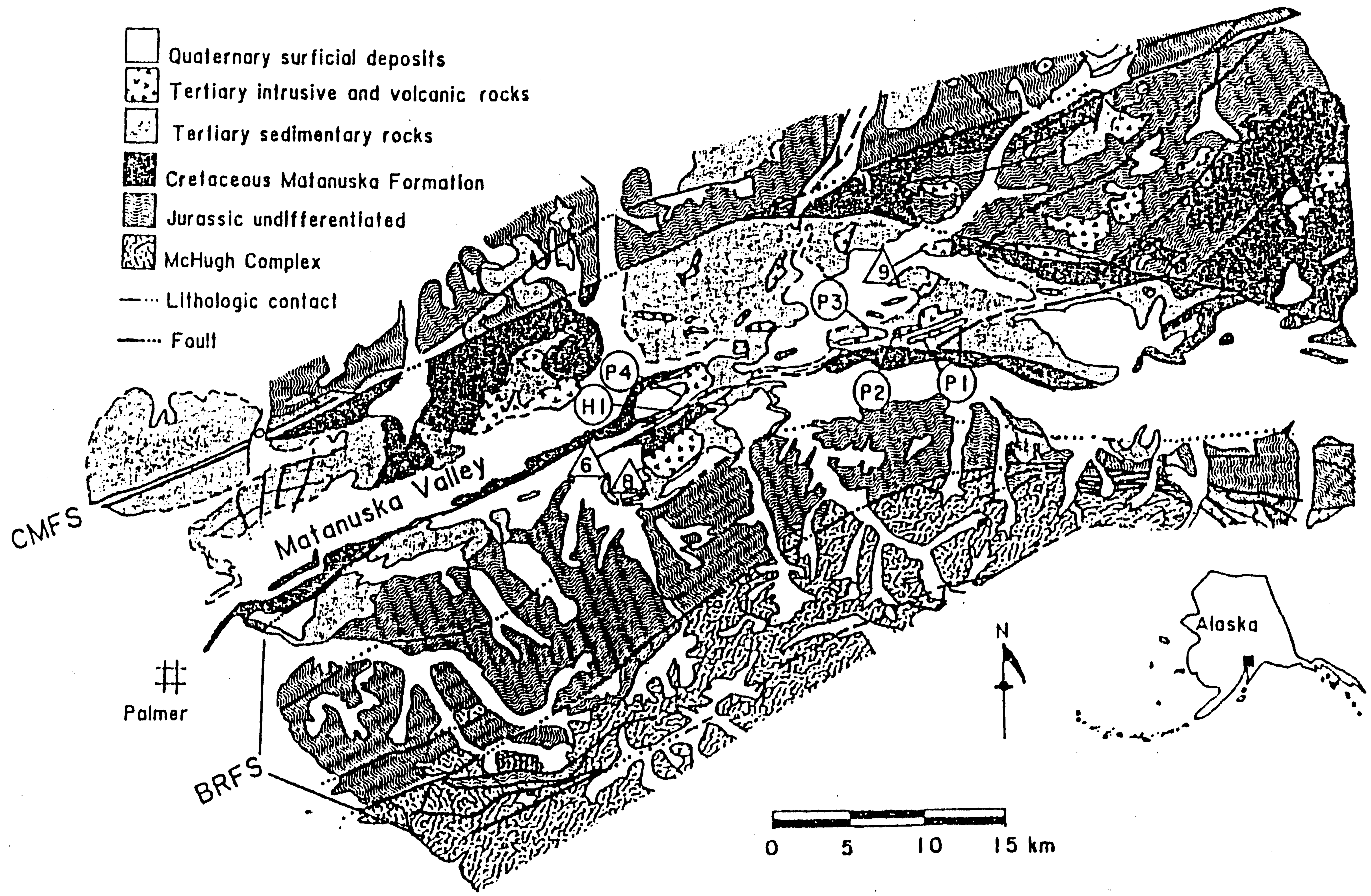

Figure 1. Geologic map of the Matanuska Valley after Winkler, G. R.(written communication to Pavlis, T. L., 1985) and Burns, L. E., et al. (in prep). Castle Mountain fault system (CMFS) and Border Ranges fault system (BRFS). Faults shown are those with known Tertiary offset. P1-P4 are sampling locations of the four sills analyzed in this study. H1 indicates two hornfels sites. Triangles indicate K-Ar samples of Silberman and Grantz (1984).

with the late Paleocene to early Eocene age of the Chickaloon and Wishbone formations which are the youngest sediments intruded (Wolfe et al., 1966; Triplehorn et al., 1984). Two of the sills, P1 and P3, exhibit a cumulate layering that is parallel to the bedding of their host sediments. In parts of the valley, the upper Oligocene to lower Miocene(?) Tsadaka formation rests unconformably on the folded Cretaceous and Tertiary units (Barnes and Payne, 1956; Clardy, 1975).

Paleomagnetic samples were collected from 13 sites located on four sills and from two hornfels sites which stratigraphically bracket sill P4 (Fig. 1). P1a, P1b, and P1c were located at the base, middle and top of sill P1 near its eastern edge at Puritan Creek, and P1d was located at the base of sill P1 near its western edge at Long Lake. P2a, P2b, P2c, and P2d were located on the upper half of sill P2, east of Bonnie Lake. P3a, P3b, P3c, and P3d were all located on the southern side of sill P3, near its base, southeast of Bonnie Lake. This sill is located approximately 3 km southwest of sample #9 of Silberman and Grantz (1984), which yielded a K-Ar age of 40.9 ±1.6 Ma. P4 and the two hornfels sites, H1a and H1b, were located on the western edge of sill P4 along the Glen Highway. This site corresponds to sample #6 of Silberman and Grantz (1984), which yielded a K-Ar age of 40.0 ±1.6 Ma. Sample #8 of Silberman and Grantz (1984), which yielded K-Ar ages of 37.5 1.2 Ma for a rhyolite stock and 40.0 1.2 Ma for a hornfels block developed in the Matanuska formation, is located less then 2 km south of sill P4 on Kings Mountain.

Each sample was oriented with a magnetic compass and, weather permitting, the azimuths were checked with a sun compass. Up to 11 samples were collected from each site for a total of 70 igneous and 18 hornfels samples. All of the igneous samples came from coarse-grained gabbros, except for the samples from site P4, which are monzonites. The hornfels samples developed in fine-grained silts and shales of the Paleocene Chickaloon formation.

METHODS

Most of the samples (81/88) were subjected to between 12 and 20 steps of progressive thermal demagnetization at temperatures up to 585 °C. Nearly half of these samples (32) were long enough to yield two specimens. These 32 specimen halves and the remaining seven samples were progressively demagnetized (10-15 steps) in alternating fields (af) up to 100 mT for comparison with the thermal demagnetization results. Remanence measurements were made on a Molspin spinner magnetometer and a three-axis ScT cryogenic magnetometer. Demagnetization was conducted with Schonstedt TSD-1 thermal and GSD-5 tumbling, af demagnetizers.

Characteristic magnetizations were determined from principal component analysis (Kirschvink, 1980). When a sample was divided into two specimens, the two specimen directions were averaged to a with the late Paleocene to early Eocene age of the Chickaloon and Wishbone formations which are the youngest sediments intruded (Wolfe et al., 1966; Triplehorn et al., 1984). Two of the sills, P1 and P3, exhibit a cumulate layering that is parallel to the bedding of their host sediments. In parts of the valley, the upper Oligocene to lower Miocene(?) Tsadaka formation rests unconformably on the folded Cretaceous and Tertiary units (Barnes and Payne, 1956; Clardy, 1975).

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Characteristic magnetizations were determined from principal component analysis (Kirschvink, 1980). When a sample was divided into two specimens, the two specimen directions were averaged to a sample direction. Site-mean directions were then calculated from the sample directions following the method described by Fisher (1953) and then converted to virtual geomagnetic poles (VGP).

Magnetic carriers in these intrusive rocks were characterized by anhysteretic remanent magnetization (ARM) and isothermal remanent magnetization (IRM) acquisition experiments. Eight samples were given an ARM (DC field = 0.2 mT, peak AF field = 100 mT) and were then stepwise demagnetized in an alternating field up to 100 mT. Their bulk susceptibility was also measured to determine their magnetic grain size (King et al., 1982). In the IRM experiments, one sample from each of the sites in sills P1, P2, and P3 and three samples from sill P4 were subjected to progressively higher DC magnetic fields from 10 to 200 mT.

RESULTS

NRM directions from sills P1, P2, and P3 (Fig. 1) were of reversed polarity with steep upward directions except for site P3a which had a shallow, southwest, and downward direction. A field check revealed that this site was part of a large slump block. It was discounted from further analysis. NRM directions from sill P4 and the two hornfels sites (Fig. 1) were of normal polarity with moderately downward, northwest directions. NRM intensities ranged from 1 to 10^3 mA/m. Demagnetization analyses indicated stable magnetizations with high unblocking temperatures (500 to 575 °C) and moderate to high coercivities (mean destructive fields between

20 and 50 mT). Many of the samples exhibited a secondary magnetization that was easily removed by the first two or three demagnetization steps (2.5 to 10 mT). In all cases the characteristic directions derived from thermal and af demagnetization from the same sample were in close agreement. At the baked contact (sill P4) the hornfels' unblocking temperature decreased away from the intrusion suggesting that their magnetization was thermally reset by the magma. No other components of magnetization were observed in these samples. Results from the 13 igneous and two hornfels sites are summarized in Table 1.

Statistical analysis of the data (McFadden, 1984), reveals that the within-sill precision is constant and can be approximated by a common within-sill precision parameter ($k_w = 94.34$). In addition, the null hypothesis that the within-sill dispersion dominates the total dispersion around the true mean direction was accepted at the 95% significance level.

When the in situ magnetic directions are corrected for tilt, using either the orientation of the cumulate layering or the attitude of bedding in the country rock immediately adjacent to each sill, their directional scatter is reduced (Fig. 2). Moreover, the normal directions from site P4 and sites H1a and H1b became antipodal to the reversed directions from sills P1, P2, and P3. Following the analysis suggested by McFadden and Jones (1981), the hypothesis of a common true mean direction was rejected when the in situ directions were used and accepted when

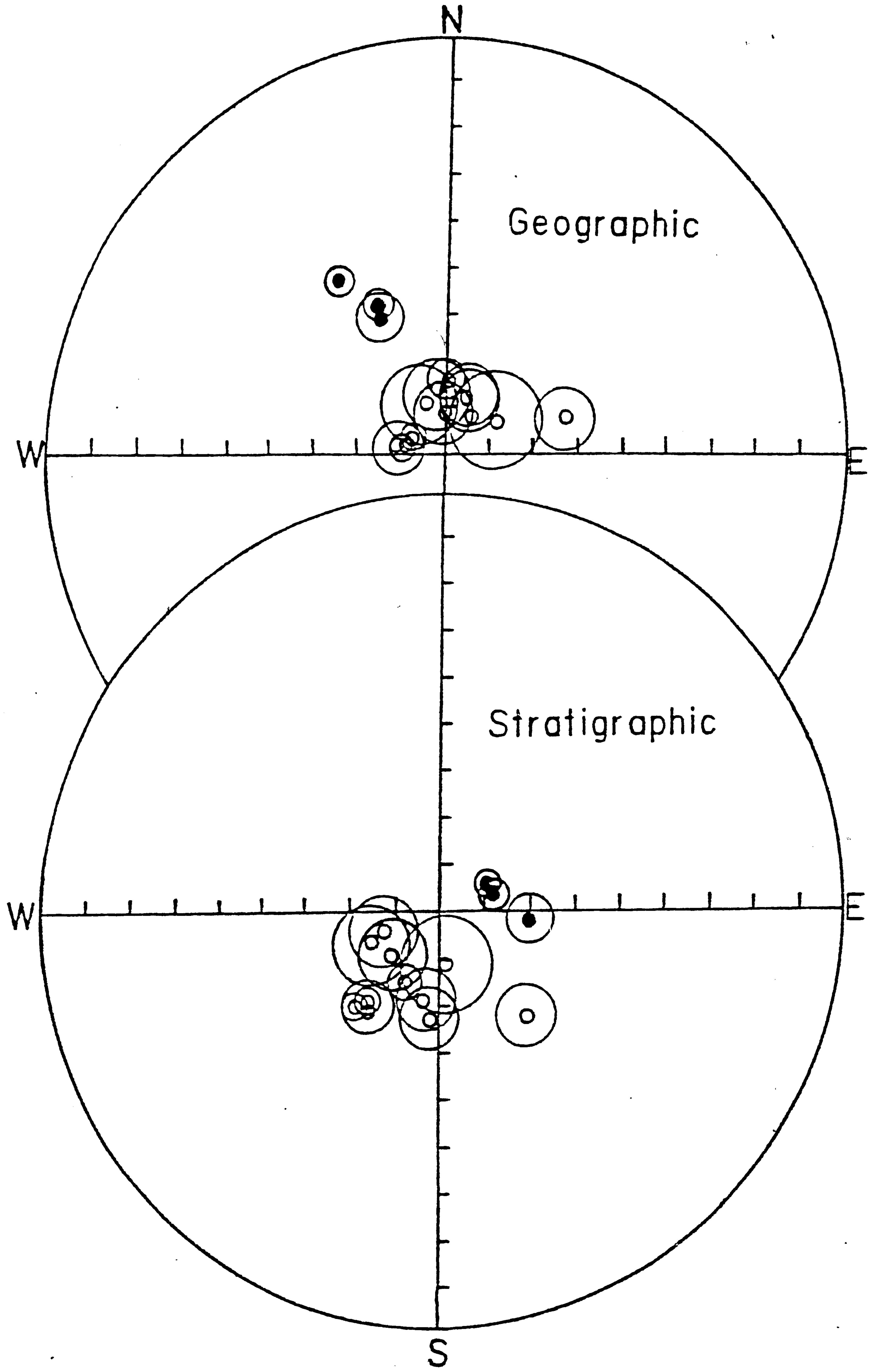

Figure 2. Directions from 14 of the 15 sites in geographic (top) and stratigraphic (bottom) orientations. Open symbols represent directions in upper hemisphere, solid symbols represent directions in the lower hemisphere. The ratio of the pre-folding to post-folding precision parameters (k_{strat}/k_{geo}) = 2.8. For other statistical parameters, see Table 1.

TABLE 1. SUMMARY OF PALEOMAGNETIC DATA FROM MATANUSKA VALLEY, ALASKA

	No. of Samples	No. of Specimens	Th	Mean				k	a_{95}	VGP	
				Geographic		Stratigraphic				Long (°E)	Lat (°N)
				Inc (°)	Dec (°)	Inc (°)	Dec (°)				
Site											
P1a	8	11	2	-77.3	351.9	-77.7	253.8	38.3	8.0	260.6	59.3
P1b	6	11	5	-78.8	338.0	-74.7	248.6	38.2	9.3	271.5	58.8
P1c	4	6	4	-81.8	357.5	-76.9	232.9	85.0	7.6	270.4	66.7
P1d	4	4	4	-76.8	58.2	-80.0	172.7	41.0	12.6	196.7	80.7
P2a	5	6	5	-78.1	21.3	-71.8	190.8	83.5	6.9	339.3	82.5
P2b	5	7	5	-74.7	1.5	-74.5	208.3	214.3	4.3	292.3	76.5
P2c	5	6	5	-63.0	74.5	-62.5	137.3	69.4	7.2	160.0	59.5
P2d	5	6	5	-80.6	36.8	-68.5	185.5	76.1	7.5	12.6	79.6
P3a*	5	7	5	10.8	225.7	35.8	233.2	48.1	9.0		
P3b	5	6	5	-81.4	280.5	-64.5	224.1	497.8	2.8	312.8	60.7
P3c	4	5	4	-81.8	288.5	-66.7	219.9	615.0	2.8	313.7	65.1
P3d	3	5	3	-79.0	281.8	-65.4	218.1	187.3	5.9	316.7	64.0
P4a	11	16	11	59.1	331.8	70.7	94.6	64.4	5.3	264.9	44.4
H1a	9	12	9	56.3	333.9	77.9	72.7	173.2	3.6	260.3	59.9
H1b	9	12	9	48.0	325.6	78.9	61.3	173.9	3.4	260.0	64.5
Mean†	14							15.4		281.1	72.9
Formation #											
Geographic				-85.2	91.2			15.8	9.4		
Stratigraphic				-75.5	216.2			43.7	5.6		

NOTE: Th = number of specimens thermally demagnetized; k = precision parameter; α_{95} = 95% confidence radius. Normal-polarity directions inverted through the origin when calculating mean directions. VGP's calculated as north magnetic poles. Mean VGP calculated from site VGPs, see text for discussion. Site coordinates 61.6°N, 211.7°E.

* May be out of place, was not used in the calculations.

† S_T (angular dispersion approximated by $81/\sqrt{k}$) = 22.2°. 95% confidence radius (A_{95}) = 9.4°.

In geographic coordinates, length of vector sum (R) = 13.179, in stratigraphic coordinates, R = 13.703.

the tilt corrected directions were used (number of sites (N) = 14, number of limbs (m) = 4, critical value of the F distribution at 95% significance level ($F_{0.05}[2(m-1),2(N-m)] = 3.87$)).

IRM acquisition experiments show that all specimens saturate by 120 mT. ARM and NRM af demagnetization spectra are very similar. In a few of the samples the NRM af demagnetization curves illustrate the removal of a normal polarity viscous overprint on a reversed polarity magnetization. ARM-susceptibility ratios are between 0.2 and 0.3 indicating magnetic grain sizes between 5 and 20 μm (Banerjee et al., 1981).

DISCUSSION

The rock magnetic results indicate that the magnetization in these intrusions is carried by pseudo-single domain to multidomain magnetite. These results, the lack of significant secondary magnetization overprints, the passage of a regional tilt test, and the presence of antipodal directions strongly suggest that the magnetization is a primary thermal remanent magnetization (TRM) and is therefore Eocene in age. The prefolding age of this magnetization coupled with the Oligocene to early Miocene unconformity supports the conclusions of Barnes and Payne (1956) that a major period of faulting, folding, uplift and erosion of the Matanuska strata occurred between the latest Eocene and earliest Miocene.

Given that there is a common within-sill dispersion and that the between-sill dispersion is not significant, each site direction rather than each sill direction can treated an independent reading of the ancient geomagnetic field (McFadden, 1984). Thus, the intrusions' true mean direction was estimated from the average of the 14 individual sites as if they all came from a common sill.

The calculations of Jaeger (1957) suggests that these sills cooled through the blocking temperature of magnetite in 2000-4000 years. Because sampling sites on each sill were distributed throughout each pluton (for example, sill P1 where samples were collected from the base, middle and top of the sill), it is likely that the rocks at each site cooled through the magnetite blocking temperature at different times. Furthermore, because it is unlikely that all four sills were intruded into the valley at exactly the same time, it is reasonable to assume that each site represents an independent spot-reading of the ancient geomagnetic field.

The angular standard deviation (S_T) of 22.2° about the mean Matanuska intrusions' pole is in close agreement with the VGP dispersion expected at its paleolatitude of 66° for the interval 5 to 45 Ma (McFadden and McElhinny, 1984) indicating that secular variation has been time averaged. This result and the presence of both polarities suggest that the paleomagnetic pole of lat 72.9°N, long 281.1°E (A_{95} = 9.4°) determined in this study is a reasonable measure of the Eocene paleopole for this part of the Alaskan crust.

The two North American reference poles closest in age to the Matanuska intrusions are the Eocene pole (lat 82.8°N, long 170.4°E, A_{95} = 3.0°) and Oligocene-Miocene pole (lat 83.21°N. long 148°E, A_{95} = 4.1°) of Diehl et al. (1983). When compared to either one of these poles, the intrusions show no significant latitudinal displacement (3.7° ±7.7° to 1.1° ±8.0° away from the pole), but exhibit a significant clockwise rotation (49.3° ±17.4° to 51.3° ±17.9°) (Fig. 3). The lack of any discernible latitudinal offset supports the conclusion that the Peninsular terrane and by inference, terranes inboard from it were at their present position relative to North America in the early to middle Tertiary, possibly as early as the Paleocene (Hillhouse et al., 1985).

The clockwise rotation recorded by the intrusions is in apparent contradiction to the 30° to 50° of latest Cretaceous and early Tertiary counterclockwise rotation observed in southwestern Alaska (e.g., Coe et al., 1985). However, the North American-Eurasian convergence, postulated to be the cause of this regional counterclockwise rotation, ended 50 m.y. ago (Harbert et al., 1987) well before the intrusion of the Matanuska sills. Because there have been no Eocene or younger regional rotations observed paleomagnetically in southern Alaska, the rotation of the Matanuska intrusions is ostensibly due to tectonic interactions within the valley itself.

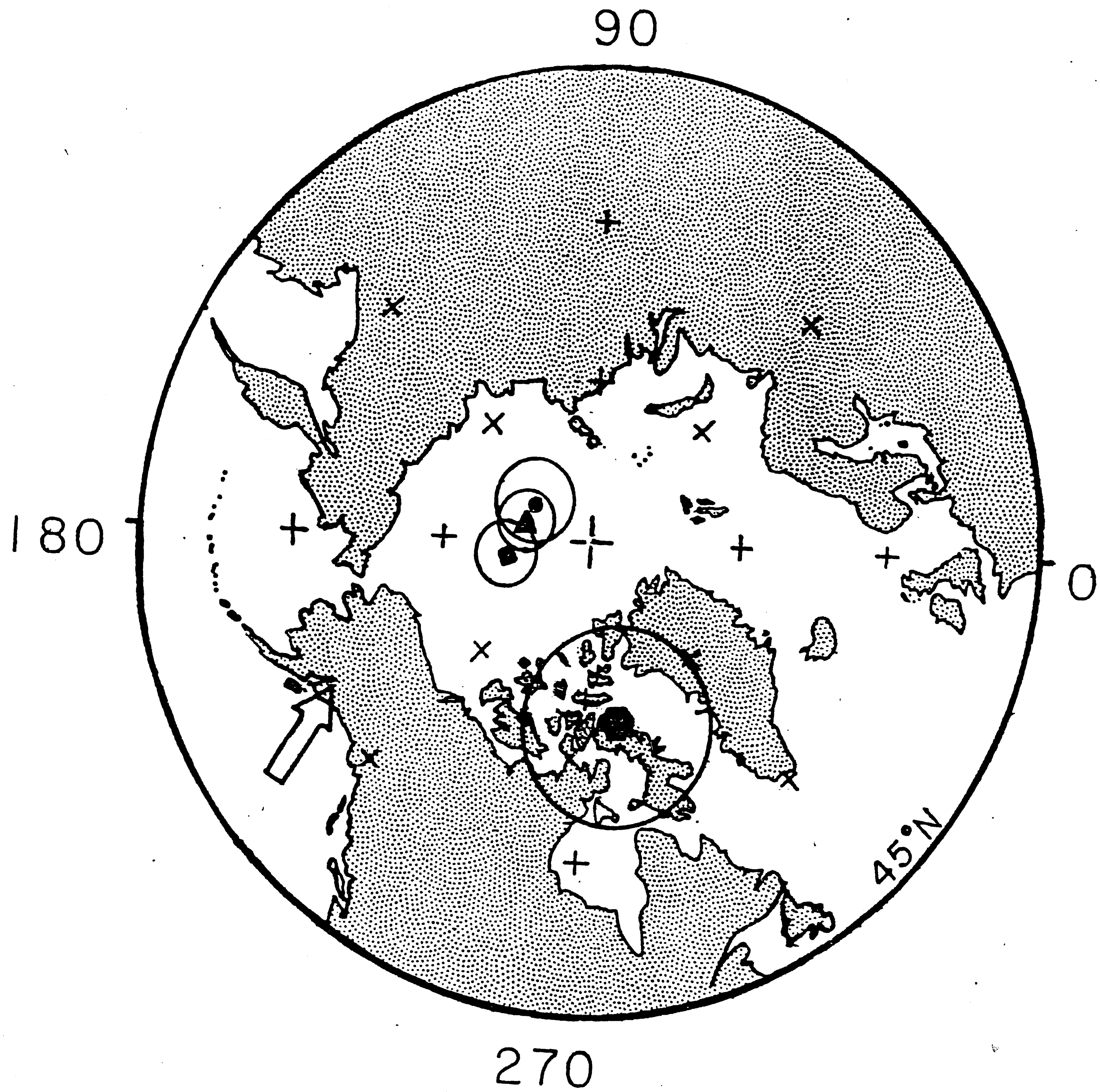

Figure 3. Equal-area pole projection of north-polar cap of northern hemisphere. Paleocene (square), Eocene (triangle), and Eocene-Oligocene (circle) reference poles for North America, including their 95% confidence limits from Diehl et al. (1983). Matanuska intrusive rocks (hexagon) and associated A_{95} from this study. Arrow points to location of sampling region in southern Alaska.

One possibility is that the sills rotated clockwise in response to a regional right-lateral shear. The Matanuska Valley is bordered by two major fault systems (Fig. 1), the Border Ranges and Castle Mountain faults, both of which have a complex history of fault movement. Whereas it is clear that the Castle Mountain fault has been an active strike-slip system throughout the Cenozoic (e.g., Grantz, 1960, Dettermann et al., 1974), including recent dextral-slip seismicity (Lahr et al., 1986), strike-slip displacement along the Border Ranges fault is less well known. However, recent work in the Chugach Mountains indicates 50 km or more of dextral strike-slip movement coeval with middle Tertiary deformation in the region (Little et al., 1986). Thus, right-lateral movement dominated the middle Tertiary deformation in the valley, and the paleomagnetic vectors were presumably affected by this regional strain.

A common deformation mechanism in regions of strike-slip faulting is the horizontal rotation of rigid crustal blocks between sets of parallel strike-slip faults (Ron et al., 1984) (Fig. 4). A consequence of the kinematics of this type of deformation is that both blocks and faults must rotate and that the sense of block rotation will oppose the sense of slip on the block-bounding faults (Freund 1970; Garfunkel 1974). Because the paleomagnetic data from the Matanuska intrusions indicate a clockwise rotation, this model predicts that tectonic blocks within the Matanuska Valley must have rotated along left-lateral strike-slip faults internal to the valley zone.

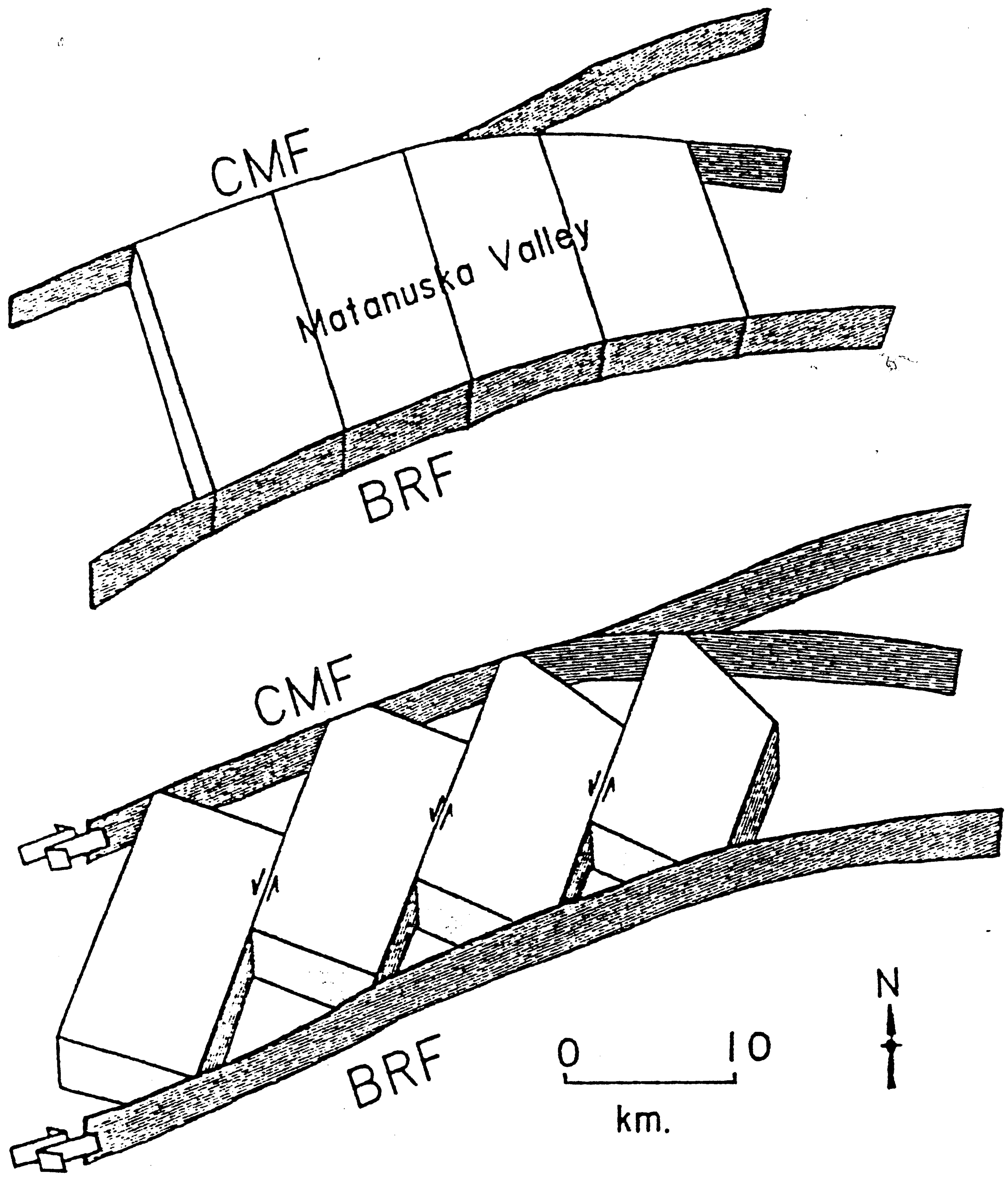

Figure 4. Block rotation model for the Matanuska valley adapted from Ron et al (1984). CMF = Castle Mountain Fault, BRF = Border Ranges Fault. See text for discussion.

In support of this model, studies in the lower Matanuska Valley reveal that the Wishbone Hill syncline is cut by a series of left-lateral strike-slip faults and minor right-lateral faults that show clear evidence of Neogene movement (Barnes and Payne, 1956; Bruhn and Pavlis, 1981). If similar strike-slip faults exist throughout the valley, especially in its eastern end where most of the sills crop out, then they could be the bounding strike-slip faults that accommodated the 50° of clockwise rotation. However, as Nur et al. (1986) pointed out, rotations greater than 40° to 45° may require an additional set of secondary strike-slip faults. Because there is no structural evidence to indicate the presence of this additional fault set (Bruhn and Pavlis, 1981), the actual amount of clockwise rotation may be less than 45°, closer to the lower limit of 32° of paleomagnetically observed rotation.

CONCLUSIONS

Paleomagnetic and rock magnetic results from the Eocene-age Matanuska Valley intrusions indicate that these rocks carry a prefolding thermal remanent magnetization. Because these sills were tilted and folded soon after they were intruded, their magnetization is most likely a primary TRM and therefore Eocene in age. The paleomagnetic pole from the Matanuska intrusions indicates that the Peninsula terrane was at its present latitudinal position relative to North America in the Eocene and supports terrane-accretion models that call on a pre-early Tertiary date for the docking of the Talkeetna superterrane. In addition, the Matanuska intrusions record a 50° ±18° clockwise rotation of the region. This rotation can be explained as the result of rigid block rotations located within the broad shear zone created by right-lateral strike-slip faulting along the Castle Mountain and Border Ranges faults systems.

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APPENDIX 1: DEMAGNETIZATION RESULTS

All the AF-demagnetization experiments were conducted in a Schonstedt GSD-5 tumbling demagnetizer. Samples marked with a (*) were thermally demagnetized in a custom-built thermal demagnetizer. The remaining thermal demagnetization experiments were conducted in a Schonstedt TSD-1 demagnetizer. Remanence measurements of the AF samples and the (*) thermal samples were made on a three-axis SCT cryogenic magnetometer at the U.S.G.S. Geophysical laboratory in Menlo Park, California. Remanence of the remaining samples were measured on a Minispin fluxgate magnetometer at Lehigh's University's Geophysical Laboratory. All directions in the following tables are in in-situ coordinates. Core orientations for these experiments define alpha as the angle between north and the horizontal projection of the core's Z axis and beta as the angle between the horizontal plane and the core's Z axis.

Sample: Pla.1.af Alpha: 282.0 Beta: 26.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-69.0	31.4	1.460E+02
2.5	-66.4	24.7	1.460E+02
5.0	-68.1	26.1	1.470E+02
10.0	-66.9	24.4	1.470E+02
20.0	-68.8	25.7	1.470E+02
30.0	-68.6	24.3	1.430E+02
40.0	-67.9	24.9	1.420E+02
50.0	-70.2	29.9	1.370E+02
60.0	-67.5	24.8	1.230E+02
70.0	-69.2	31.6	1.180E+02
80.0	-69.2	35.8	1.030E+02
90.0	-67.7	36.4	6.710E+01
100.0	-75.8	348.4	3.650E+01

Sample: Pla.1a.af Alpha: 282.0 Beta: 26.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-27.5	33.2	1.070E+03
5.0	-59.1	25.2	1.197E+03
15.0	-62.1	26.2	1.218E+03
20.0	-62.5	25.4	1.261E+03
25.0	-63.5	26.9	1.227E+03
30.0	-60.9	27.8	1.221E+03
40.0	-61.3	27.6	1.210E+03
50.0	-61.4	27.5	1.207E+03
60.0	-61.5	28.4	1.196E+03
70.0	-62.8	29.0	1.160E+03
90.0	-63.9	29.4	1.138E+03
100.0	-64.0	24.1	5.619E+02

Sample: Pla.2.af Alpha: 49.5 Beta: 24.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-39.3	11.8	4.970E+02
5.0	-50.0	8.5	5.230E+02
10.0	-61.4	7.1	5.850E+02
20.0	-68.7	0.7	6.260E+02
30.0	-71.4	355.1	6.060E+02
40.0	-73.6	353.8	5.730E+02
50.0	-75.4	0.0	5.230E+02
60.0	-76.4	337.4	4.850E+02
70.0	-76.5	5.3	4.080E+02
80.0	-75.7	12.3	3.430E+02
90.0	-77.1	2.4	2.670E+02
100.0	-84.0	2.6	2.190E+02

Sample: Pla.3.af Alpha: 25.0 Beta: 38.5

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-61.7	2.2	4.010E+02
5.0	-63.0	0.9	4.130E+02
10.0	-65.7	359.8	4.470E+02
20.0	-68.7	2.5	4.750E+02
30.0	-70.8	1.7	4.890E+02
40.0	-70.7	352.2	4.900E+02
50.0	-71.6	355.6	4.779E+02
60.0	-72.8	3.7	4.650E+02
70.0	-74.7	348.4	4.570E+02
80.0	-77.1	0.0	4.380E+02
90.0	-72.5	12.9	3.690E+02
100.0	-76.9	332.4	3.430E+02

Sample: Pla.4.af Alpha: 326.0 Beta: 86.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-69.6	13.2	4.610E+02
5.0	-71.1	9.8	4.680E+06
10.0	-72.1	12.9	4.830E+02
20.0	-74.3	12.0	5.010E+02
30.0	-75.3	15.9	5.070E+02
40.0	-75.9	18.6	5.110E+02
50.0	16.3	16.3	5.040E+02
60.0	-78.2	8.6	4.990E+02
70.0	-77.7	24.6	4.770E+02
80.0	-79.7	5.9	4.440E+02
90.0	-81.4	349.8	4.090E+02
100.0	-76.7	11.6	3.420E+02

Sample: Pla.5.af Alpha: 64.0 Beta: 13.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-67.5	311.6	1.680E+02
10.0	-67.2	310.8	1.750E+02
20.0	-70.2	308.7	1.800E+02
30.0	-70.1	308.9	1.820E+02
40.0	-69.3	310.1	1.820E+02
50.0	-69.1	311.0	1.810E+02
60.0	-72.8	308.7	1.780E+02
70.0	-71.0	313.2	1.720E+02
80.0	-70.0	308.0	1.690E+02
90.0	-72.1	320.3	1.500E+02
100.0	-71.8	311.8	1.380E+02

Sample: Pla.6.af Alpha: 20.0 Beta: 19.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-62.7	13.4	4.430E+02
10.0	-69.9	10.0	5.320E+02
20.0	-73.6	4.2	5.220E+02
30.0	-76.0	7.8	4.720E+02
40.0	-76.3	358.2	4.170E+02
50.0	-74.2	0.8	3.670E+02
60.0	-78.5	356.9	3.190E+02
70.0	-79.6	5.1	2.890E+02
80.0	-80.4	357.8	2.510E+02
90.0	-80.1	344.7	2.050E+02
100.0	-77.5	325.3	1.740E+02

Sample: Pla.7.af Alpha: 13.0 Beta: 25.0
Demagnetization

Step (mT)	Inc	Dec	J (mA/m)
0.0	-57.4	355.5	5.770E+02
10.0	-65.3	350.7	6.610E+02
20.0	-68.7	358.6	6.420E+02
30.0	-72.5	353.3	5.860E+02
40.0	-71.2	358.9	5.170E+02
50.0	-69.9	351.0	4.760E+02
60.0	-69.4	350.8	4.180E+02
70.0	-69.1	1.1	3.800E+02
80.0	-71.2	349.0	3.300E+02
90.0	-75.4	6.8	2.790E+02
100.0	-76.2	358.1	2.580E+02

Sample: Pla.8.af Alpha: 112.0 Beta: 13.0
Demagnetization

Step (mT)	Inc	Dec	J (mA/m)
0.0	67.6	73.8	1.050E+01
10.0	69.0	51.8	9.780E+00
20.0	73.3	45.4	6.920E+00
30.0	75.7	35.4	4.890E+00
40.0	73.8	51.3	3.570E+00
50.0	72.6	51.3	2.700E+00
60.0	75.4	21.1	1.810E+00
70.0	74.1	22.7	1.330E+00
80.0	79.5	35.2	1.020E+00
90.0	81.8	25.1	8.740E-01
100.0	79.9	358.6	7.420E-01

Sample: Pla.4.th(*) Alpha: 326.0 Beta: 86.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-68.4	8.3	4.880E+02
96.0	-73.1	4.8	5.560E+02
194.0	-77.7	13.6	5.950E+02
288.0	-80.2	11.6	4.790E+02
350.0	-79.8	19.7	3.830E+02
398.0	-79.8	17.3	3.490E+02
447.0	-79.8	21.2	3.350E+02
470.0	-79.5	24.5	3.320E+02
529.0	-80.4	20.0	3.200E+02
544.0	-80.0	20.9	3.020E+02
556.0	-80.4	16.2	2.790E+02
563.0	-79.8	19.7	2.480E+02
572.0	-80.8	21.6	2.140E+02

Sample: Pla.5.th(*) Alpha: 64.0 Beta: 13.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-65.7	310.4	1.000E+02
100.0	-69.8	312.4	1.070E+02
200.0	-75.7	310.9	1.150E+02
300.0	-73.6	310.6	8.640E+01
350.0	-75.0	312.6	7.080E+01
400.0	-73.8	314.3	6.650E+01
450.0	-75.8	312.0	6.480E+01
490.0	-74.3	312.0	6.400E+01
529.0	-75.5	312.1	6.630E+01
556.0	-55.0	288.0	3.270E+01

Sample: Plb.1.af Alpha: 311.0 Beta: 8.5

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	2.8	139.8	1.090E+00
5.0	14.4	153.2	8.660E-01
10.0	-4.1	163.4	6.140E-01
20.0	5.0	183.7	3.290E-01
30.0	55.8	169.6	3.830E-01
40.0	63.5	74.7	3.510E-01
50.0	59.6	310.8	1.660E-01

Sample: Plb.2.af Alpha: 19.0 Beta: 60.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-47.4	203.1	1.440E+01
5.0	-44.3	203.6	1.330E+01
10.0	-43.4	202.6	1.080E+01
20.0	-41.7	201.7	6.800E+00
30.0	-42.9	198.6	4.570E+00
40.0	-38.6	197.5	3.870E+00
50.0	-51.1	207.3	2.140E+00
60.0	-47.7	205.1	1.600E+00

Sample: Plb.3.af Alpha: 354.0 Beta: 22.0

Demagnetization

Step (mT)	Inc	Dec	J (mA/m)
0.0	-35.3	56.6	1.530E+02
5.0	-34.3	58.5	1.520E+02
10.0	-35.7	58.7	4.530E+02
20.0	-37.0	61.0	1.350E+02
30.0	-36.2	62.8	1.380E+02
40.0	-37.0	64.1	1.400E+02
50.0	-39.7	63.8	1.410E+02
60.0	-39.7	64.7	1.410E+02
70.0	-40.1	64.9	1.410E+02
80.0	-42.0	67.0	1.390E+02
90.0	-38.4	71.4	1.320E+02
100.0	-37.7	67.3	1.410E+02

Sample: Plb.4.af Alpha: 51.0 Beta: 34.0

Demagnetization

Step (mT)	Inc	Dec	J (mA/m)
0.0	-61.2	348.1	6.740E+01
5.0	-62.5	349.3	6.790E+01
10.0	-64.6	351.4	6.930E+01
20.0	-68.5	350.5	7.230E+01
30.0	-66.4	346.3	7.340E+01
40.0	-67.3	343.0	6.990E+01
50.0	-67.8	345.5	6.920E+01
60.0	-66.5	345.6	6.600E+01
70.0	-67.3	350.9	6.270E+01
80.0	-66.6	340.4	5.690E+01
90.0	-67.5	341.9	5.360E+01
100.0	-66.3	340.0	5.290E+01

Sample: Plb.6.af Alpha: 41.0 Beta: 54.0

Demagnetization

Step (mT)	Inc	Dec	J (mA/m)
0.0	-70.2	2.5	3.450E+02
5.0	-73.0	358.6	3.780E+02
10.0	-72.4	339.0	3.950E+02
20.0	-80.7	352.6	3.610E+02
30.0	-83.2	316.3	2.300E+02
40.0	-87.0	170.8	1.240E+02
50.0	-71.7	207.7	4.490E+01
60.0	-37.2	218.1	2.110E+01
70.0	2.8	223.9	1.800E+01
80.0	12.2	60.3	1.650E+01
90.0	35.2	247.3	7.330E+00

Sample: Plb.7.af Alpha: 59.0 Beta: 49.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-71.8	10.2	1.620E+02
5.0	-73.7	10.5	1.690E+02
10.0	-75.1	7.1	1.770E+02
20.0	-74.9	3.2	1.640E+02
30.0	-82.6	10.3	1.150E+02
40.0	-82.3	347.3	7.860E+01
50.0	-86.7	161.2	3.920E+01
60.0	-74.5	13.9	1.060E+01
70.0	-51.7	237.2	5.510E+00
80.0	-75.9	176.6	8.640E+00
90.0	-22.3	191.1	6.560E+00
100.0	-75.0	206.0	5.580E+00

Sample: Plb.4.th(*) Alpha: 51.0 Beta: 34.0

Demagnetization Step (Deg. C	Inc	Dec	J (mA/m)
20.0	-71.9	348.3	4.060E+02
96.0	-69.2	338.9	4.090E+02
194.0	-70.6	337.1	4.190E+02
288.0	-70.4	335.0	4.120E+02
350.0	-70.5	335.8	3.870E+02
398.0	-69.2	333.3	3.630E+02
447.0	-70.6	334.2	3.400E+02
470.0	-71.8	334.5	3.250E+02
502.0	-71.1	334.9	3.020E+02
529.0	-71.2	336.6	2.560E+02
544.0	-71.8	334.7	1.860E+02
563.0	-71.5	338.5	8.430E+01
572.0	-74.3	348.0	5.550E+01

Sample: Plb.5.th Alpha: 41.0 Beta: 37.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-74.8	314.1	3.729E+02
200.0	-75.7	322.7	4.200E+02
350.0	-78.5	327.0	4.050E+02
450.0	-76.9	317.8	3.750E+02
500.0	-76.3	327.5	3.190E+02
520.0	-75.2	328.8	3.110E+02
535.0	-77.1	330.0	2.970E+02
545.0	-75.6	332.4	1.680E+02
555.0	-73.5	307.9	8.700E+01
560.0	-75.0	326.7	5.029E+01
565.0	-75.6	333.9	3.246E+01
575.0	-64.6	306.6	1.189E+01

Sample: Plb.6.th(*) Alpha: 41.0 Beta: 54.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-67.7	331.7	9.220E+00
96.0	-70.0	356.1	8.460E+00
194.0	-73.3	5.6	8.920E+00
288.0	-72.3	351.7	9.340E+00
350.0	-72.2	7.3	8.950E+00
398.0	-72.0	357.9	8.250E+00
450.0	-71.6	359.9	7.480E+00
470.0	-73.2	357.6	7.520E+00
502.0	-72.8	355.0	6.600E+00
529.0	-73.4	341.3	3.190E+00
544.0	42.4	29.6	2.970E+00
556.0	73.6	76.0	4.710E+00

Sample: Plb.7.th(*) Alpha: 59.0 Beta: 49.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-76.7	11.9	5.570E+02
96.0	-75.1	343.7	5.740E+02
194.0	-75.6	335.9	5.870E+02
288.0	-77.6	338.1	5.810E+02
350.0	-76.8	336.7	5.690E+02
398.0	-77.8	338.0	5.550E+02
447.0	-77.8	340.0	5.330E+02
470.0	-78.0	341.5	5.220E+02
502.0	-76.2	339.3	4.900E+02
533.0	-75.1	352.3	2.930E+02
548.0	-71.1	336.3	7.920E+01
560.0	-52.8	10.7	3.380E+01
566.0	-40.4	19.4	2.450E+01

Sample: Plb.8.th Alpha: 42.0 Beta: 28.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-74.9	6.0	3.059E+02
200.0	-74.6	358.0	2.830E+02
350.0	-78.5	11.4	3.030E+02
450.0	-76.4	356.4	2.830E+02
500.0	-76.0	12.6	2.290E+02
520.0	-75.0	5.9	2.240E+02
535.0	-73.5	1.6	2.200E+02
555.0	-75.4	15.4	1.120E+02
560.0	-67.0	351.4	4.280E+01
565.0	-74.4	24.0	3.060E+01
575.0	-84.0	314.0	1.505E+01

Sample: Plc.2.af Alpha: 12.0 Beta: 18.0

Demagnetization

Step (mT)	Inc	Dec	J (mA/m)
0.0	-68.4	0.4	2.090E+02
10.0	-74.6	2.7	2.510E+02
20.0	-77.0	2.8	2.740E+02
30.0	-78.2	8.2	2.680E+02
40.0	-79.0	359.2	2.490E+02
50.0	-79.8	21.8	2.110E+02
60.0	-80.1	349.4	1.840E+02
80.0	-78.4	4.8	1.350E+02
100.0	-78.2	282.4	6.870E+01

Sample: Plc.4.af Alpha: 324.0 Beta: 14.0

Demagnetization

Step (mT)	Inc	Dec	J (mA/m)
0.0	-66.2	352.2	1.860E+02
5.0	-68.2	0.0	2.020E+02
10.0	-75.8	351.1	2.240E+02
20.0	-81.9	353.7	2.520E+02
30.0	-84.4	342.2	2.650E+02
40.0	-86.5	347.0	2.630E+02
50.0	-88.0	61.6	2.690E+02
60.0	-85.0	9.2	2.480E+02
70.0	-88.1	131.3	2.400E+02
80.0	-78.9	158.8	2.500E+02
90.0	-89.0	109.3	1.770E+02
100.0	-83.3	32.3	1.230E+02

Sample: Plc.1.th Alpha: 0.0 Beta: 18.0

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	20.2	342.0	1.530E+02
200.0	-48.3	341.2	1.440E+02
350.0	-62.3	344.3	1.670E+02
450.0	-70.4	350.1	2.250E+02
500.0	-71.5	356.5	1.960E+02
520.0	-70.6	354.9	1.660E+02
535.0	-70.3	354.4	1.540E+02
545.0	-70.9	353.6	1.270E+02
555.0	-70.6	360.0	9.390E+01
560.0	-71.0	355.1	9.440E+01
565.0	-69.8	3.8	7.170E+01

Sample: Plc.2.th(*)   Alpha: 12.0   Beta: 52.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-72.7	358.4	1.320E+02
96.0	-75.1	358.2	1.490E+02
288.0	-78.0	353.1	1.030E+02
350.0	-78.9	354.4	8.920E+01
447.0	-80.1	356.4	9.320E+01
470.0	-80.2	351.1	9.470E+01
502.0	-79.8	354.1	1.020E+02
533.0	-79.5	353.2	1.010E+02
548.0	-79.7	355.7	9.810E+01
560.0	-80.1	356.4	9.350E+01
566.0	-80.3	4.5	8.750E+01
576.0	-61.7	149.7	1.070E+02

Sample: Plc.3.th   Alpha: 268.0   Beta: 56.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-69.8	342.6	1.322E+02
200.0	-80.5	341.4	1.800E+02
350.0	-85.4	339.2	2.140E+02
450.0	-85.8	338.4	2.110E+02
500.0	-87.2	336.5	1.700E+02
520.0	-86.9	356.6	1.580E+02
535.0	-86.1	338.3	1.490E+02
545.0	-86.2	351.7	1.300E+02
555.0	-84.4	339.9	1.270E+02
560.0	-87.0	354.8	8.538E+01
565.0	-87.2	351.5	7.866E+01
575.0	-86.4	345.5	5.724E+01
585.0	-87.2	302.7	5.022E+01

Sample: Plc.4.th(*)   Alpha: 324.0   Beta: 14.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-81.1	359.6	3.580E+02
96.0	-81.7	333.9	3.470E+02
194.0	-86.5	304.2	3.620E+02
288.0	-87.1	22.3	2.710E+02
350.0	-87.9	178.2	2.290E+02
398.0	-86.8	193.7	2.120E+02
447.0	-87.0	153.4	2.100E+02
470.0	-86.5	150.5	2.100E+02
502.0	-86.7	180.7	2.180E+02
533.0	-86.3	139.8	2.170E+02
548.0	-72.0	151.4	1.200E+02
560.0	-87.0	163.6	1.890E+02
566.0	-85.8	141.0	1.700E+02
576.0	-56.3	9.4	1.150E+02

Sample: Pld.3.th Alpha: 314.0 Beta: 27.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-59.2	48.1	1.700E+03
200.0	-61.9	46.4	1.700E+03
300.0	-58.6	50.1	1.740E+03
400.0	-59.4	50.2	1.740E+03
450.0	-59.8	51.3	1.720E+03
500.0	-60.9	50.4	1.650E+03
515.0	-59.8	49.9	1.550E+03
530.0	-57.5	50.8	1.520E+03
540.0	-60.4	51.5	1.140E+03
550.0	-56.3	45.7	8.460E+01
560.0	-54.6	32.5	5.170E+01

Sample: Pld.4.th Alpha: 308.0 Beta: 47.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-80.4	29.6	1.600E+03
200.0	-81.2	28.7	1.580E+03
300.0	-82.6	31.7	1.650E+03
400.0	-81.8	38.9	1.640E+03
450.0	-82.0	32.9	1.620E+03
500.0	-80.8	40.5	1.560E+03
515.0	-82.1	33.4	1.480E+03
530.0	-80.3	43.8	1.440E+03
540.0	-81.9	40.9	9.730E+02
550.0	-76.4	14.4	7.620E+01
560.0	-78.2	40.4	4.150E+01

Sample: Pld.5.th Alpha: 308.0 Beta: 35.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-72.5	31.9	1.700E+03
200.0	-71.7	33.4	1.720E+03
300.0	-72.5	33.4	1.840E+03
400.0	-73.8	33.2	1.820E+03
450.0	-71.3	38.9	1.800E+03
500.0	-73.2	36.9	1.690E+03
515.0	-73.0	40.5	1.520E+03
530.0	-73.4	42.4	1.460E+03
540.0	-79.1	52.9	4.780E+02
550.0	-78.6	27.1	6.330E+01
560.0	-60.7	67.2	3.250E+01

Sample: P2a.1.af Alpha: 308.0 Beta: 42.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-72.4	43.4	1.050E+03
5.0	-73.3	43.6	1.060E+03
10.0	-71.6	44.4	1.060E+03
20.0	-71.3	46.3	1.030E+03
30.0	-71.2	44.0	8.460E+02
40.0	-69.4	47.1	6.720E+02
50.0	-75.3	50.5	4.980E+02
60.0	-77.4	55.6	3.760E+02
70.0	-70.6	42.2	2.200E+02
80.0	-76.9	44.6	1.620E+02
90.0	-70.9	39.8	1.030E+02
100.0	-74.7	42.3	8.200E+01

Sample: P2a.2.af Alpha: 309.0 Beta: 45.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-74.0	21.3	1.040E+03
5.0	-74.5	24.1	1.060E+03
10.0	-76.1	23.9	1.080E+03
20.0	-75.1	29.5	1.050E+03
40.0	-81.7	30.2	6.730E+02
60.0	-82.3	33.5	3.760E+02
70.0	-82.3	30.9	2.220E+02
90.0	-82.4	17.7	1.300E+02
100.0	-83.5	23.8	8.710E+01

Sample: P2a.1.th(*) Alpha: 308.0 Beta: 42.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-66.4	31.3	9.810E+02
96.0	-69.4	26.6	9.380E+02
194.0	-67.8	29.5	9.040E+02
288.0	-68.1	29.3	8.790E+02
350.0	-68.4	28.2	8.020E+02
398.0	-67.7	29.7	7.320E+02
447.0	-69.1	27.5	6.120E+02
470.0	-71.5	44.9	4.770E+02
502.0	-68.0	30.8	3.070E+02
533.0	-67.5	32.1	1.310E+02
548.0	-67.9	37.7	5.500E+01
560.0	-67.3	348.5	2.310E+01
566.0	-64.7	9.5	1.260E+01

Sample: P2a.2.th(*) Alpha: 309.0 Beta: 45.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-67.9	69.4	4.290E+02
96.0	-70.1	62.9	4.190E+02
194.0	-71.6	60.5	4.270E+02
288.0	-72.5	57.3	4.250E+02
350.0	-73.3	58.7	4.070E+02
398.0	-73.6	58.7	3.950E+02
502.0	-72.4	64.5	3.470E+02
521.0	-73.8	64.1	3.020E+02
536.0	-74.4	58.6	2.470E+02
548.0	-75.5	51.2	1.610E+02
554.0	-73.8	45.5	8.540E+01
564.0	-74.6	79.5	3.120E+01

Sample: P2a.3.th Alpha: 302.0 Beta: 43.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-82.6	315.8	7.892E+02
200.0	-84.2	292.5	6.760E+02
350.0	-83.7	304.9	7.830E+02
450.0	-84.0	288.1	6.940E+02
500.0	-83.7	316.0	4.700E+02
520.0	-83.5	310.6	4.540E+02
535.0	-83.9	299.7	4.410E+02
545.0	-83.5	312.7	2.840E+02
555.0	-83.6	291.9	2.710E+02
560.0	-87.3	232.6	1.330E+01
565.0	-81.5	208.0	8.390E+00
575.0	-60.8	205.4	2.125E+00

Sample: P2a.4.th Alpha: 223.0 Beta: 43.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-81.8	19.1	7.975E+01
200.0	-80.8	19.4	7.040E+01
450.0	-81.6	15.4	7.360E+01
500.0	-76.4	90.3	2.280E+01
520.0	-73.9	96.2	1.950E+01
535.0	-72.2	100.7	1.930E+01
545.0	-66.2	103.0	8.180E+00
555.0	-59.4	102.3	8.070E+00
560.0	-63.9	99.6	8.670E-01

Sample: P2a.6.th Alpha: 249.0 Beta: 42.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-68.6	15.9	2.342E+02
200.0	-72.5	16.7	2.150E+02
350.0	-74.5	20.4	2.330E+02
460.0	-74.7	22.0	1.880E+02
500.0	-67.2	10.0	6.140E+01
520.0	-66.7	12.8	5.500E+01
535.0	-65.1	11.2	5.260E+01
545.0	-61.7	21.7	1.980E+01
555.0	-62.5	23.7	1.890E+01
560.0	-64.1	56.8	3.060E+00

Sample: P2b.2.af Alpha: 183.0 Beta: 19.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-71.1	19.9	9.220E+01
5.0	-71.3	17.0	9.310E+01
10.0	-70.8	21.4	9.190E+01
20.0	-69.9	26.1	7.840E+01
30.0	-65.2	12.6	5.030E+01
40.0	-60.5	6.0	3.350E+01
50.0	-57.1	321.3	1.870E+01
60.0	-41.9	330.9	1.710E+01
70.0	-26.5	326.5	1.340E+01
80.0	-15.9	330.4	1.910E+01
90.0	-17.1	330.9	1.760E+01
100.0	-3.1	301.4	1.400E+01

Sample: P2a.3.af Alpha: 172.0 Beta: 35.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-79.5	359.3	1.290E+02
5.0	-80.4	3.1	1.280E+02
10.0	-81.3	13.2	1.290E+02
20.0	-81.2	11.2	1.150E+02
30.0	-79.4	3.6	8.730E+01
40.0	-76.0	0.6	5.660E+01
50.0	-74.7	358.2	4.070E-01
60.0	-84.6	247.6	2.630E+01
70.0	-77.4	9.5	2.090E+01
80.0	-57.8	2.8	1.190E+01
90.0	-32.5	353.2	8.070E+00
100.0	-8.0	181.3	3.350E+00

Sample: P2b.1.th Alpha: 288.0 Beta: 28.0

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-72.0	6.9	3.016E+02
200.0	-73.2	14.5	2.580E+02
350.0	-75.2	14.1	3.000E+02
450.0	-75.5	11.0	2.550E+02
500.0	-76.7	7.8	8.810E+01
520.0	-76.3	4.8	8.030E+01
535.0	-76.9	2.4	7.670E+01
545.0	-79.1	1.9	2.690E+01
555.0	-79.5	25.6	2.210E+01
565.0	-87.0	248.7	2.690E+00

Sample: P2b.2.th(*) Alpha: 183.0 Beta: 19.0

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-74.9	18.2	1.800E+02
96.0	-74.6	24.1	1.810E+02
194.0	-75.6	17.2	1.820E+02
288.0	-75.1	15.3	1.770E+02
350.0	-74.1	24.3	1.710E+02
398.0	-73.5	26.8	1.520E+02
447.0	-74.3	12.1	1.190E+02
470.0	-70.7	5.0	6.610E+01
502.0	-67.0	24.5	2.340E+01
521.0	-70.0	51.5	1.320E+01
536.0	-70.6	80.9	5.920E+00
548.0	-18.8	153.3	2.580E+00
554.0	19.8	238.4	2.070E+00

Sample: P2b.3.th(*) Alpha: 172.0 Beta: 35.0

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-76.8	15.2	1.680E+02
96.0	-77.0	11.7	1.680E+02
194.0	-77.9	12.6	1.730E+02
288.0	-78.1	15.8	1.620E+02
350.0	-78.0	19.5	1.460E+02
398.0	-78.2	19.2	1.280E+02
447.0	-78.4	9.0	1.030E+02
470.0	-77.6	357.0	7.340E+01
502.0	-77.8	3.4	4.120E+01
521.0	-80.5	347.1	2.570E+01
536.0	-74.7	30.1	1.330E+01
548.0	-28.4	164.9	7.880E+00
554.0	-46.5	249.3	3.530E+00

Sample: P2b.4.th Alpha: 169.0 Beta: 13.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-71.7	326.1	1.050E+01
200.0	-70.1	320.4	1.070E+02
350.0	-70.8	322.3	1.080E+02
450.0	-69.5	318.4	8.230E+01
500.0	-65.5	321.2	5.610E+01
520.0	-62.7	321.3	4.350E+01
535.0	-55.4	321.6	1.760E+01
545.0	-52.7	330.1	3.460E+00
555.0	-58.4	330.9	3.550E+00
560.0	-53.4	328.3	2.180E+00
565.0	-25.8	341.6	1.470e+00

Sample: P2b.5.th Alpha: 170.0 Beta: 15.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-66.7	324.9	9.840E+02
200.0	-67.1	332.1	9.390E+02
350.0	-67.9	331.3	8.730E+02
450.0	-66.7	330.1	7.120E+02
500.0	-66.2	336.4	5.770E+02
520.0	-66.8	337.7	5.060E+02
535.0	-65.3	330.4	3.530E+02
545.0	-66.6	332.4	1.600E+02
555.0	-65.2	332.4	1.460E+02
560.0	-65.2	335.0	9.470e+02
565.0	-63.1	333.8	4.240e+01

Sample: P2c.1.af Alpha: 310.0 Beta: 43.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-68.7	77.5	5.970E+02
5.0	-71.0	77.3	6.010E+02
10.0	-71.2	81.3	5.570E+02
20.0	-64.8	84.9	3.520E+02
30.0	-68.6	80.3	2.360E+02
40.0	-70.6	86.8	1.540E+02
50.0	-70.8	106.2	9.050E+01
60.0	-67.8	81.1	6.280E+01
70.0	-64.3	100.1	3.410E+01
80.0	-64.7	132.8	3.290E+01
90.0	-65.2	96.2	1.790E+01
100.0	-68.4	59.5	1.320E+01

Sample: P2c.1.th(*) Alpha: 310.0 Beta: 43.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-73.6	75.0	5.040E+02
96.0	-70.9	80.2	5.320E+02
194.0	-71.7	86.2	5.520E+02
288.0	-71.9	82.4	5.540E+02
350.0	-72.4	85.3	5.500E+02
398.0	-72.9	84.6	5.250E+02
447.0	-72.0	85.1	5.170E+02
470.0	-72.4	88.1	5.010E+02
502.0	-72.9	88.0	4.740E+02
521.0	-71.2	83.6	4.240E+02
536.0	-71.7	72.9	3.430E+02
548.0	-73.3	71.3	2.460E+02
554.0	-75.3	78.6	1.480E+02
546.0	-66.9	116.7	2.920E+01

Sample: P2c.3.th Alpha: 298.0 Beta: 33.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-64.7	89.0	2.410E+02
200.0	-65.7	87.9	2.280E+02
350.0	-66.2	92.0	2.420E+02
450.0	-66.5	91.4	2.190E+02
500.0	-65.6	90.4	2.110E+02
520.0	-65.7	95.4	2.050E+02
535.0	-64.7	94.7	1.700E+02
545.0	-65.3	88.4	1.260E+02
555.0	-64.6	92.3	1.250E+02
560.0	-64.5	86.7	9.510E+01
565.0	-65.3	95.7	5.240E+01
575.0	-64.2	96.2	5.122E+01
585.0	-56.9	92.1	7.588E+00

Sample: P2c.4.th Alpha: 285.0 Beta: 19.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-55.6	80.9	2.170E+02
200.0	-58.1	82.1	2.040E+02
350.0	-59.7	79.5	2.260E+02
450.0	-59.3	83.6	2.000E+02
500.0	-58.3	82.1	1.920E+02
520.0	-59.3	84.1	1.870E+02
535.0	-58.8	80.2	1.490E+02
545.0	-59.5	85.0	1.290E+02
555.0	-60.0	83.3	1.280E+02
560.0	-58.5	80.7	9.240E+01
565.0	-57.2	85.0	4.110E+01
575.0	-59.0	81.0	3.896E+01
585.0	-33.0	97.7	4.880E+00

Sample: P2c.5.th Alpha: 270.0 Beta: 15.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-61.8	79.5	1.490E+02
200.0	-61.2	76.5	1.540E+02
350.0	-62.5	79.6	1.710E+02
450.0	-61.2	75.5	1.510E+02
500.0	-60.7	78.2	1.480E+02
520.0	-61.0	80.4	1.410E+02
535.0	-59.5	77.6	1.190E+02
545.0	-59.8	79.7	1.130E+02
555.0	-59.2	80.8	1.090E+02
560.0	-58.6	75.2	8.660E+01
565.0	-59.3	81.7	4.280E+01
575.0	-57.2	77.6	3.876E+01

Sample: P2c.6.th Alpha: 313.0 Beta: 46.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-64.1	61.7	5.720E+02
200.0	-63.9	63.2	5.710E+02
300.0	-63.1	63.7	5.670E+02
400.0	-65.4	62.6	5.720E+02
450.0	-66.6	62.8	5.550E+02
500.0	-63.7	64.6	5.410E+02
500.0	-65.3	61.0	5.340E+02
515.0	-63.2	63.2	5.090E+02
530.0	-62.5	64.5	4.580E+02
540.0	-63.5	64.7	4.340E+02
550.0	-59.0	92.5	6.500E+01
560.0	-57.6	88.3	6.280E+01

Sample: P2d.1.th Alpha: 25.0 Beta: 25.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-66.6	80.4	1.610E+02
200.0	-67.6	81.0	1.640E+02
300.0	-68.6	85.1	1.690E+02
400.0	-70.0	83.8	1.710E+02
450.0	-68.9	84.5	1.680E+02
500.0	-66.9	79.6	1.620E+02
515.0	-68.2	83.1	1.550E+02
530.0	-68.5	87.2	1.500E+02
540.0	-69.2	86.9	1.400E+02
550.0	-62.5	101.1	1.440E+01
560.0	-60.3	98.6	1.420E+01

Sample: P2d.2.th Alpha: 302.0 Beta: 40.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-79.1	21.8	1.100E+02
200.0	-79.9	23.2	1.100E+02
350.0	-80.5	19.7	1.250E+02
450.0	-79.0	19.9	1.070E+02
500.0	-81.4	34.7	8.460E+01
520.0	-79.0	50.7	6.580E+01
535.0	-70.1	79.8	2.440E+01
545.0	-68.1	71.9	1.060E+01
555.0	-65.6	83.8	9.940E+00
560.0	-64.8	68.7	6.850E+00
565.0	-67.5	107.9	1.540E+00

Sample: P2d.3.th Alpha: 334.0 Beta: 45.5

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-80.0	353.7	9.190E+02
200.0	-78.3	352.4	1.110E+03
350.0	-79.2	347.1	1.230E+03
450.0	-79.9	352.5	1.070E+03
500.0	-79.9	342.6	8.990E+02
520.0	-82.0	356.7	5.700E+02
535.0	-72.9	50.3	9.050E+01
545.0	-75.8	46.1	7.560E+01
555.0	-72.0	60.9	6.430E+01
560.0	-73.1	56.1	5.990E+01
565.0	-64.6	66.7	6.420E+00

Sample: P2d.4.af Alpha: 0.0 Beta: 90.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-81.5	345.5	7.360E+02
5.0	-81.5	345.0	7.390E+02
10.0	-79.4	349.8	6.320E+02
20.0	-76.7	349.5	2.980E+02
30.0	-75.4	29.2	1.600E+02
40.0	-81.7	22.1	9.230E+01
50.0	-74.1	356.6	6.820E+01
60.0	-73.8	345.3	5.140E+01
70.0	-81.2	4.9	2.650E+01
80.0	-77.3	318.7	1.960E+01
90.0	-65.0	331.4	1.780E+01
100.0	-77.7	26.4	9.730E+00

Sample: P2d.4.th(*) Alpha: 0.0 Beta: 90.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-78.8	5.9	2.100E+03
96.0	-79.1	3.8	2.120E+03
194.0	-79.2	4.6	2.170E+03
288.0	-79.7	4.3	2.160E+03
350.0	-80.0	3.6	2.100E+03
398.0	-80.4	4.2	2.060E+03
447.0	-80.7	7.2	1.990E+03
470.0	-81.3	10.5	1.710E+03
533.0	-75.8	50.9	9.520E+01
550.0	-58.1	48.6	3.960E+01
562.0	-48.7	57.2	1.310E+01

Sample: P2d.5.th Alpha: 58.0 Beta: 62.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-81.8	32.8	8.570E+02
200.0	-81.1	25.1	1.160E+03
350.0	-81.3	28.5	1.290E+03
450.0	-82.2	44.5	1.170E+03
500.0	-81.7	33.8	1.080E+03
520.0	-81.8	42.6	6.980E+02
535.0	-77.1	70.3	9.190E+01
545.0	-75.1	66.7	8.300E+01
555.0	-76.6	78.4	6.190E+01
560.0	-76.1	73.3	5.960E+01
565.0	-61.3	1.8	6.530E+00

Sample: P3a.1.af Alpha: 99.0 Beta: 35.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	35.6	215.0	5.380E+02
5.0	35.5	214.4	5.280E+02
10.0	36.5	210.1	5.010E+02
20.0	34.4	198.0	4.680E+02
30.0	35.4	191.1	4.110E+02
40.0	38.1	181.2	3.540E+02
50.0	33.2	178.8	2.700E+02
60.0	37.5	178.2	2.230E+02
70.0	35.3	170.3	1.630E+02
80.0	40.7	171.4	9.880E+01
90.0	32.8	168.7	8.850E+01
100.0	32.0	173.1	7.870E+01

Sample: P3a.2.af Alpha: 343.0 Beta: 17.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	64.1	348.0	7.010E+02
2.5	61.0	347.1	6.260E+02
5.0	61.2	347.2	5.500E+02
7.5	61.5	345.2	4.640E+02
10.0	61.8	342.9	3.870E+02
15.0	62.1	338.6	2.970E+02
20.0	63.1	333.3	2.480E+02
25.0	61.8	331.2	2.010E+02
30.0	61.1	338.8	1.610E+02
40.0	57.6	330.6	1.120E+02
50.0	52.4	338.0	6.910E+01
60.0	51.4	332.4	5.750E+01
70.0	59.2	333.9	3.230E+02
80.0	59.6	343.9	1.900E+01
90.0	70.9	327.5	1.470E+01

Sample: P3a.4.af Alpha: 253.0 Beta: 56.5

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	28.2	232.5	5.330E+02
5.0	27.1	232.3	5.360E+02
10.0	25.4	231.5	5.360E+02
20.0	20.4	231.1	5.280E+02
30.0	15.6	231.9	5.070E+02
40.0	12.4	232.0	4.290E+02
50.0	9.8	230.1	4.380E+02
60.0	10.8	226.5	3.790E+02
70.0	4.8	228.8	3.360E+02
80.0	3.3	227.2	2.870E+02
90.0	5.3	222.9	2.420E+02

Sample: P3a.1.th(*) Alpha: 99.0 Beta: 35.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	60.4	228.9	5.920E+02
96.0	56.5	230.9	4.980E+02
194.0	30.0	222.2	3.850E+02
288.0	16.6	223.4	2.640E+02
350.0	10.2	225.0	1.720E+02
398.0	16.0	230.9	1.300E+02
447.0	19.1	230.6	9.760E+01
470.0	19.2	230.9	8.030E+01
502.0	23.9	233.5	6.050E+01
533.0	18.1	232.8	4.510E+01
548.0	20.2	227.1	3.210E+01
560.0	12.2	225.4	2.590E+01
566.0	5.9	218.4	2.240E+01

Sample: P3a.3.th Alpha: 282.0 Beta: 41.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	12.4	217.9	1.390E+03
200.0	12.2	217.7	1.390E+03
300.0	8.4	219.2	6.720E+02
400.0	8.1	219.6	6.860E+02
450.0	13.8	223.6	4.220E+02
500.0	19.4	225.1	3.080E+02
515.0	24.6	226.6	2.490E+02
530.0	30.6	231.2	1.910E+02
540.0	36.8	236.1	1.650E+02
550.0	39.0	235.4	1.200E+02
560.0	41.0	239.0	1.080E+02

Sample: P3a.4.th(*) Alpha: 253.0 Beta: 56.5

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	32.8	22.4	4.530E+02
96.0	23.8	224.4	4.350E+02
194.0	6.6	221.9	4.150E+02
288.0	4.8	222.6	3.130E+02
350.0	11.0	220.4	1.740E+02
398.0	14.0	220.1	1.280E+02
447.0	16.0	220.5	1.030E+02
470.0	16.2	219.9	9.420E+01
502.0	15.6	218.7	8.930E+01
533.0	13.2	219.2	8.380E+01
548.0	13.8	219.6	7.260E+01
560.0	13.8	220.0	6.480E+01
566.0	12.1	221.1	5.800E+01
576.0	10.2	218.8	5.490E+01

Sample: P3a.5.th Alpha: 254.0 Beta: 50.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-3.4	219.4	9.990E+02
200.0	-3.4	218.6	9.960E+02
300.0	-8.1	219.7	4.940E+02
400.0	-9.8	238.4	4.340E+02
450.0	-5.5	221.3	3.360E+02
500.0	-3.0	223.9	2.530E+02
515.0	-2.7	221.1	2.290E+02
530.0	-2.6	222.3	1.960E+02
540.0	-0.3	225.6	1.750E+02
550.0	-4.6	224.8	1.390E+02
560.0	-4.1	225.8	1.260E+02

Sample: P3a.6.th Alpha: 262.0 Beta: 61.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	9.8	234.8	9.160E+02
200.0	10.0	233.5	9.070E+02
300.0	6.2	233.8	4.390E+02
400.0	6.3	236.0	4.450E+02
450.0	11.0	237.3	3.000E+02
500.0	16.3	236.8	2.340E+02
515.0	19.4	237.4	1.970E+02
530.0	22.4	235.7	1.700E+02
540.0	22.0	237.1	1.580E+02
550.0	17.1	237.3	1.310E+02
560.0	16.6	238.3	1.170E+02

Sample: P3b.4.af Alpha: 23.0 Beta: 22.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-64.6	271.8	4.290E+02
5.0	-72.1	268.3	5.080E+02
10.0	-77.4	253.4	6.450E+02
20.0	-77.3	228.3	6.270E+02
30.0	-75.6	198.8	3.400E+02
40.0	-75.0	192.3	1.690E+02
50.0	-67.5	233.4	9.110E+01
60.0	-68.2	231.7	6.460E+01
70.0	-75.6	168.7	3.160E+01
80.0	-48.0	336.8	9.810E+00
90.0	-71.8	278.9	2.270E+01
100.0	-47.1	255.7	2.290E+01

Sample: P3b.5.af Alpha: 4.0 Beta: 35.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-69.6	286.7	6.290E+02
5.0	-71.1	288.5	6.710E+02
10.0	-73.7	290.7	7.080E+02
20.0	-76.7	277.8	5.260E+02
30.0	-82.6	276.9	2.510E+02
40.0	-77.2	247.6	1.170E+02
50.0	-73.7	234.5	5.790E+01
60.0	-50.8	292.6	2.400E+01
70.0	-57.4	350.4	2.030E+01
80.0	-75.6	22.7	2.360E+01
90.0	-66.8	8.6	2.620E+01
100.0	-18.4	355.1	2.100E+01

Sample: P3b.1.th Alpha: 348.0 Beta: 45.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-84.9	326.7	6.420E+02
200.0	-85.5	328.3	6.556E+02
300.0	-85.7	11.6	6.650E+02
400.0	-85.5	309.9	6.450E+02
450.0	-84.1	298.8	6.140E+02
500.0	-85.6	328.1	3.750E+02
515.0	-85.7	307.5	1.580E+02
530.0	-87.4	7.5	5.810E+01
540.0	-86.0	42.5	4.540E+01
550.0	-86.6	55.6	2.340E+01
560.0	-67.9	143.4	3.880E+01

Sample: P3b.2.th Alpha: 354.0 Beta: 44.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-78.5	281.6	9.184E+02
200.0	-80.5	285.7	9.588E+02
300.0	-81.8	285.0	9.520E+02
450.0	-79.2	274.7	9.110E+02
500.0	-79.8	282.6	7.120E+02
515.0	-76.5	277.0	5.200E+02
530.0	-79.7	287.6	1.530E+02
540.0	-80.0	269.1	6.800E+01
550.0	-83.3	274.0	3.870E+01
560.0	-81.7	301.7	2.230E+01

Sample: P3b.3.th Alpha: 324.0 Beta: 21.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-81.0	250.8	9.266E+02
200.0	-80.6	249.1	9.636E+02
300.0	-80.4	242.4	9.570E+02
450.0	-80.5	244.4	8.920E+02
500.0	-80.0	245.6	5.990E+02
515.0	-76.3	236.9	3.400E+02
530.0	-79.1	242.1	8.550E+01
540.0	-85.0	258.1	5.090E+01
550.0	-84.0	250.4	2.640E+01
560.0	-83.4	149.4	1.990E+01

Sample: P3b.4.th(*) Alpha: 23.0 Beta: 22.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-82.7	276.8	4.130E+02
96.0	-83.2	287.4	4.460E+02
194.0	-82.1	263.8	5.080E+02
288.0	-81.7	255.5	5.260E+02
350.0	-81.4	252.7	5.220E+02
398.0	-79.6	258.0	5.120E+02
447.0	-80.4	252.3	4.870E+02
470.0	-78.6	259.7	4.340E+02
502.0	-80.6	257.5	3.440E+02
535.0	-74.4	261.9	9.130E+01
550.0	-58.7	325.5	2.900E+01
562.0	-61.4	304.3	1.490E+01
568.0	-18.6	335.7	1.130E+01

Sample: P3b.5.th(*) Alpha: 4.0 Beta: 35.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-75.7	34.8	3.490E+02
96.0	-74.1	2.6	3.990E+02
194.0	-79.4	353.5	5.110E+02
288.0	-82.5	341.6	5.810E+02
350.0	-83.2	332.0	5.730E+02
398.0	-83.2	340.7	5.740E+02
447.0	-83.9	326.9	5.850E+02
470.0	-74.8	322.8	5.580E+02
502.0	-85.6	343.5	4.410E+02
529.0	-79.4	334.3	2.080E+02
543.0	-71.5	322.5	4.400E+01
555.0	-66.6	20.3	1.280E+01
562.0	-6.4	29.9	5.110E+00

Sample: P3c.3.af Alpha: 2.0 Beta: 24.5

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	-84.0	285.6	2.450E+02
5.0	-74.4	280.6	2.420E+02
10.0	-84.2	273.9	2.340E+02
20.0	-82.3	278.9	1.890E+02
30.0	-82.5	278.9	1.100E+02
35.0	-81.7	278.6	8.420E+01
40.0	-82.7	282.5	6.620E+01
45.0	-73.6	289.1	4.290E+01
50.0	-78.5	294.8	3.620E+01
60.0	-89.5	146.3	2.640E+01
70.0	-60.9	234.7	1.700E+01
80.0	-68.4	234.7	1.700E+01
90.0	-65.1	329.3	8.390E+00
100.0	-60.6	274.6	9.430E+00

Sample: P3c.1.th Alpha: 344.0 Beta: 29.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-82.3	285.3	3.284E+02
200.0	-81.3	283.7	3.341E+02
300.0	-83.2	280.3	3.360E+02
400.0	-81.1	277.0	3.190E+02
450.0	-80.9	270.9	3.090E+02
500.0	-81.4	275.2	1.860E+02
515.0	-81.5	265.3	8.370E+01
530.0	-85.4	257.8	2.180E+01
540.0	-82.0	357.5	1.180E+01
550.0	-74.0	212.2	1.010E+01
560.0	-82.7	191.4	9.510E+00

Sample: P3c.2.th Alpha: 318.0 Beta: 24.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-79.3	279.9	6.319E+02
200.0	-78.7	291.6	6.350E+02
300.0	-78.9	285.7	6.420E+02
400.0	-79.8	295.6	6.220E+02
450.0	-77.1	280.8	6.190E+02
500.0	-76.7	284.3	5.420E+02
515.0	-75.6	283.8	4.370E+02
530.0	-74.0	291.8	1.580E+02
540.0	-86.3	6.5	1.190E+01
550.0	-80.8	265.9	8.240E+00
560.0	-70.2	242.4	6.760E+00

Sample: P3c.3.th(*) Alpha: 2.0 Beta: 24.5

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-79.4	299.4	4.400E+02
96.0	-79.8	302.7	4.390E+02
194.0	-79.9	297.2	4.400E+02
288.0	-80.2	299.3	4.330E+02
350.0	-79.4	295.9	4.170E+02
398.0	-79.3	296.1	3.880E+02
447.0	-78.9	297.6	2.790E+02
470.0	-76.3	313.1	6.550E+01
502.0	-82.4	305.2	1.820E+01
535.0	-55.4	250.5	3.140E+00
550.0	35.5	251.6	2.930E+00
562.0	51.7	256.1	5.470E+00
568.0	50.7	237.7	3.420E+00

Sample: P3c.4.th Alpha: 28.0 Beta: 42.5

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-82.6	333.0	1.053E+02
200.0	-86.3	318.0	1.088E+02
300.0	-85.3	300.8	1.140E+02
400.0	-86.7	299.9	1.030E+02
450.0	-86.1	302.0	9.790E+01
500.0	-83.4	291.5	5.700E+01
515.0	-82.5	289.2	3.920E+01
530.0	-81.5	288.7	2.420E+01
540.0	-82.5	272.8	1.220E+01
550.0	-83.8	267.5	3.710E+00
560.0	-79.7	237.9	3.860E+00

Sample: P3d.1.af Alpha: 40.0 Beta: 25.0

Demagnetization

Step (mT)	Inc	Dec	J (mA/m)
0.0	-79.2	296.2	3.390E+02
5.0	-79.2	297.3	3.420E+02
10.0	-80.2	295.5	3.460E+02
15.0	-78.7	295.1	3.420E+02
20.0	-78.4	292.5	3.250E+02
25.0	-78.7	289.1	3.080E+02
30.0	-79.5	285.4	2.870E+02
35.0	-79.3	283.3	2.610E+02
40.0	-77.6	285.0	2.420E+02
50.0	-76.8	283.2	1.990E+02
60.0	-77.5	295.2	1.390E+02
70.0	-80.1	280.6	1.140E+02
80.0	-75.4	281.6	8.990E+01
90.0	-73.6	278.5	6.220E+01
100.0	-70.9	280.6	4.770E+01

Sample: P3d.1.th(*) Alpha: 40.0 Beta: 25.0

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-79.0	287.2	3.580E+02
96.0	-76.6	293.6	3.620E+02
194.0	-78.6	290.0	3.730E+02
288.0	-78.6	290.0	3.330E+02
350.0	-80.0	285.7	2.770E+02
398.0	-77.9	289.2	2.590E+02
447.0	-79.2	285.8	2.260E+02
470.0	-80.0	281.8	2.050E+02
502.0	-80.2	280.1	1.870E+02
535.0	-83.4	280.0	9.000E+01
550.0	-84.5	287.1	2.740E+01
562.0	-78.1	347.7	1.280E+01
568.0	-82.4	331.3	9.920E+00
578.0	-82.8	290.0	8.450E+00

Sample: P3d.2.th Alpha: 30.0 Beta: 20.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-70.5	284.4	5.258E+02
200.0	-71.9	280.8	5.478E+02
300.0	-73.6	278.3	5.549E+02
400.0	-72.8	277.8	4.079E+02
450.0	-74.2	274.7	3.870E+02
500.0	-73.6	275.9	3.445E+02
515.0	-73.4	274.2	3.140E+02
530.0	-73.7	272.3	2.790E+02
540.0	-75.8	268.5	2.420E+02
550.0	-78.7	265.3	1.120E+02
560.0	-77.1	262.7	1.050E+02

Sample: P3d.3.th Alpha: 27.0 Beta: 28.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-84.9	297.9	1.794E+02
200.0	-83.8	299.9	1.768E+02
300.0	-86.0	300.3	1.820E+02
400.0	-84.5	289.3	1.720E+02
450.0	-85.0	286.5	1.700E+02
500.0	-84.3	291.4	1.580E+02
515.0	-84.9	285.5	1.520E+02
530.0	-84.6	287.1	1.460E+02
540.0	-85.2	287.3	1.360E+02
550.0	-88.5	258.5	4.800E+01
560.0	-87.3	262.0	4.690E+01

Sample: P4a.2.af Alpha: 254.0 Beta: 6.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	72.7	299.2	1.090E+00
2.5	68.2	310.1	1.010E+00
5.0	64.7	311.7	9.210E-01
10.0	56.6	320.9	9.190E-01
20.0	54.0	318.9	7.160E-01
30.0	47.9	319.3	6.140E-01
40.0	45.9	316.6	5.090E-01
50.0	56.2	317.7	4.020E-01
60.0	56.8	320.6	3.990E-01
70.0	79.8	308.2	2.610E-01
80.0	58.3	300.8	3.140E-01
90.0	46.1	296.2	1.300E-01
100.0	35.0	322.5	4.530E-01

Sample: P4a.7.af Alpha: 325.0 Beta: 34.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	23.7	330.4	8.670E-01
5.0	34.5	310.4	8.000E-01
10.0	40.4	313.4	7.250E-01
15.0	40.3	309.7	6.490E-01
20.0	41.9	312.7	6.090E-01
25.0	41.9	313.4	5.270E-01
30.0	44.1	315.2	4.570E-01
35.0	47.1	312.8	4.050E-01
40.0	48.3	313.9	3.590E-01
45.0	44.5	321.0	2.800E-01
50.0	49.9	303.8	2.490E-01
55.0	51.9	295.6	2.400E-01
60.0	53.5	296.0	1.780E-01
65.0	47.4	307.0	1.340E-01

Sample: P4a.8.af Alpha: 297.0 Beta: 36.5

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	21.5	281.0	6.390E-01
5.0	49.7	303.6	7.180E-01
10.0	57.3	310.7	7.340E-01
20.0	55.5	321.2	7.210E-01
30.0	56.9	306.7	5.240E-01
40.0	57.9	297.4	4.500E-01
50.0	55.1	339.5	3.680E-01
60.0	62.7	301.2	2.790E-01
70.0	60.5	282.4	1.440E-01
80.0	40.1	273.2	1.290E-01
90.0	23.2	11.2	1.120E-01
100.0	36.5	359.6	7.470E-02

Sample: P4a.9.af Alpha: 305.0 Beta: 33.0

Demagnetization Step (mT)	Inc	Dec	J (mA/m)
0.0	58.6	0.0	9.940E-01
5.0	58.3	358.9	9.250E-01
10.0	63.8	347.4	8.940E-01
20.0	61.3	337.7	7.130E-01
30.0	65.1	332.0	5.770E-01
40.0	64.2	321.6	5.260E-01
50.0	70.5	344.5	3.920E-01
60.0	59.3	9.5	2.060E-01
70.0	53.4	315.7	2.310E-01
80.0	54.4	337.3	1.600E-01
90.0	65.5	234.8	1.600E-01

Sample: P4a.1.th Alpha: 254.0 Beta: 6.0

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	73.8	353.2	9.400E-01
100.0	74.3	345.8	1.040E+00
200.0	67.4	12.7	8.460E-01
300.0	61.0	331.5	6.460E-01
333.0	67.6	318.1	6.610E-01
367.0	57.0	326.0	6.940E-01
400.0	47.6	324.1	5.670E-01
433.0	51.6	321.4	7.110E-01
467.0	49.8	321.2	7.170E-01
500.0	50.5	332.7	6.250E-01
520.0	48.6	293.0	4.298E-01
540.0	69.7	0.7	6.630E-01
560.0	52.9	331.5	2.851E-01
580.0	30.1	171.3	7.010E-01

Sample: P4a.2.th(*) Alpha: 254.0 Beta: 6.0

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	43.4	307.7	8.700E-01
96.0	41.7	311.8	8.280E-01
194.0	35.6	316.7	7.280E-01
288.0	39.7	319.5	6.770E-01
350.0	39.1	317.1	6.340E-01
398.0	42.4	325.0	6.130E-01
447.0	43.3	321.1	5.310E-01
470.0	43.6	322.3	4.830E-01
502.0	47.7	313.3	4.780E-01
548.0	40.1	292.3	2.850E-01

Sample: P4a.3.th Alpha: 335.0 Beta: 39.0

Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	37.7	65.8	2.290E+00
100.0	38.6	58.3	1.910E+00
200.0	40.2	51.0	1.900E+00
300.0	42.3	23.6	1.160E+00
333.0	43.1	15.5	1.110E+00
367.0	40.8	14.2	1.030E+00
400.0	70.1	20.5	1.010E+00
433.0	69.1	16.2	1.000E+00
467.0	71.9	358.1	8.910E-01
500.0	71.3	345.0	7.850E-01
520.0	70.1	350.2	6.202E-01
540.0	83.3	196.4	5.526E-01
560.0	-22.0	316.0	3.084E-01

Sample: P4a.4.th Alpha: 329.0 Beta: 44.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	59.6	339.8	1.020E+00
100.0	59.1	338.1	9.710E-01
200.0	57.3	342.1	1.010E+00
300.0	52.1	325.8	7.260E-01
333.0	51.4	326.7	7.340E-01
367.0	53.2	330.4	6.820E-01
400.0	51.7	337.1	6.260E-01
433.0	53.0	335.4	6.240E-01
467.0	51.3	334.2	6.590E-01
500.0	52.4	336.6	6.490E-01
520.0	50.3	343.3	5.778E-01
540.0	47.7	347.2	5.492E-01
560.0	46.4	336.9	4.464E-01

Sample: P4a.5.th Alpha: 312.0 Beta: 38.5

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	32.5	38.4	1.040E+00
100.0	36.1	34.2	1.050E+00
200.0	38.8	24.5	7.720E-01
300.0	49.4	9.9	5.320E-01
333.0	46.8	9.2	5.380E-01
367.0	52.7	354.6	4.980E-01
400.0	35.0	17.4	4.940E-01
433.0	41.1	11.0	4.170E-01
467.0	57.7	354.8	4.400E-01
500.0	53.4	333.6	3.610E-01
520.0	35.4	5.2	2.701E-01
540.0	65.1	73.4	2.925E-01

Sample: P4a.6.th Alpha: 322.0 Beta: 39.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	63.1	47.7	1.170E+00
100.0	62.0	36.7	1.060E+00
200.0	63.4	26.6	9.580E-01
300.0	61.9	356.5	5.770E-01
333.0	55.4	355.1	6.100E-01
367.0	56.0	349.8	5.400E-01
400.0	51.0	347.2	5.410E-01
433.0	55.0	344.1	5.600E-01
467.0	54.1	345.3	5.170E-01
500.0	55.4	336.8	4.260E-01
520.0	53.0	4.1	3.824E-01

Sample: P4a.7.th(*) Alpha: 325.0 Beta: 34.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	40.2	338.4	7.550E-01
96.0	33.3	331.6	7.190E-01
194.0	33.6	327.7	7.020E-01
288.0	39.3	328.8	6.820E-01
350.0	41.2	334.1	6.510E-01
398.0	47.4	335.7	6.380E-01
447.0	51.2	338.4	5.940E-01
470.0	52.7	338.6	5.570E-01
502.0	55.0	318.0	5.020E-01
529.0	48.8	324.6	4.860E-01
543.0	49.9	321.1	1.150E+00
555.0	33.6	1.8	4.650E-01

Sample: P4a.8.th(*) Alpha: 297.0 Beta: 36.5
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	57.3	345.2	1.070E+00
96.0	51.3	335.3	9.680E-01
194.0	48.5	328.5	8.170E-01
288.0	50.6	331.9	7.620E-01
350.0	48.5	323.8	6.080E-01
398.0	50.0	334.4	5.480E-01
447.0	51.5	331.0	5.450E-01
470.0	59.0	320.2	5.140E-01
502.0	54.7	330.8	4.800E-01
529.0	53.0	317.4	4.530E-01
543.0	74.8	330.6	3.850E-01
562.0	71.5	327.9	2.900E-01

Sample: P4a.9.th(*) Alpha: 305.0 Beta: 33.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	77.7	24.0	1.020E+00
96.0	78.5	16.9	9.410E-01
194.0	74.6	0.4	8.460E-01
288.0	70.9	354.1	7.820E-01
350.0	64.6	340.1	7.400E-01
398.0	66.7	329.7	6.970E-01
447.0	62.1	317.3	6.160E-01
470.0	60.1	308.9	5.390E-01
502.0	56.8	307.2	5.620E-01
529.0	56.4	320.3	4.270E-01
543.0	41.1	296.9	5.150E-01
555.0	48.1	249.2	4.360E-01
562.0	-13.3	9.1	1.290E-01

Sample: P4a.10.th Alpha: 313.0 Beta: 45.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	39.4	44.1	1.790E+00
100.0	49.6	36.3	1.680E+00
200.0	58.9	14.4	1.550E+00
300.0	61.4	352.7	1.060E+00
333.0	53.5	353.4	1.050E+00
367.0	49.9	352.1	9.250E-01
400.0	50.9	353.5	9.070E-01
433.0	57.8	354.1	8.880E-01
467.0	58.8	347.6	1.050E+00
500.0	58.4	344.9	8.400E-01
520.0	58.4	330.8	6.863E-01
540.0	58.7	323.0	6.780E-01
560.0	65.0	324.3	6.072E-01

Sample: P4a.11.th Alpha: 300.0 Beta: 52.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	43.1	69.2	3.920E+00
100.0	58.4	53.6	3.710E+00
200.0	69.9	10.1	2.980E+00
300.0	66.9	356.0	2.430E+00
333.0	63.9	355.6	2.230E+00
367.0	61.6	350.5	2.120E+00
400.0	61.0	354.5	1.920E+00
433.0	62.7	351.4	1.850E+00
467.0	61.3	344.6	1.970E+00
500.0	60.1	334.3	1.590E+00
520.0	47.9	326.0	1.350E+00
540.0	51.9	339.8	1.305E+00
560.0	51.2	339.2	7.699E-01
580.0	51.3	78.0	3.456E-01

Sample: p4a.12.th Alpha: 302.0 Beta: 51.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	44.8	246.5	1.380E+00
100.0	45.3	247.2	1.100E+00
200.0	30.5	266.7	1.140E+00
300.0	46.7	274.3	9.850E-01
333.0	49.7	281.9	9.812E-01
367.0	49.8	286.3	8.259E-01
400.0	45.8	298.4	9.230E-01
433.0	49.8	309.0	8.840E-01
467.0	53.3	305.9	1.050E+00
500.0	62.5	322.1	7.020E-01
520.0	62.4	328.6	5.325E-01
540.0	73.0	342.2	5.249E-01
560.0	53.7	319.3	1.049E-01

Sample: Hla.1.th Alpha: 300.0 Beta: 66.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	54.6	331.0	4.370E+00
100.0	55.0	330.2	4.580E+00
200.0	54.0	327.5	4.440E+00
300.0	52.9	326.4	4.500E+00
350.0	51.2	326.4	4.220E+00
400.0	49.7	323.5	4.040E+00
433.0	50.2	323.7	4.100E+00
467.0	50.6	325.5	3.770E+00
500.0	50.3	325.6	3.400E+00
520.0	50.6	323.4	2.890E+00
540.0	52.2	322.6	1.330E+00
560.0	51.5	320.4	8.310E-01

Sample: Hla.2.th Alpha: 314.0 Beta: 60.5

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	59.4	340.8	5.470E+00
100.0	59.2	342.4	5.640E+00
200.0	60.0	337.3	5.400E+00
300.0	58.3	334.3	5.350E+00
350.0	57.7	333.8	5.180E+00
400.0	57.3	331.2	4.880E+00
433.0	57.2	330.2	4.770E+00
467.0	57.9	332.9	4.490E+00
500.0	57.4	331.1	4.180E+00
520.0	59.1	329.1	3.710E+00
540.0	60.2	326.7	2.400E+00
560.0	59.9	326.4	1.630E+00

Sample: Hla.3.th Alpha: 330.0 Beta: 46.5

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	57.0	333.7	8.530E+00
100.0	56.1	336.1	8.570E+00
200.0	56.9	332.1	8.710E+00
300.0	56.5	333.9	8.780E+00
350.0	55.7	333.5	8.600E+00
400.0	55.4	333.7	8.420E+00
433.0	55.1	333.4	8.070E+00
467.0	55.1	333.5	7.730E+00
500.0	55.2	333.2	7.380E+00
520.0	55.9	332.7	6.580E+00
540.0	57.1	333.8	4.770E+00
560.0	56.9	334.0	3.650E+00

Sample: H1a.4.th Alpha: 324.0 Beta: 58.5

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	57.8	331.9	9.560E+00
100.0	57.8	330.7	9.780E+00
200.0	58.5	330.7	9.820E+00
300.0	57.0	329.5	9.880E+00
350.0	57.1	330.0	9.650E+00
400.0	57.1	330.0	9.530E+00
433.0	57.5	329.0	9.000E+00
467.0	56.9	330.9	8.590E+00
500.0	58.1	330.4	8.240E+00
520.0	57.8	329.9	7.420E+00
540.0	58.6	329.6	5.430E+00
560.0	58.2	329.5	3.890E+00

Sample: H1a.5.th Alpha: 330.0 Beta: 52.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	51.3	334.7	6.710E+00
100.0	51.8	331.7	6.450E+00
200.0	52.2	328.2	6.590E+00
300.0	51.6	329.9	6.620E+00
350.0	51.5	329.1	6.430E+00
400.0	52.3	329.9	5.390E+00
433.0	51.9	330.8	5.860E+00
467.0	51.1	334.5	5.460E+00
500.0	51.8	333.6	5.280E+00
520.0	52.1	333.9	4.930E+00
540.0	53.0	332.1	3.500E+00
560.0	54.5	334.7	2.270E+00

Sample: H1a.6.th Alpha: 324.0 Beta: 56.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	60.4	326.9	9.090E+00
100.0	59.8	328.8	9.170E+00
200.0	60.4	327.6	9.290E+00
300.0	59.4	330.0	9.320E+00
350.0	58.9	330.4	8.940E+00
400.0	59.4	329.6	8.830E+00
433.0	59.1	332.0	8.390E+00
467.0	58.0	331.0	7.940E+00
500.0	58.8	331.9	7.450E+00
520.0	59.2	328.9	6.680E+00
540.0	60.1	329.3	4.740E+00
560.0	60.1	329.3	3.370E+00

Sample: H1a.7.th Alpha: 315.0 Beta: 52.5

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	49.5	337.1	6.290E+00
100.0	50.3	336.3	6.380E+00
200.0	52.6	335.1	6.460E+00
300.0	52.7	337.1	6.380E+00
350.0	53.4	337.8	6.250E+00
400.0	54.5	335.7	6.310E+00
433.0	54.7	334.8	6.120E+00
467.0	54.2	336.2	5.830E+00
500.0	54.2	335.5	5.430E+00
520.0	54.6	337.0	4.960E+00
540.0	55.7	335.2	3.410E+00
560.0	56.0	336.9	2.400E+00

Sample: H1a.8.th Alpha: 339.0 Beta: 42.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	56.2	327.9	5.170E+00
100.0	55.3	331.0	6.040E+00
200.0	55.0	331.4	6.010E+00
300.0	54.0	331.5	6.180E+00
350.0	53.2	331.8	5.730E+00
400.0	53.1	329.5	5.750E+00
433.0	52.8	329.9	5.580E+00
467.0	52.4	331.5	5.250E+00
500.0	53.0	331.1	4.790E+00
520.0	53.8	331.2	4.350E+00
540.0	53.0	327.8	2.540E+00
560.0	47.4	337.4	1.740E+00

Sample: H1a.9.th Alpha: 320.0 Beta: 50.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	62.2	2.4	6.500E+00
100.0	61.9	1.5	6.470E+00
200.0	62.4	358.0	6.710E+00
300.0	62.0	0.4	6.880E+00
350.0	62.0	359.1	6.600E+00
400.0	62.4	358.6	6.740E+00
433.0	62.6	358.8	6.280E+00
467.0	61.5	359.3	6.040E+00
500.0	62.5	359.1	5.330E+00
520.0	62.5	1.7	4.820E+00
540.0	63.3	2.5	2.750E+00
560.0	60.2	343.7	1.520E+00

Sample: Hlb.1.th Alpha: 331.0 Beta: 33.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	46.7	330.5	7.193E+00
100.0	45.8	327.5	7.290E+00
200.0	44.7	328.2	7.310E+00
300.0	45.8	326.9	6.220E+00
350.0	45.0	327.5	4.060E+00
400.0	44.6	327.4	3.750E+00
433.0	43.9	326.0	3.360E+00
467.0	42.2	324.5	3.050E+00
500.0	42.9	323.2	2.450E+00
520.0	42.0	324.7	2.210E+00
540.0	37.5	323.7	1.620E+00
560.0	40.9	332.8	1.200E+00

Sample: Hlb.2.th Alpha: 329.0 Beta: 28.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	47.9	329.2	1.440E+01
100.0	47.1	327.1	1.470E+01
200.0	45.8	328.0	1.460E+01
300.0	46.9	326.1	1.350E+01
350.0	45.9	327.0	1.210E+01
400.0	46.9	324.7	1.100E+01
433.0	45.6	326.1	1.020E+01
467.0	45.7	326.4	9.500E+00
500.0	45.0	325.2	8.430E+00
520.0	44.6	325.0	7.320E+00
540.0	44.0	322.3	6.090E+00
560.0	44.6	324.3	2.020E+00

Sample: Hlb.3.th Alpha: 358.0 Beta: -19.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	44.9	326.0	7.480E+01
100.0	44.0	324.7	7.570E+01
200.0	45.6	329.0	7.560E+01
300.0	44.1	325.2	7.240E+01
350.0	45.9	327.5	6.540E+01
400.0	44.9	325.4	6.040E+01
433.0	45.5	325.5	5.940E+01
467.0	43.9	325.5	5.600E+01
500.0	46.0	327.8	5.150E+01
520.0	43.5	323.9	4.530E+01
540.0	43.4	322.2	3.990E+01
560.0	43.0	323.2	2.620E+01
580.0	-1.2	205.8	1.851E-01

Sample: H1b.4.th Alpha: 302.0 Beta: 50.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	45.1	321.0	9.700E+00
100.0	41.6	316.1	1.010E+01
200.0	41.2	316.8	1.010E+01
300.0	41.2	316.5	8.420E+00
350.0	40.9	313.9	3.590E+00
400.0	34.9	327.0	1.080E+00
433.0	25.8	307.0	8.610E-01
467.0	38.6	297.6	9.780E-01
500.0	56.1	295.4	5.890E-01
520.0	8.5	299.5	2.940E-01
540.0	30.3	309.0	4.500E-01
560.0	-8.2	329.5	3.240E-01

Sample: H1b.5.th Alpha: 294.0 Beta: 52.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	-55.0	137.8	3.650E+01
100.0	-53.8	136.1	3.760E+01
200.0	-53.1	137.1	3.750E+01
300.0	-53.7	136.6	3.090E+01
350.0	-53.8	133.6	1.310E+01
400.0	-55.2	142.3	2.460E+00
433.0	-57.2	122.7	2.360E+00
467.0	-63.0	141.1	2.190E+00
500.0	-61.0	142.3	2.050E+00
520.0	-52.4	133.1	1.030E+00
540.0	-62.4	121.3	1.130E+00
560.0	-37.9	135.1	8.140E-01

Sample: H1b.6.th Alpha: 24.0 Beta: 14.0
Demagnetization

Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	52.2	338.4	8.875E+01
100.0	53.2	338.0	9.130E+01
200.0	54.0	338.6	9.230E+01
300.0	53.0	336.5	8.190E+01
350.0	52.7	335.0	3.600E+01
400.0	53.9	335.4	2.320E+00
433.0	48.8	319.8	2.270E+00
467.0	44.8	335.3	2.100E+00
500.0	72.0	335.6	1.660E+00
520.0	37.6	320.8	1.460E+00
540.0	48.9	341.1	9.310E-01
560.0	62.5	301.8	7.490E-01

Sample: Hlb.7.th Alpha: 311.0 Beta: 49.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	48.0	326.5	3.060E+01
100.0	47.6	326.2	3.180E+01
200.0	46.0	326.5	3.220E+01
300.0	46.5	322.8	2.600E+01
350.0	50.9	315.9	8.140E+00
400.0	40.4	344.1	1.370E+00
433.0	43.5	335.9	1.250E+00
467.0	51.5	315.7	1.090E+00
500.0	58.8	308.3	1.080E+00
520.0	59.6	338.9	6.500E-01
540.0	6.8	287.8	7.520E-01
560.0	11.0	152.4	3.300E-01

Sample: Plb.8.th Alpha: 315.0 Beta: 47.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	52.5	327.8	2.820E+01
100.0	52.1	325.9	3.000E+01
200.0	51.2	326.7	2.730E+01
300.0	53.3	326.2	2.130E+01
350.0	48.0	329.0	7.240E+00
400.0	41.8	312.6	2.930E+00
433.0	51.7	331.8	2.580E+00
467.0	55.3	297.5	1.690E+00
520.0	50.6	308.9	1.320E+00
540.0	74.3	314.8	1.180E+00
560.0	27.9	108.6	1.160E+00

Sample: Plb.9.th Alpha: 318.0 Beta: 54.0

Demagnetization Step (Deg. C)	Inc	Dec	J (mA/m)
20.0	47.8	330.0	1.660E+01
100.0	47.5	329.1	1.770E+01
200.0	46.8	329.4	1.780E+01
300.0	47.8	328.2	1.520E+01
350.0	45.4	320.8	4.460E+00
400.0	39.6	326.9	2.720E+00
433.0	44.4	326.2	2.700E+00
467.0	45.3	324.9	2.560E+00
500.0	49.6	318.5	1.730E+00
520.0	38.3	316.9	9.760E-01
540.0	41.5	336.4	8.480E-01
560.0	-39.8	222.0	6.920E-01

APPENDIX 2: STRUCTURAL CORRECTIONS

Sampling Site	Strike	Dip	Notes
P1a	302.0	19.0	Mineral layering
P1b	302.0	19.0	
P1c	302.0	19.0	
P1d	302.0	19.0	
P2a	288.0	30.0	Sedimentary bedding
P2b	288.0	30.0	
P2c	288.0	30.0	
P2d	288.0	30.0	
P3a	288.0	30.0	Mineral layering
P3b	288.0	22.0	
P3c	288.0	22.0	
P3d	228.0	22.0	
P4a	40.0	45.0	Hornfels bedding
H1a	44.5	38.0	
H1b	40.0	45.0	

APPENDIX 3: IRM ACQUISITION

The IRM experiments were performed on a cryo-cooled 1 tesla DC magnet in the Physics department at Lehigh University. Each sample was progressively magnetized in increased magnetic field strengths to a maximum of 200 mT. After each IRM step each sample's magnetization was measured on a Molespin fluxgate magnetometer in the Geophysics Laboratory at Lehigh University.

Magnetization (mA/M)

Step (mT)	Pla.2	Plb.6	P2b.4	Plc.4	P3c.1
9.5	8.03E+03	4.92E+03	5.74E+02	2.47E+03	3.03E+03
20.0	4.33E+04	2.88E+04	1.87E+03	1.06E+04	1.43E+04
40.0	1.09E+05	1.83E+05	6.27E+03	4.38E+04	9.45E+04
60.0	4.12E+05	3.86E+05	1.54E+04	1.05E+05	3.04E+04
80.0	4.33E+05	3.53E+05	1.51E+04	1.29E+05	3.67E+05
100.0	5.84E+05	3.72E+05	1.85E+04	2.08E+05	5.12E+05
150.0	6.22E+05	3.29E+05	1.84E+04	2.91E+05	5.72E+05
200.0	7.40E+05	3.44E+05	1.77E+04	3.47E+05	6.89E+05

Step (mT)	P2c.1	P3c.1	P4a.9	P4a.12	P4a.8
9.5	1.01E+04	7.08E+02	2.53E+01	2.00E+01	2.69E+01
20.0	2.90E+04	2.91E+03	7.70E+01	4.09E+02	6.77E+01
40.0	6.29E+04	1.08E+04	1.59E+02	7.30E+02	1.49E+02
60.0	1.13E+05	2.64E+04	2.05E+02	1.01E+03	2.27E+02
80.0	9.70E+04	2.59E+04	2.26E+02	1.29E+03	2.48E+02
100.0	1.02E+05	3.15E+04	2.43E+02	1.51E+03	2.89E+02
150.0	9.76E+04	3.12E+04	2.17E+02	1.71E+03	2.46E+02
200.0	9.99E+05	3.46E+04	2.56E+02	2.12E+03	2.21E+02

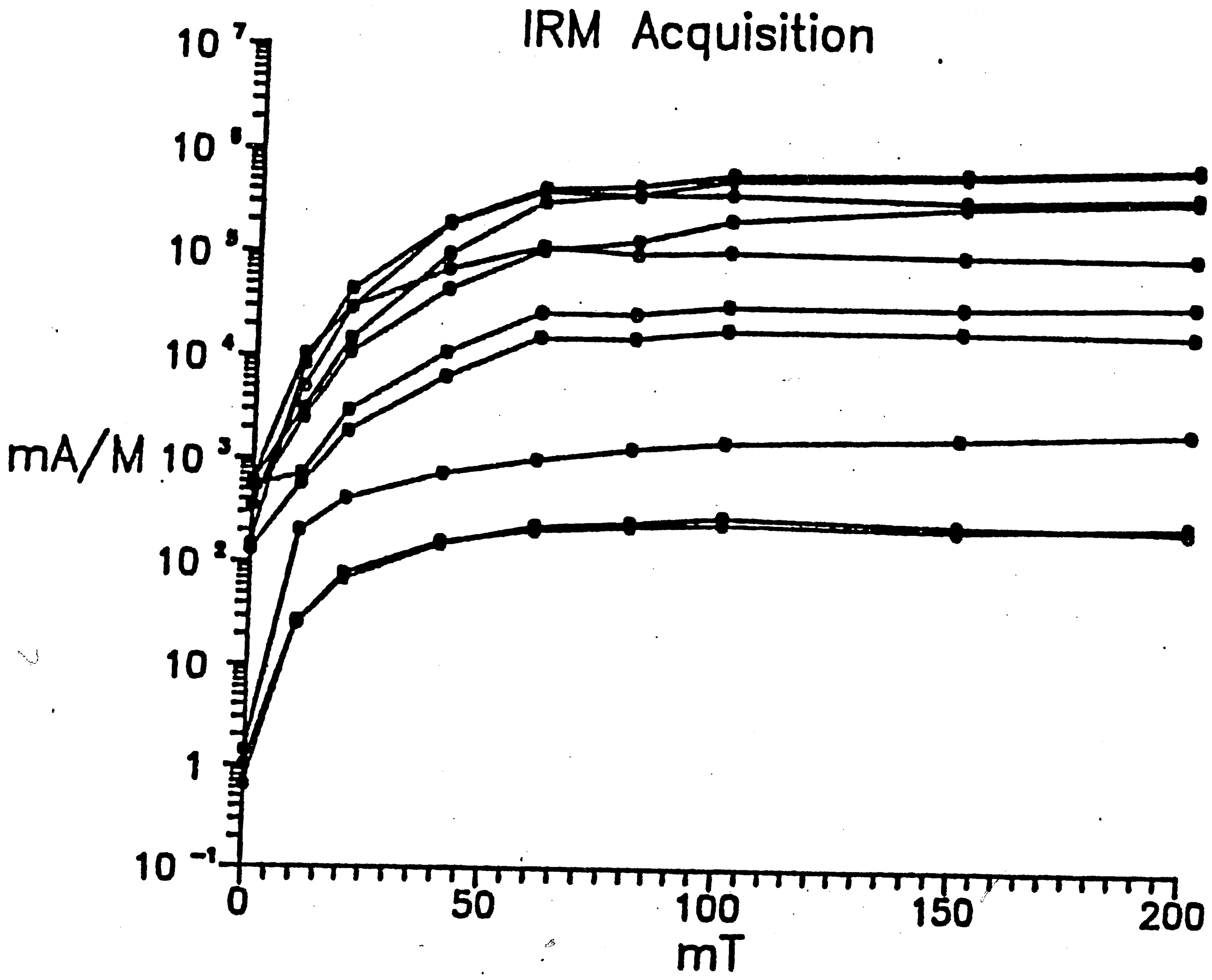

Figure 5. IRM acquisition curve for 9 igneous samples. See text for discussion.

APPENDIX 4: AF DEMAGNETIZATION OF ARM

Step (mT.)	P1a.3	P1b.7	P1c.2	P2b.3
0.0	2.07E+03	7.43E+02	9.93E+02	1.03E+02
5.0	1.95E+03	6.98E+02	9.49E+02	9.91E+01
10.0	1.92E+03	6.68E+02	8.99E+02	9.68E+01
20.0	1.75E+03	6.05E+02	8.35E+02	9.99E+01
30.0	1.52E+03	5.09E+02	6.84E+02	8.45E+01
40.0	1.40E+03	3.46E+02	5.70E+02	7.24E+01
50.0	1.19E+03	2.62E+02	4.56E+02	6.35E+01
60.0	9.90E+02	1.11E+02	3.39E+02	4.97E+01
70.0	8.18E+02	5.92E+01	2.00E+02	4.44E+01
80.0	6.69E+02	2.38E+01	1.45E+02	4.20E+01
90.0	5.30E+02	1.69E+01	9.55E+01	3.30E+01
100.0	4.28E+02	1.61E+01	7.35E+01	2.42E+01

Step (mT.)	P4a.1	H1a.2	H1b.6	P3a.4
0.0	4.40E+00	6.41E+00	8.63E+01	3.43E+03
5.0	3.76E+00	6.36E+00	8.70E+01	3.34E+03
10.0	3.92E+00	6.37E+00	8.49E+01	3.10E+03
15.0	3.29E+00	6.21E+00	8.70E+01	2.77E+03
20.0	2.79E+00	5.81E+00	8.26E+01	2.05E+03
25.0	2.58E+00	5.38E+00	7.71E+01	1.51E+03
30.0	2.19E+00	4.56E+00	7.17E+01	8.45E+02
35.0	1.65E+00	4.08E+00	7.04E+01	4.87E+02
40.0	1.28E+00	3.56E+00	6.79E+01	3.14E+02
50.0	9.01E-01	2.86E+00	6.38E+01	1.35E+02
60.0	6.68E-01	2.14E+00	5.76E+01	7.38E+01
70.0	4.10E-01	1.97E+00	5.31E+01	
80.0	2.03E-01	1.85E+00	4.68E+01	1.37E+01
90.0	1.34E-01	1.14E+00	4.47E+01	
100.0	1.23E-01	8.88E-01	3.91E+01	

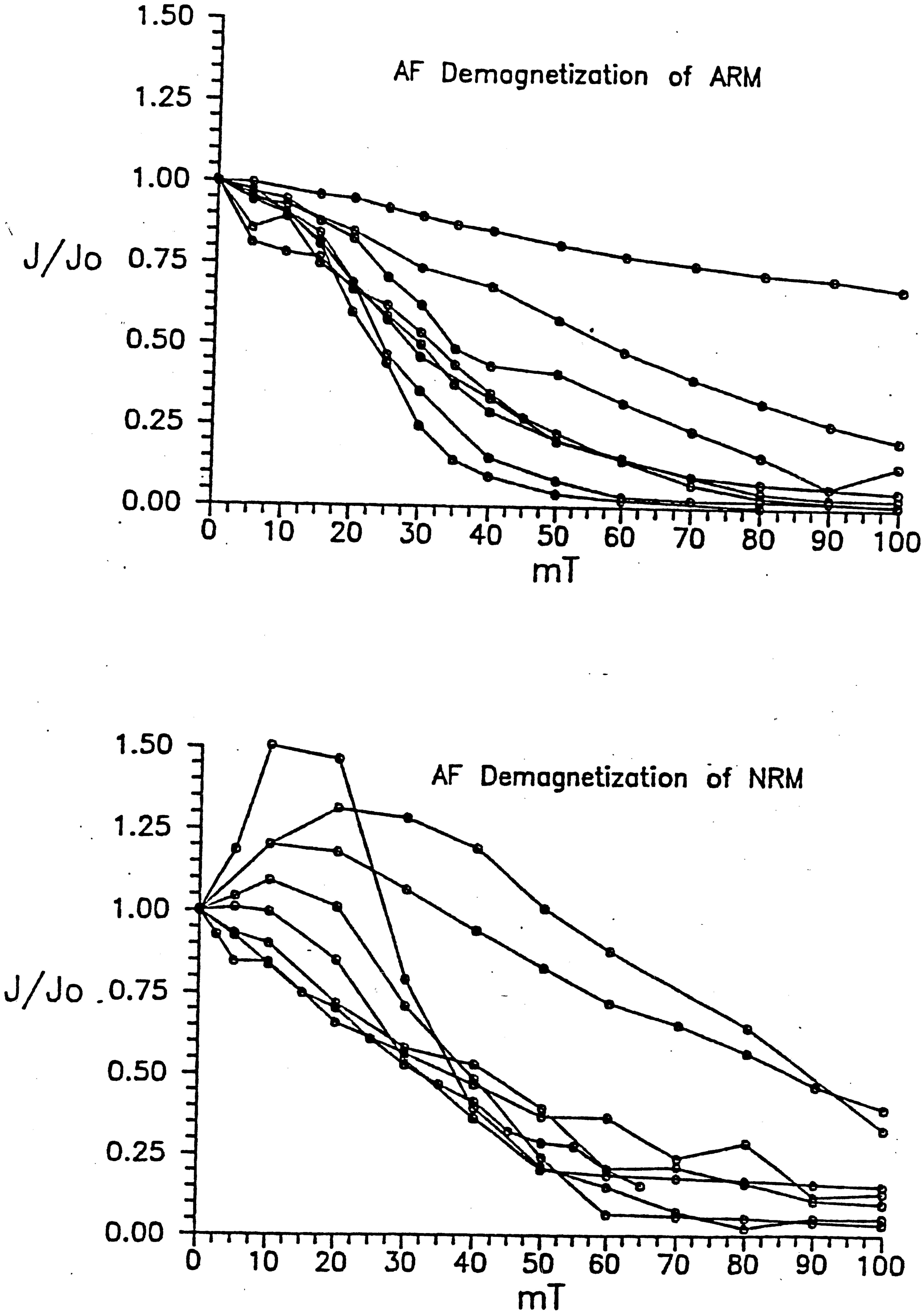

Figure 6. AF demagnetization of ARM (top) and of NRM (bottom). Note the removal of the low coercivity normal overprint on the reversed directions.

APPENDIX 5: MAGNETIC GRANULOMETRY

Suceptiblities were measured at Lehigh using a Bison model 3101 Susceptibility system.

Q = ARM-NRM (emu's/gm)/X. (King et al.,1982)

Sample	X	NRM (emu's)	Q
P4a.1	1.8E-05	9.40E-06	0.093
P4a.2	1.5E-05	1.09E-05	0.129
P4a.3	1.1E-05	2.29E-05	0.372
P4a.8	7.0E-06	6.39E-05	0.163
P4a.9	1.2E-05	9.94e-06	0.148
P4a.11	1.0e-05	3.92E-05	0.100
P4a.12	1.9E-06	1.38E-05	0.129
P1b.7	1.1E-05	7.27E-03	0.219
P1c.2	8.0e-05	3.36E-02	0.129

APPENDIX 6: TWO TIER ANALYSIS

after McFadden (1982)

Ns = 14
M = 4
N_s M = 10

SITE	k	N	R_i	N-R	(N-1)ln(k)
Sill P1	125.0	4	3.976	0.024	14.485
Sill P2	45.0	4	3.935	0.652	11.485
Sill P3	375.0	3	2.995	0.053	11.854
Sill P4	164.0	3	2.988	0.123	10.202
		14	13.849	0.107	48.026

1: Null Hypothesis that $k_1 = k_2 = k_3 = k_4 = k_w$

$$k_w = \frac{N-M}{N- R_i} = \frac{10}{(14 - 13.849)} = 94.340$$

$$c = 1 + 1/6(3) * (1/3 + 1/3 + 1/2 + 1/2) = 1.087$$

$$f = 2/1.087 * (48.026 - 45.469) = 4.705$$

$$_{95}X^2(4-1) = 7.81 > f$$

Therefore there is common within site precision = k_w.

2: Between site dispersion.

$$\frac{N-M}{M-1} * \frac{R_i - R^2 / R_i}{2(N - R_i)} = 3.206 = f$$

$$F_{95}(2(M-1,2(N-M)) = F(6,20) = 3.87$$

Since $F_{95} > f$, the between-site dispersion is not significant.

APPENDIX: FOLD TEST RESULTS

R_G = 13.179
R_S = 13.703

Ns = 14
M = 4
N_s M = 10

SITE	k	N	R_i	N-R	(N-1)ln(k)
Sill P1	125.0	4	3.976	0.024	14.485
Sill P2	45.0	4	3.935	0.652	11.485
Sill P3	375.0	3	2.995	0.053	11.854
Sill P4	164.0	3	2.988	0.123	10.202
		14	13.849	0.107	48.026

1: Geographic coordinates

$$\frac{N-M}{M-1} * \frac{R_i - R^2 / R_i}{2(N - R_i)} = 14.433 = f$$

$F_{95}(2(M-1,2(N-M)) = F(6,20) = 3.87$

$F_{95} < f.$

2: Stratigraphic coordinates

$$\frac{N-M}{M-1} * \frac{R_i - R^2 / R_i}{2(N - R_i)} = 3.200 = f$$

$F_{95}(2(M-1,2(N-M)) = F(6,20) = 3.87$

$F_{95} > f.$

VITA

I was born John Anthony Stamatakos to Dr. Michael and Mrs. Dorothy Stamatakos on April 10, 1958 in Allentown, Pennsylvania. I attended parochial and private schools in the Lehigh Valley, graduating from Moravian Academy with honors in June, 1976. In June, 1981, I earned a BA in geology from Franklin and Marshall College in Lancaster, Pennsylvania. For the next two years I worked as a logging geologists for Analex Geosciences of Denver, Colorado. In the fall of 1983, I enrolled in the Continuing Studies Program in computer science at Moravian College in Bethlehem, Pennsylvania. In the spring of 1985, I entered Lehigh University's graduate program in geology and geophysics. The bulk of my graduate school support was provided through a research assistantship under the sponsorship of the National Science Foundation (grant EAR-8417312). In addition, I have received four semesters of scholarship credits and was a teaching assistant for two semesters in the Department of Geological Sciences. I received my masters in geology in June, 1988. I am a member of the American Association of Petroleum Geologists, Geological Society of America, American Geophysical Union, and Sigma Xi.

I was married to Nancy Johnson Stamatakos on December 22, 1985. We are the proud parents of three children, Erica Nancy, age 10, Todd Johnson, age 6, and Susan Jane, age 1.