



Density and Magnetic Susceptibility Values for Rocks in the Talkeetna Mountains and Adjacent Region, South-Central Alaska

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ABSTRACT

This report presents a compilation and statistical analysis of 306 density and 706 magnetic susceptibility measurements of rocks from south-central Alaska that were collected by U.S. Geological Survey (USGS) and Alaska Division of Geological and Geophysical Surveys (ADGGS) scientists between the summers of 1999 and 2002. This work is a product of the USGS Talkeetna Mountains Transect Project and was supported by USGS projects in the Talkeetna Mountains and Iron Creek region, and by Bureau of Land Management (BLM) projects in the Delta River Mining District that aim to characterize the subsurface structures of the region. These data were collected to constrain potential field models (i.e., gravity and magnetic) that are combined with other geophysical methods to identify and model major faults, terrane boundaries, and potential mineral resources of the study area. Because gravity and magnetic field anomalies reflect variations in the density and magnetic susceptibility of the underlying lithology, these rock properties are essential components of potential field modeling. In general, the average grain density of rocks in the study region increases from sedimentary, felsic, and intermediate igneous rocks, to mafic igneous and metamorphic rocks. Magnetic susceptibility measurements performed on rock outcrops and hand samples from the study area also reveal lower magnetic susceptibilities for sedimentary and felsic intrusive rocks, moderate susceptibility values for metamorphic, felsic extrusive, and intermediate igneous rocks, and higher susceptibility values for mafic igneous rocks. The density and magnetic properties of rocks in the study area are generally consistent with general trends expected for certain rock types.

INTRODUCTION

Specific aims of the ongoing State-Federal work in the Talkeetna Mountains and adjacent areas, figure 1, include: understanding the regional tectonic character of south-central Alaska, especially related to the development of the southern Alaska Orocline; determining the structural relationships between tectonostratigraphic terranes (including Kahiltna, Wrangellia and Peninsular terranes as well as smaller terranes such as Susitna, Broad Pass, and Maclaren, figure 2); understanding the character of major faults; and developing a geophysically-based regional mineral assessment for the Talkeetna Mountains and surrounding region that identifies the locations, size, and depth of buried sources of potential mineral targets.

Some important mineral source bodies and targets of interest include Cretaceous and Tertiary granitoid plutons, which intrude the flysch sequence in the Kahiltna assemblage/terrane, and ultramafic units associated with feeder zones to the Triassic Nikolai Greenstone flood basalts. Further information on the goals and progress of the Talkeetna Mountains Transect Project can be found at <http://minerals.usgs.gov/west/projects/scentak.shtml>.

DENSITY DATA

Densities were determined for the 306 samples in the study area using a precision electronic balance (figure 3). All rocks were weighed three times, dry in air (W_a), saturated in water (W_w) and saturated in air (W_s), and the data were then processed to calculate the grain density (D_1), dry bulk density (D_2) and saturated bulk density (D_3) of each sample. Saturated measurements were performed after the samples had soaked in water for 24 to 48 hours. Saturated in air weights were made upon immediate removal of the sample from the water. Densities are reported in g/cm^3 (table 1) and are calculated from the following formulas:

$$D_1 = W_a / (W_a - W_w) \text{ grain}$$

$$D_2 = W_a / (W_s - W_w) \text{ dry bulk}$$

$$D_3 = W_s / (W_s - W_w) \text{ saturated bulk}$$

MAGNETIC SUSCEPTIBILITY DATA

Volume corrected apparent magnetic susceptibility readings were determined for 706 rock outcrops or hand samples from the study area (figure 4, table2). Samples listed in table 3 are from datasets of various USGS and ADGGS scientists. Measurements collected by ADDGS scientists during 1999 were done in the field using a Scintrex susceptibility meter and supplemented with laboratory measurements when outcrop measurements were missing. Magnetic susceptibility readings of all other rock samples were measured in the laboratory using a Geophysica KT-5 susceptibility meter. Both instruments are accurate to 1×10^{-5} SI units, and all measurements were converted from SI to cgs by dividing the SI value by 4π .

Each magnetic susceptibility value in this report represents an average of multiple readings. Though care was taken during measurements (e.g., to measure on flat and broad surfaces of the sample or outcrop) surface roughness, weathering, and sample size may result in the reported susceptibilities being lower than the true susceptibilities. Both the Geophysica KT-5 and the Scintrex meters calculate volume susceptibility by assuming the sample shape is an infinite half-space. When available, we report measurements taken in the field over laboratory measurements because they closer approximate the half-space assumed by the instruments and because they integrate measurements made on several different outcrop surfaces (generally 12 to 15).

RESULTS AND DISCUSSION

Magnetic Susceptibility

Magnetic susceptibility depends largely on a rock's magnetic mineral content. Mafic rocks generally have higher magnetic susceptibilities than felsic rocks because mafic rocks are typically more abundant in strongly magnetic minerals such as magnetite (Carmichael, 1982).

Rocks from the study area reflect this trend -- the highest average magnetic susceptibilities come from mafic igneous rocks, while the lowest calculated averages come from sedimentary as well as felsic and unidentified igneous rocks (table 2). Table 2 shows the minimum, maximum, mean, and standard deviation of magnetic susceptibility values for various rock types. Mafic extrusive and intrusive rocks average 0.96 and 1.01×10^{-3} cgs respectively, while carbonate and clastic rocks average from 0.01 to 0.14×10^{-3} cgs respectively. Felsic igneous rocks also exhibit relatively low magnetic susceptibilities: 0.10×10^{-3} cgs for intrusive rocks and 0.58×10^{-3} cgs for extrusive rock samples¹.

Detailed statistics and Newman-Keuls multiple comparison tests were also calculated for the magnetic susceptibility and density values of rocks from the study area (appendices 3 and 4). The mean magnetic susceptibility value for all rocks from the study area is 0.49×10^{-3} cgs, with a standard deviation of 1.11×10^{-3} cgs (appendix 3). A modified Kolmogorov-Smirnov test (Lilliefors, 1967, appendix 4) suggests that the data are not normally distributed, which can be expected for magnetic susceptibility data undifferentiated by location or rock type. A histogram of susceptibility values, figure 5, show that the majority of values (about 82%) are between 1.0×10^{-3} cgs and the meter's sensitivity, while an independent group analysis and Newman-Keuls multiple comparisons test (appendix 4, figures 6 and 7) indicate whether the differences between each group are statistically significantly at the 95% confidence level. Results show that susceptibility values for mafic rocks are significantly different from carbonate, clastic, and intrusive felsic rocks within 95% confidence, but that all other categories are not statistically significantly different at the 95% confidence level.

Density

Density values for rocks in our study area are generally consistent with common trends (Johnson and Olhoeft, 1984) and show highest average grain densities for both extrusive and intrusive mafic igneous rocks at 2.88 and 2.93 g/cm^3 respectively, and lowest mean grain density values for felsic intrusive rocks at 2.67 g/cm^3 (table 1). Because grain density is affected largely by a rock's mineral composition and porosity, rocks rich in felsic minerals tend to have lower densities than rocks rich in mafic minerals. Igneous and metamorphic rocks tend to be denser than sedimentary rocks in part because of their composition, but also because they are generally less porous than sedimentary rocks.

Grain densities for the 306 individual samples in our study area range from 1.93 g/cm^3 to 3.42 g/cm^3 , have a median of 2.75 g/cm^3 , an average of 2.80 g/cm^3 and a standard deviation of 0.16 g/cm^3 (appendix 5, figure 8). Statistics on various rock types show a maximum mean grain density of 2.93 g/cm^3 for mafic intrusive rocks, and a minimum mean grain density of 2.67 g/cm^3 for felsic intrusive rocks (table 1).

A modified Kolmogorov-Smirnov test that evaluates the distribution of values within a dataset suggests that density values of rocks from our study area are not normally distributed (appendix 5, figure 8). Analysis of grain density by rock type and Newman-Keuls multiple comparisons test (appendix 6, figure 7 and 8) indicate that the differences between the density values of most rock types for rocks in the study area are not statistically significant at the 95% confidence level,

¹ The few number of felsic extrusive samples, 6, may provide a poor estimate of the mean magnetic susceptibility for this rock type and may explain why it is significantly higher than expected.

except between the mafic rock type groups (both intrusive and extrusive) and felsic intrusive rocks.

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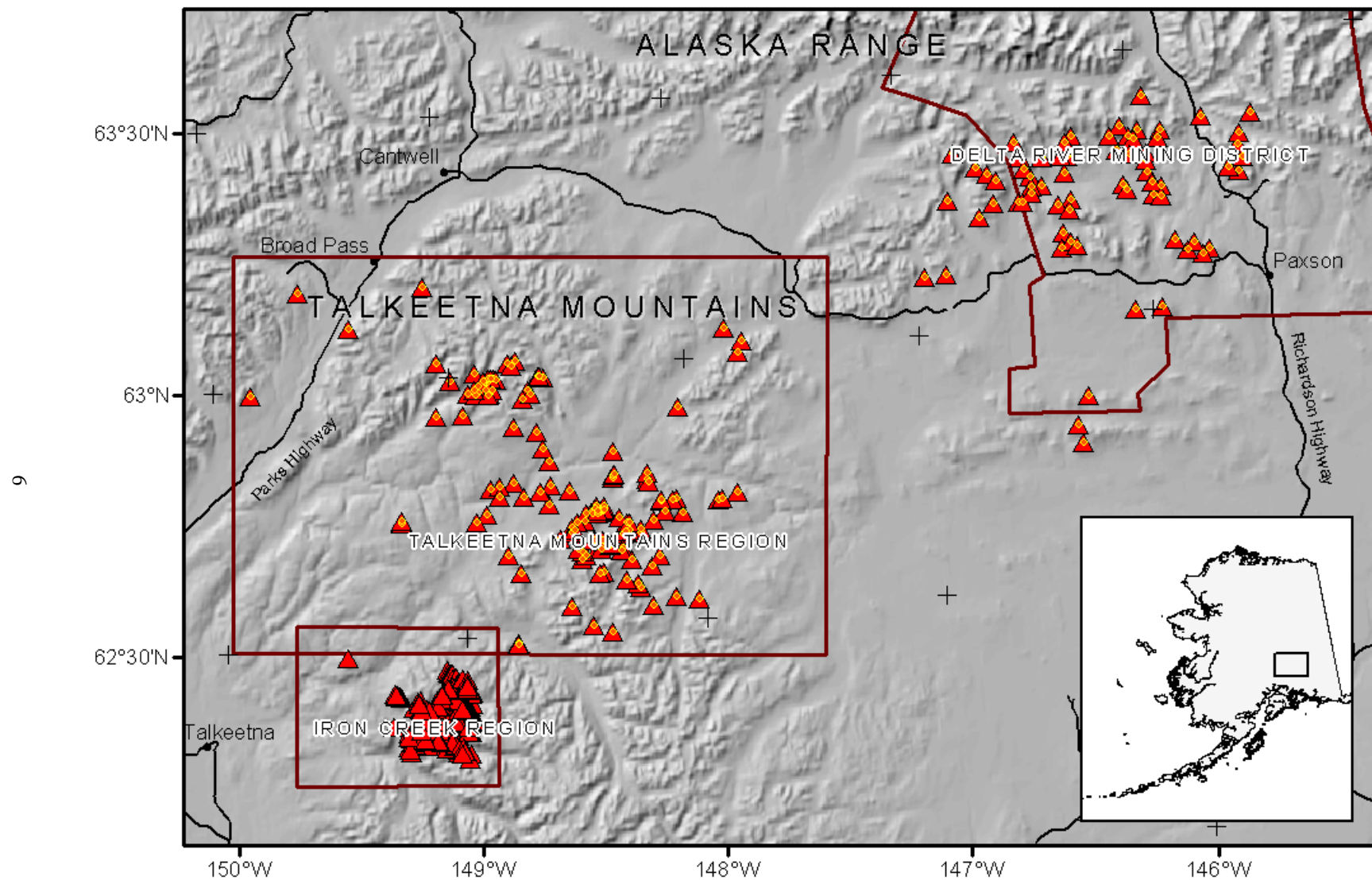


Figure 1. Shaded relief map of south-central Alaska showing the locations of rocks with density (yellow circles) and magnetic susceptibility (red triangles) measurements from the study area. Study areas outlined in red.

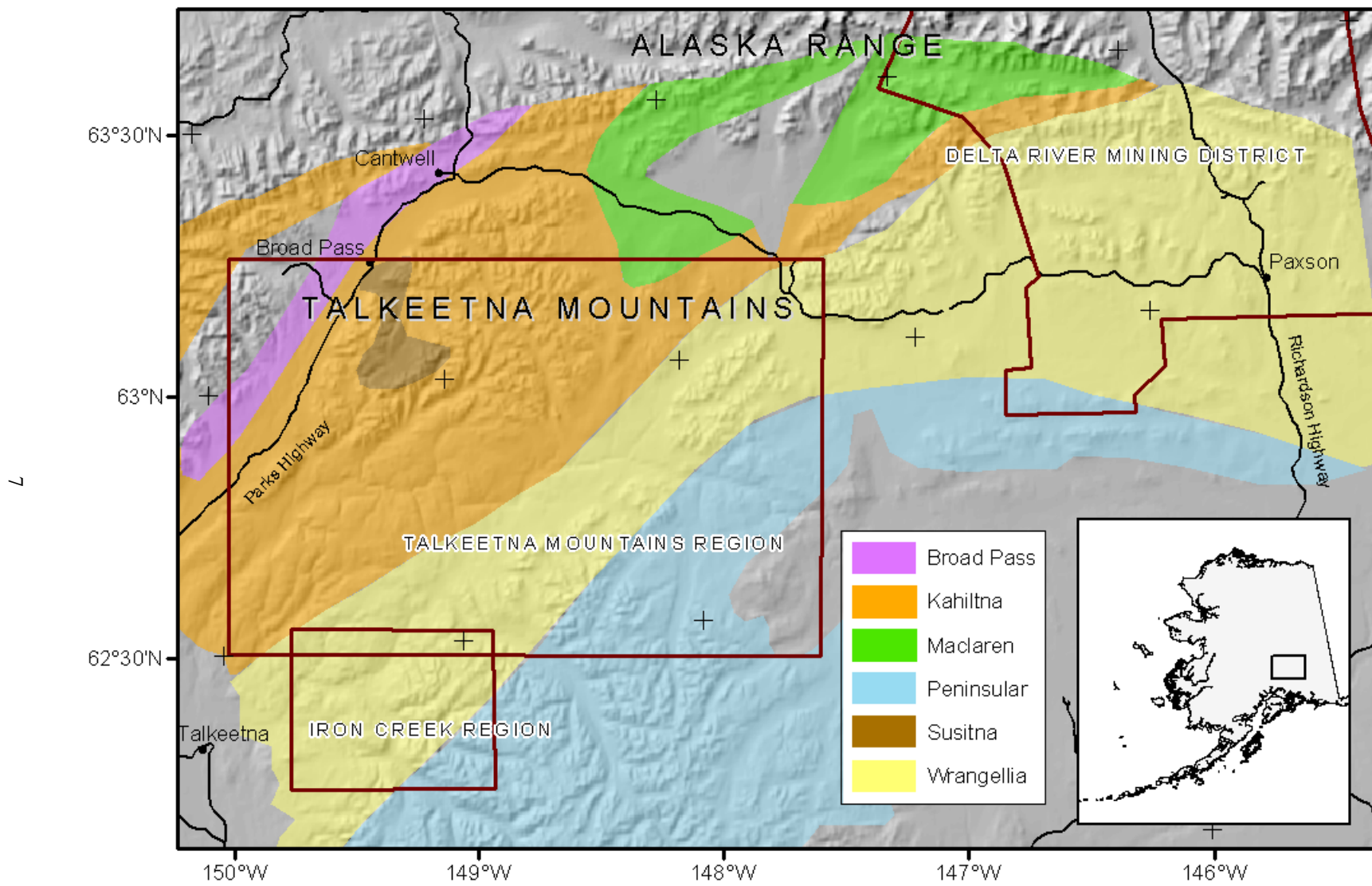


Figure 2. Generalized lithologic terrane map of south-central Alaska (modified from Silberling and others, 1994). Study areas outlined in red.

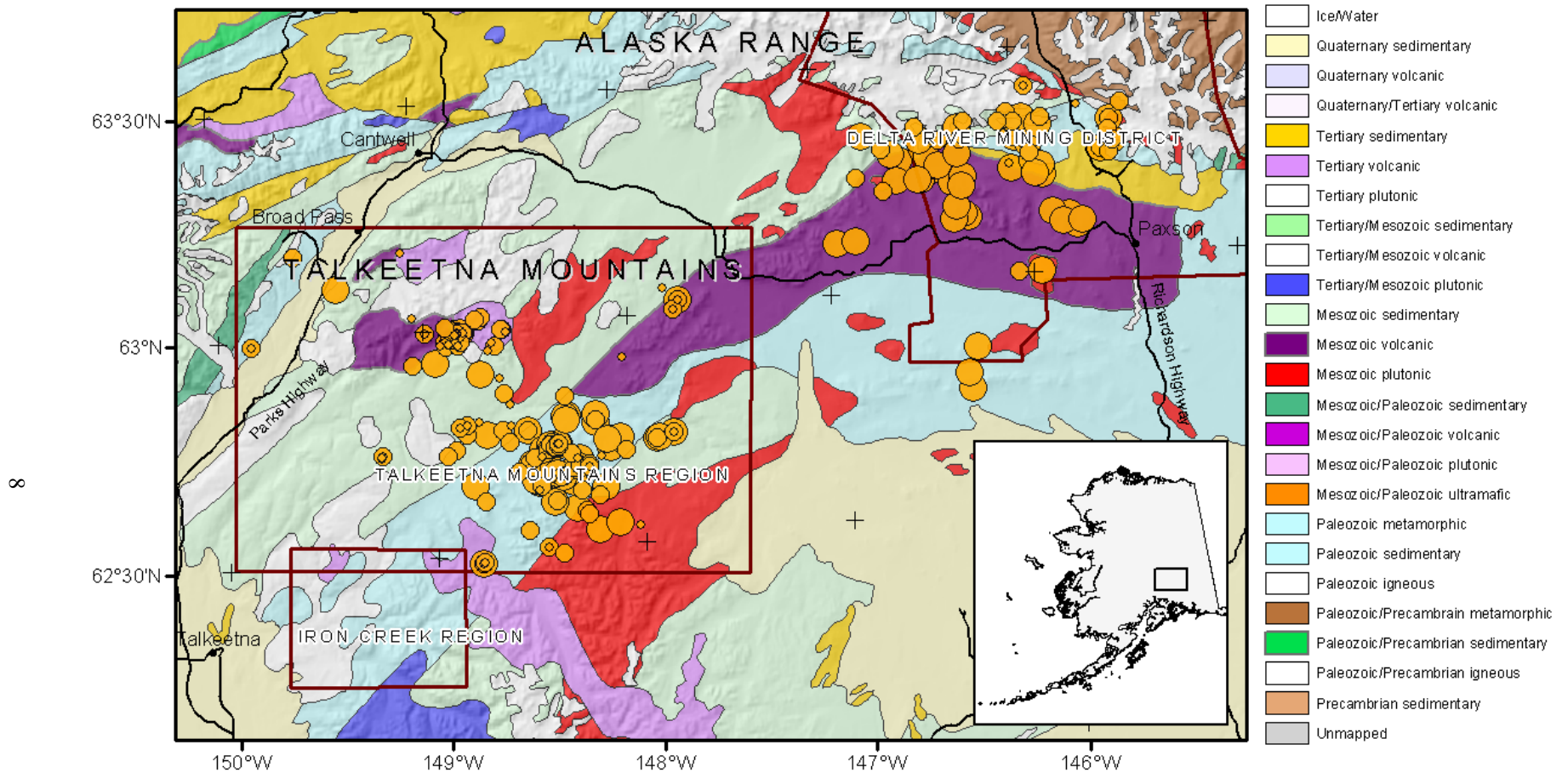


Figure 3. Simplified geologic map (modified from Werdon and others, 2000) showing the locations of rock samples with density measurements (orange circles). Symbol sizes are proportional to grain density.

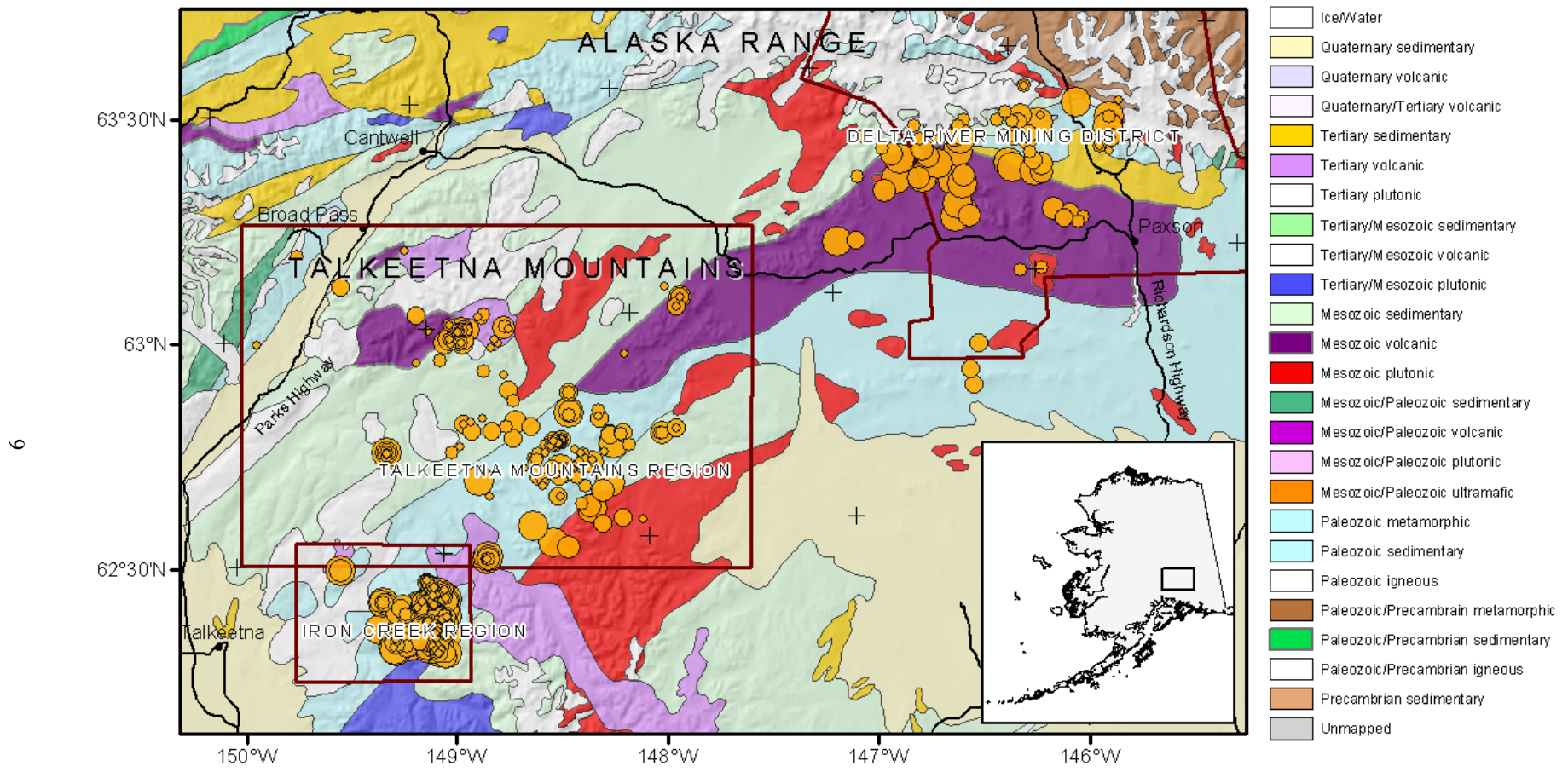


Figure 4. Simplified geologic map (modified from Werdon and others, 2000) showing the locations of rock samples with magnetic susceptibility measurements (orange circles). Symbol sizes are proportional to magnetic susceptibility value.

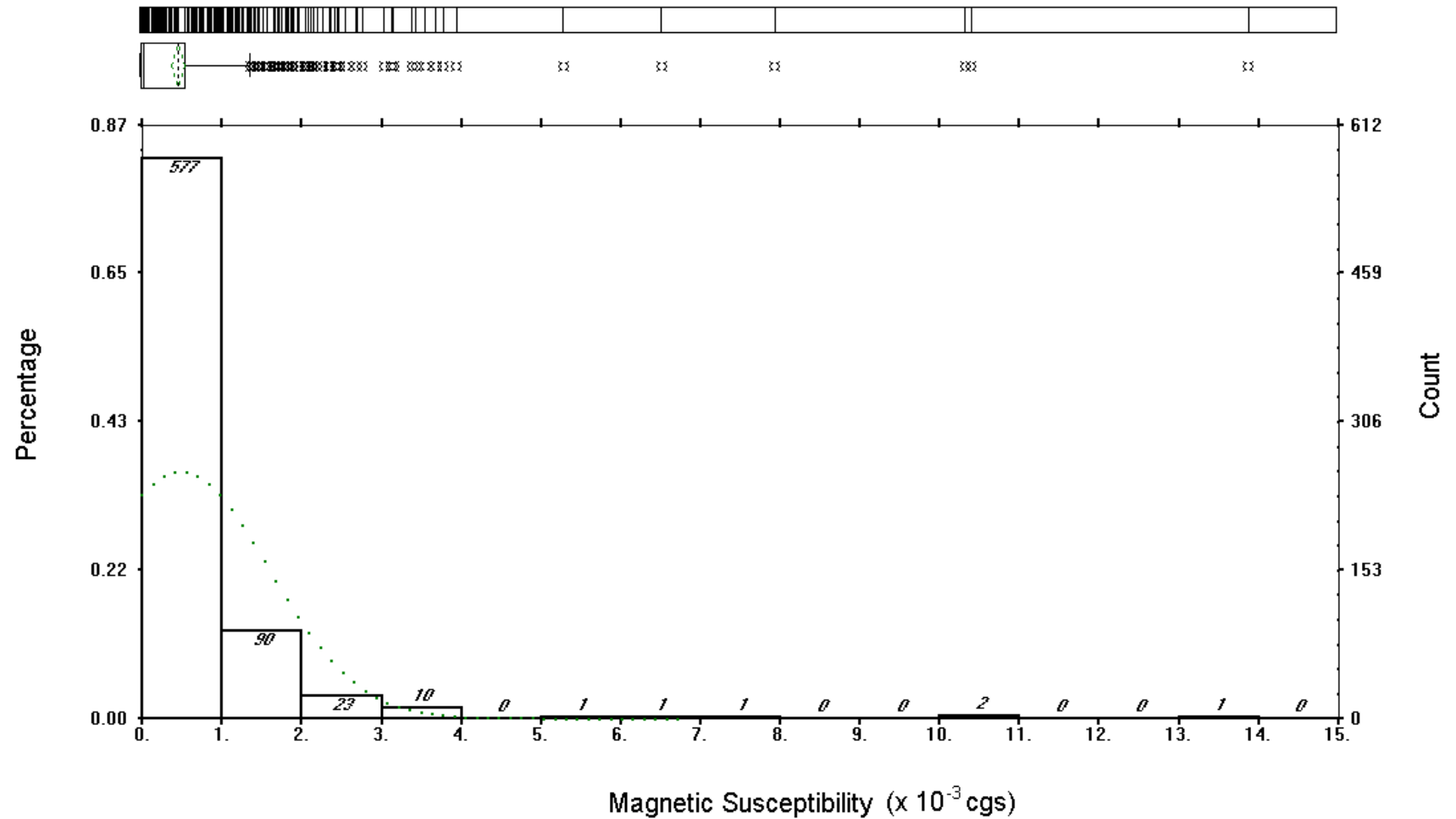


Figure 5. Histogram of magnetic susceptibility values for rocks from the study area (graphical representation of appendix 3). Left y- axis shows percentage of entire data set; right y-axis shows the number of samples; x-axis is magnetic susceptibility in 10^{-3} cgs; italic numbers above bars give the number of samples with a susceptibility value within that interval, and the green dotted curve is a bell curve with its peak at the mean susceptibility value. The horizontal bar above the graph shows the distribution of values; black line = individual sample.

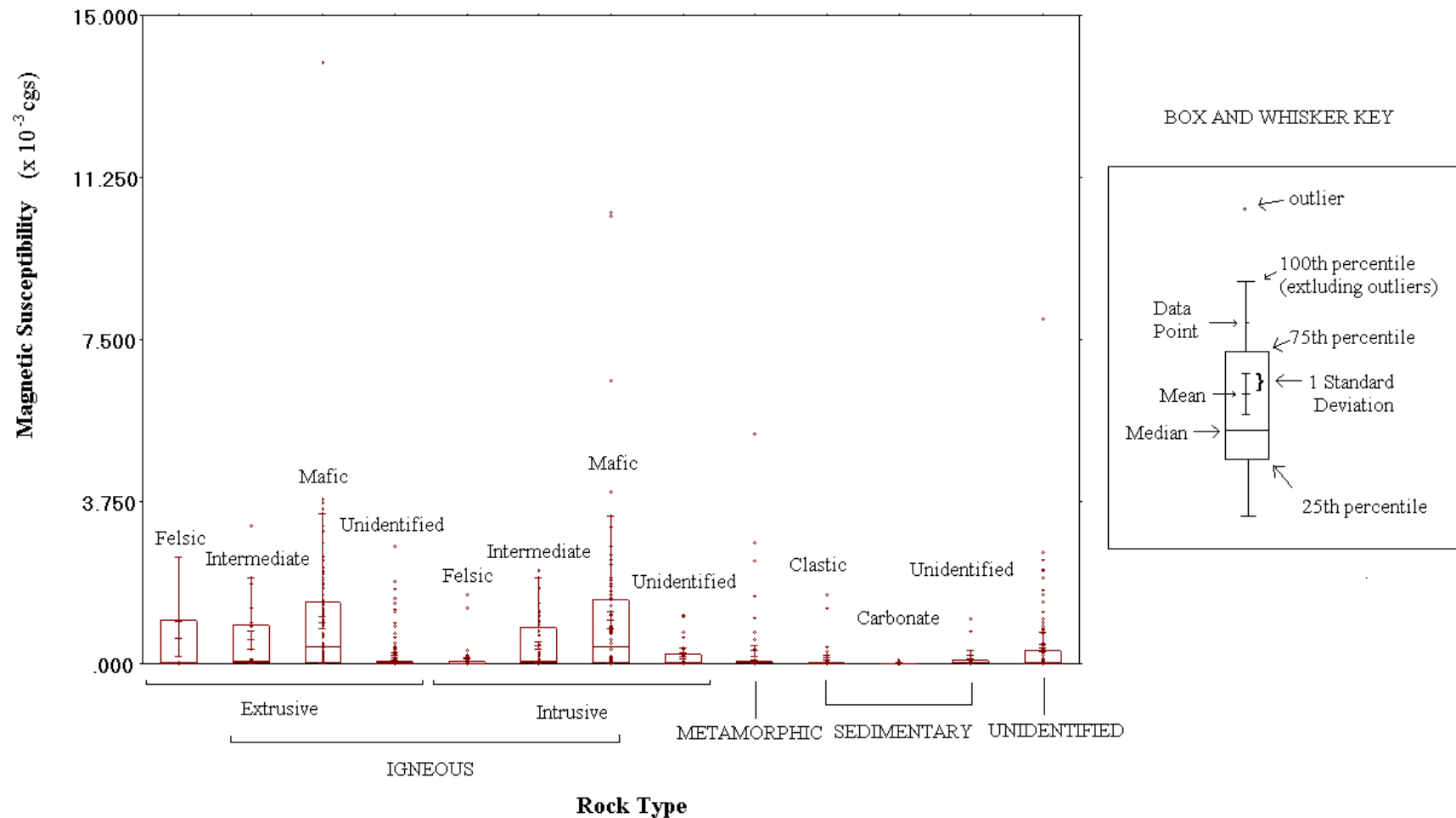


Figure 6. Box and whisker plot of magnetic susceptibility values from rocks in the study area grouped by rock type (graphical representation of appendix 4). Boxes represents values between the 75th and 25th percentiles, the central bar shows the median value and the box whiskers show the full range in values, not including outliers (dots). Within the boxes, the small + and whiskers show the mean and standard deviation, respectively, for each rock types and the dashes represent individual data points.

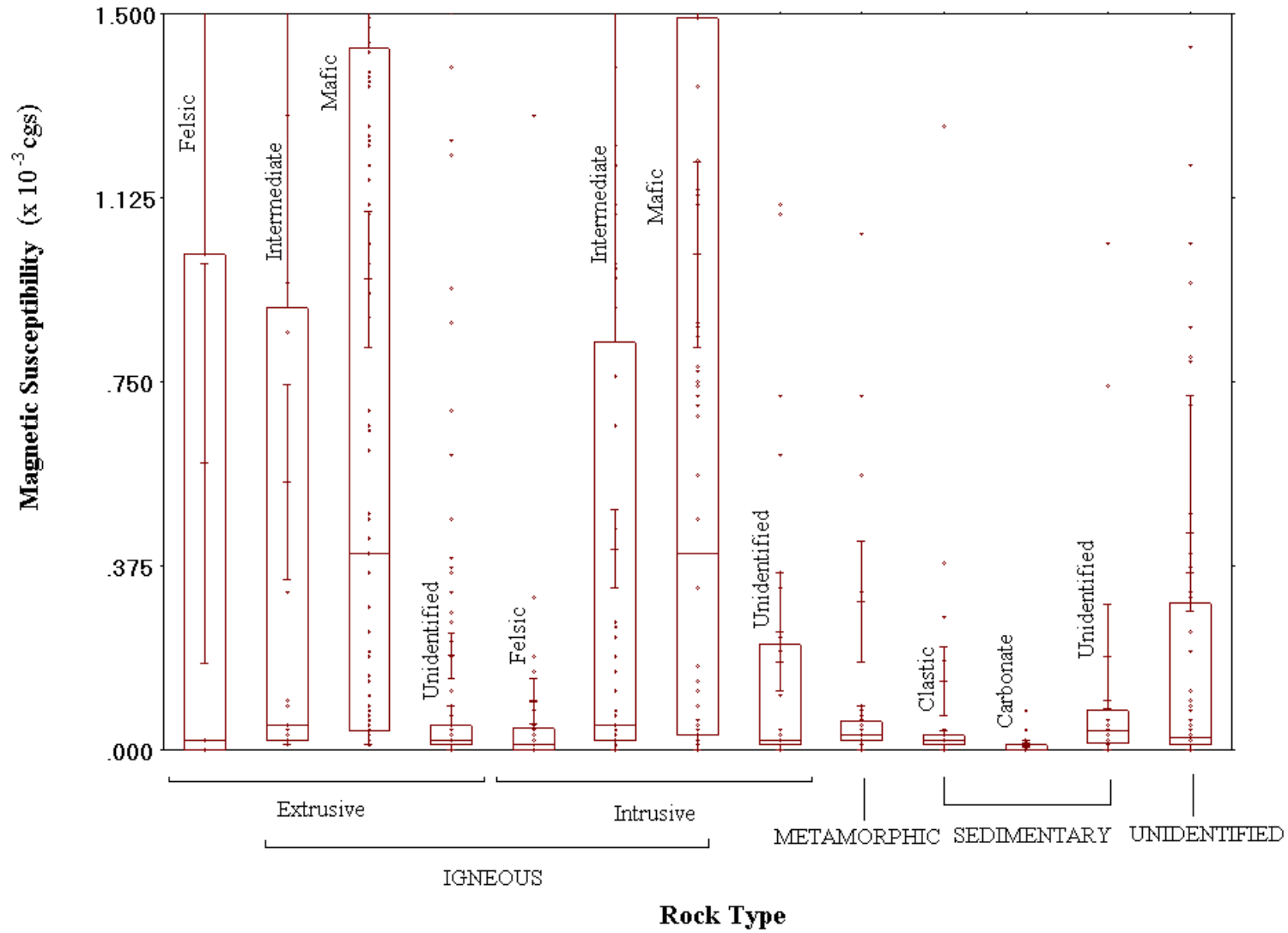


Figure 7. Detailed box and whisker plot for magnetic susceptibility values of rocks from the study area (graphical representation of appendix 4). See figure 6 for explanation.

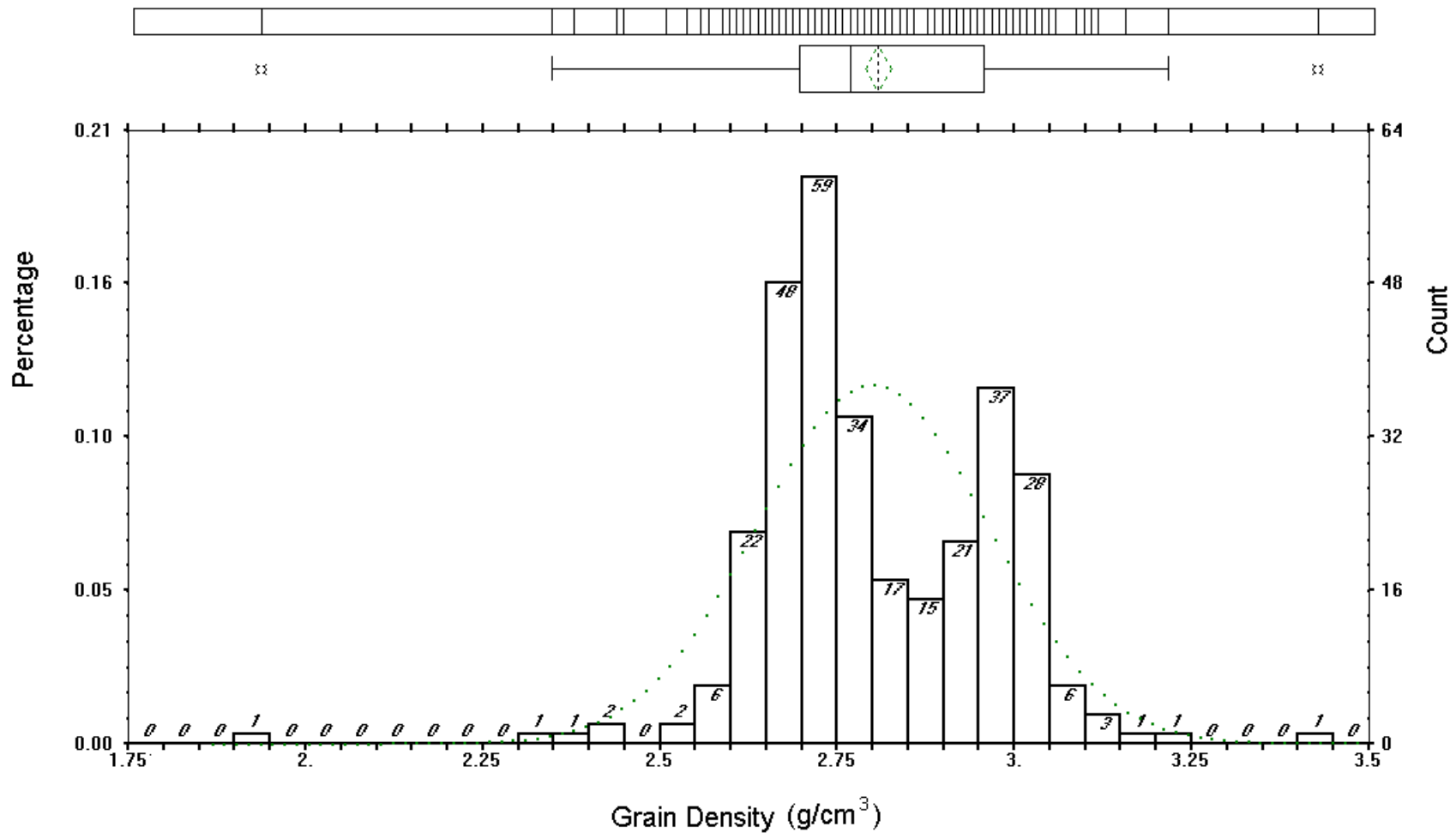


Figure 8. Histogram of grain density values for rocks from the study area (graphical representation of appendix 5). Left y- axis shows percentage of entire data set; right y-axis shows the number of samples; x-axis is grain density in g/cm^3 ; italic numbers above each bar gives the number of samples with a grain density value within that interval, and the green dotted curve is a bell curve with its peak at the mean density. The horizontal bar above the graph shows the distribution of values; black line = individual sample.

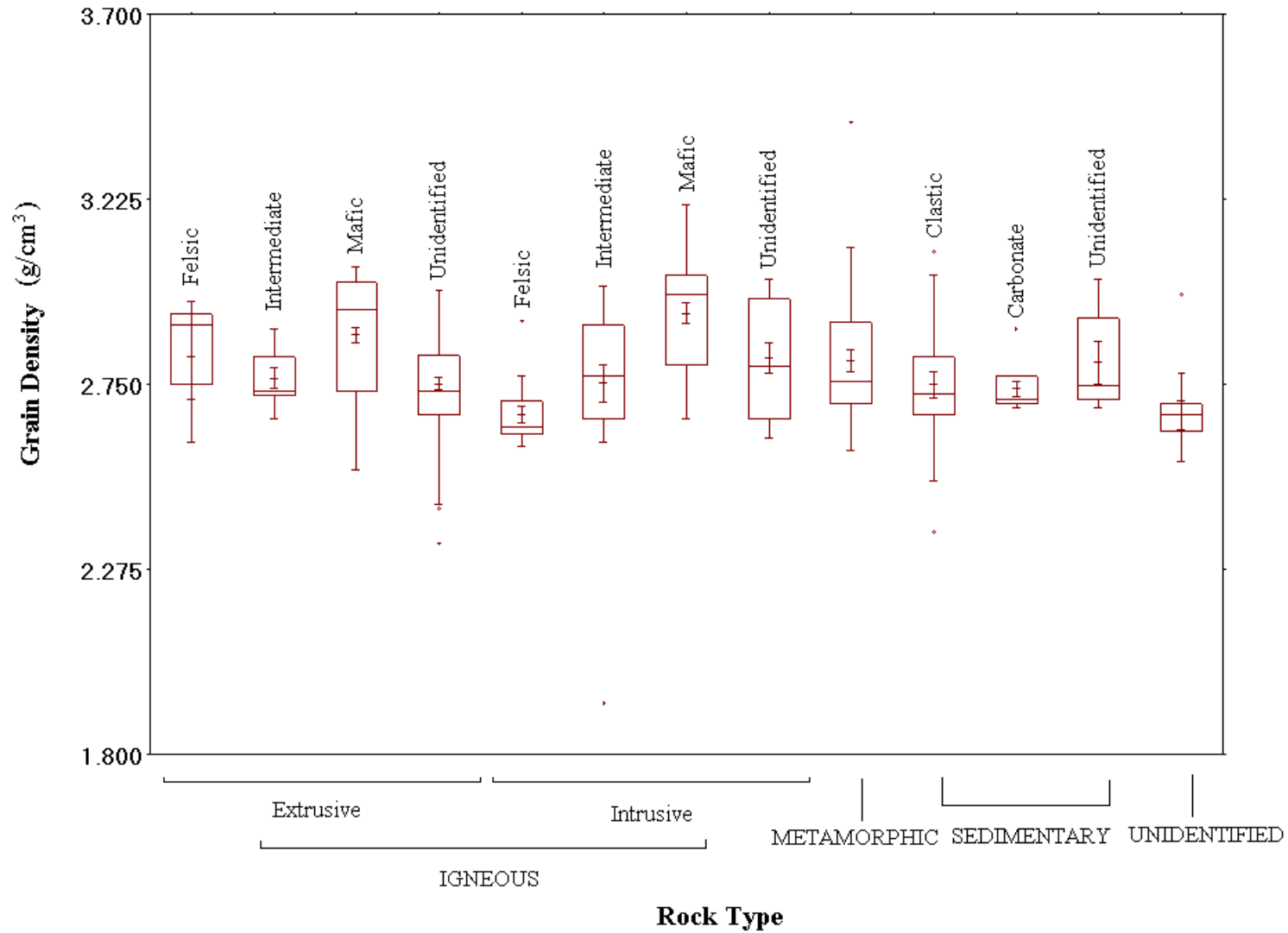


Figure 9. Box and whisker plot for grain density values of rocks from the study area (graphical representation of appendix 6). See figure 6 for explanation.

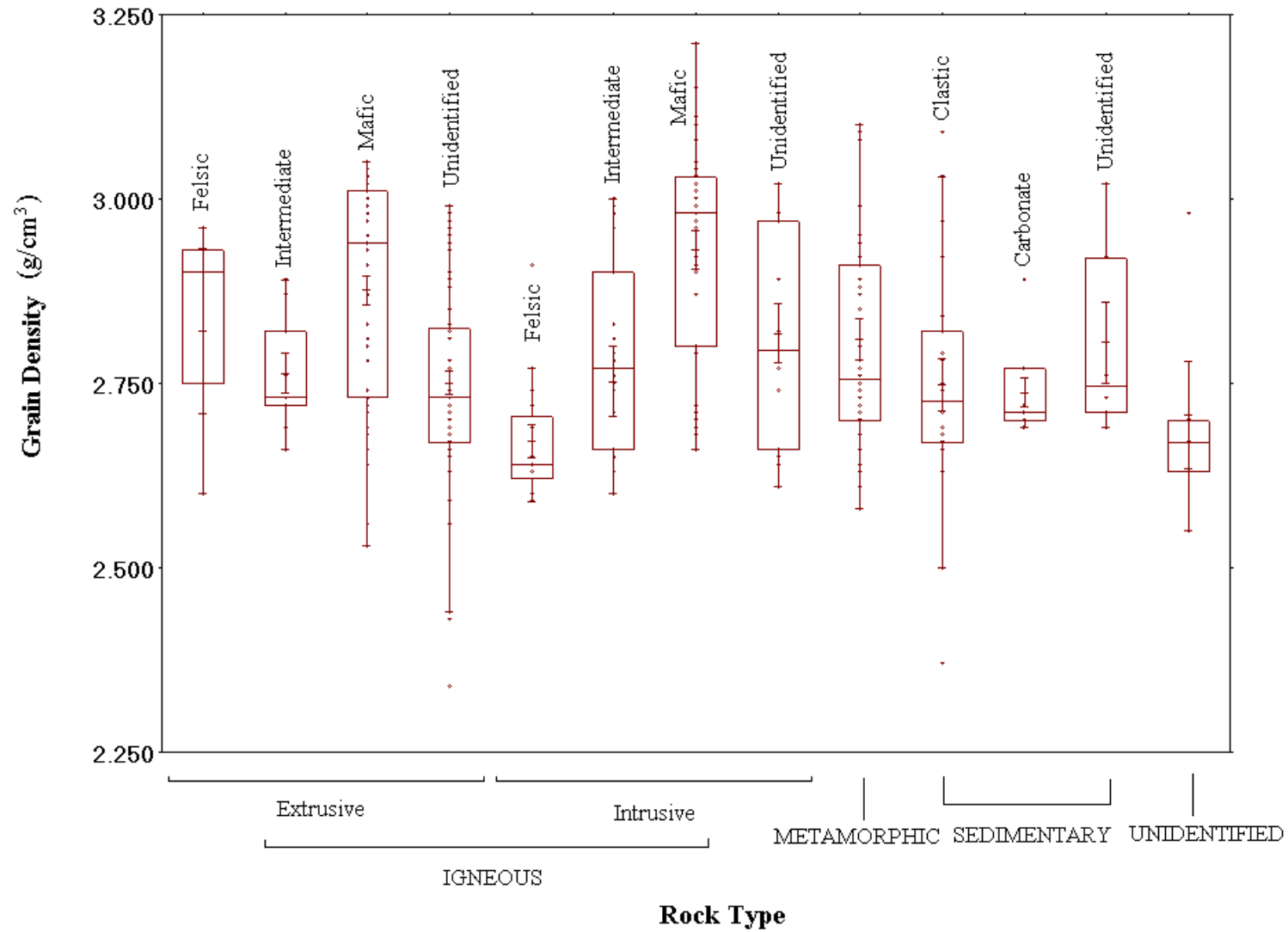


Figure 10. Box and whisker plot for grain density values of rocks from the study area (graphical representation of appendix 6). See figure 6 for explanation.

Table 1. Density values for rocks of the study area (in g/cm³). The average grain density value for each rock type is colored relative to the average densities of other rock types in this dataset (Red, high; yellow, moderate; blue, low).

[Min, minimum value; Max, maximum value; Ave, average value; SD, standard deviation]

Rock Type	Count	Dry Bulk Density				Grain Density				Saturated Bulk Density			
		Min	Max	Ave	SD	Min	Mas	Ave	SD	Min	Max	Ave	SD
IGNEOUS	225	1.83	3.11	2.76	0.19	1.93	3.21	2.81	0.17	1.92	3.12	2.78	0.18
Extrusive	141	1.83	3.03	2.75	0.19	2.34	3.05	2.80	0.15	2.05	3.04	2.77	0.17
<i>Felsic</i>	3	2.53	2.90	2.76	0.20	2.60	2.96	2.82	0.19	2.56	2.92	2.79	0.20
<i>Intermediate</i>	9	2.63	2.87	2.73	0.09	2.66	2.89	2.76	0.08	2.64	2.88	2.74	0.08
<i>Mafic</i>	57	2.26	3.03	2.83	0.18	2.53	3.05	2.88	0.15	2.36	3.04	2.85	0.17
<i>Unidentified</i>	72	1.83	2.97	2.68	0.19	2.34	2.99	2.75	0.13	2.05	2.98	2.71	0.17
Intrusive	84	1.91	3.11	2.78	0.19	1.93	3.21	2.82	0.19	1.92	3.12	2.79	0.19
<i>Felsic</i>	15	2.45	2.89	2.61	0.11	2.59	2.91	2.67	0.08	2.50	2.90	2.64	0.10
<i>Intermediate</i>	22	1.91	2.98	2.72	0.22	1.93	3.00	2.75	0.22	1.92	2.98	2.73	0.22
<i>Mafic</i>	33	2.63	3.11	2.89	0.14	2.66	3.21	2.93	0.15	2.64	3.12	2.90	0.14
<i>Unidentified</i>	14	2.53	2.95	2.77	0.16	2.61	3.02	2.82	0.15	2.58	2.97	2.79	0.15
METAMORPHIC	38	2.45	3.36	2.74	0.17	2.58	3.42	2.81	0.17	2.50	3.38	2.77	0.17
SEDIMENTARY	38	2.34	3.05	2.71	0.15	2.37	3.09	2.75	0.14	2.40	3.06	2.72	0.13
Clastic	22	2.34	3.05	2.72	0.16	2.37	3.09	2.75	0.16	2.40	3.06	2.73	0.15
Carbonate	10	2.45	2.84	2.66	0.11	2.69	2.89	2.74	0.06	2.54	2.86	2.69	0.09
Unidentified	6	2.51	2.98	2.74	0.17	2.69	3.02	2.81	0.13	2.57	2.99	2.76	0.15
UNIDENTIFIED	5	2.31	2.94	2.63	0.23	2.55	2.98	2.71	0.16	2.41	2.95	2.66	0.20

Table 2. Magnetic susceptibility values for rocks from the study area; Min, minimum value; Max, maximum value; Ave, average value; SD, standard deviation. Values of 0.00 reflect measurements below the instrument's sensitivity. The average susceptibility value for each rock type is colored red for high susceptibility, yellow for moderate susceptibility, or blue for low susceptibility.

Rock Type	Count	Magnetic Susceptibility (10^{-3} cgs)			
		Min	Max	Ave	SD
IGNEOUS	467	0.00	13.90	0.59	1.23
Extrusive	250	0.00	13.90	0.61	1.20
<i>Felsic</i>	6	0.00	2.45	0.58	1.00
<i>Intermediate</i>	20	0.01	3.18	0.54	0.89
<i>Mafic</i>	123	0.01	13.90	0.96	1.53
<i>Unidentified</i>	101	0.00	2.72	0.19	0.46
Intrusive	217	0.00	10.42	0.57	1.26
<i>Felsic</i>	43	0.00	1.60	0.10	0.31
<i>Intermediate</i>	56	0.00	2.15	0.41	0.60
<i>Mafic</i>	90	0.00	10.42	1.01	1.79
<i>Unidentified</i>	28	0.00	1.11	0.18	0.32
METAMORPHIC	53	0.00	5.31	0.30	0.89
SEDIMENTARY	60	0.00	1.59	0.11	0.30
<i>Clastic</i>	29	0.00	1.59	0.14	0.37
<i>Carbonate</i>	20	0.00	0.08	0.01	0.02
<i>Unidentified</i>	11	0.00	1.03	0.19	0.35
UNIDENTIFIED	126	0.00	7.96	0.36	0.90

Table 3. Density and magnetic susceptibility measurements from the study area in south-central Alaska. Latitudes and longitudes are in degrees and decimal minutes on the North American Datum 1927 (NAD27), densities are in g/cm³, magnetic susceptibilities in 10⁻³ cgs units. See appendix 1 and appendix 2 for explanation of sample name and rock type abbreviations.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
00AG001A	62	43.14	-148	26.28	2.72	2.70	2.69	0.01	TU
00AG012A	62	43.26	-148	24.18	2.71	2.69	2.68	0.01	LS
00AG023D	62	41.34	-148	30.90	2.98	2.94	2.93	0.02	PO
00AG026B	62	41.04	-148	31.56	2.79	2.78	2.78	0.02	GW
00AG033B	62	41.64	-148	31.56	2.74	2.74	2.73	0.02	GW
00JS 081	62	52.98	-148	38.46	2.66	2.63	2.62	0.01	GD
00JS008F	62	54.48	-148	2.52	2.64	2.61	2.59	0.00	UP
00JS009D	62	41.70	-148	17.22	3.09	3.06	3.05	0.03	CH
00JS010B	62	40.50	-148	19.08	2.77	2.72	2.70	0.00	LS
00JS019B	62	49.98	-148	19.92	2.78	2.75	2.74	0.04	SS
00JS019D	62	49.98	-148	19.92	2.78	2.73	2.71	0.02	CO
00JS020D	62	43.98	-148	24.96	2.75	2.73	2.72	0.01	ST
00JS022D	62	41.76	-148	17.76	2.67	2.65	2.64	0.01	CO
00JS031B	62	43.98	-148	8.64	3.42	3.38	3.36	0.07	SK
00JS035J	62	57.96	-148	52.62	2.63	2.53	2.47	0.01	TU
00JS035K	62	43.98	-148	52.62	2.71	2.63	2.58	0.01	AR
00JS040D	62	58.32	-148	53.52	2.66	2.63	2.62	0.00	UV
00JS049G	62	57.66	-148	53.34	2.75	2.71	2.68	0.01	UV
00JS050L	62	57.42	-148	39.36	2.77	2.70	2.66	0.01	UV
00JS051C	63	1.08	-148	44.58	2.72	2.70	2.69	0.01	GT
00JS052A	63	1.26	-148	42.66	2.74	2.73	2.72	0.02	UP
00JS053A	63	0.78	-148	43.56	2.77	2.74	2.73	0.03	TU
00JS058B	62	43.92	-148	8.64	2.88	2.85	2.84	0.04	HF
00JS060A	62	38.88	-148	24.78	2.99	2.98	2.97	0.05	TU
00JS076C	62	59.40	-148	37.14	2.71	2.69	2.68	0.94	TU
00JS076K	62	59.40	-148	36.90	2.74	2.72	2.70	0.02	UP
00JS078D	62	59.16	-148	35.82	2.56	2.53	2.50	0.01	TU
00JS079D	62	53.76	-148	44.10	3.02	2.97	2.95	0.03	UP
00JS083A	62	38.83	-148	19.21	2.99	2.95	2.92	0.02	TU
00JS084B	62	40.02	-148	26.34	2.98	2.97	2.97	0.04	UV
00SC002	62	43.16	-148	26.30	2.72	2.69	2.67	0.00	TU
00SC003	62	43.16	-148	26.30	2.81	2.79	2.78	0.01	TU
00SC004	62	43.32	-148	26.49	2.85	2.84	2.83	0.03	VC
00SC006	62	43.11	-148	25.06	2.98	2.95	2.94	0.03	UN
00SC007	62	43.36	-148	24.96	2.98	2.96	2.95	0.02	UP
00SC009	62	43.23	-148	24.20	2.70	2.65	2.62	0.01	VC
00SC011	62	43.28	-148	23.71	2.70	2.65	2.61	0.01	TU

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
00SC012	62	43.44	-148	23.65	2.70	2.66	2.64	0.00	LS
00SC013	62	43.48	-148	23.33	2.77	2.75	2.74	0.03	UP
00SC014	62	43.49	-148	23.11	2.69	2.59	2.52	0.01	LS
00SC015	62	43.63	-148	23.23	2.82	2.79	2.78	0.02	AR
00SC017	62	43.17	-148	26.13	2.97	2.95	2.94	0.02	UP
00SC018	62	43.19	-148	27.71	2.90	2.88	2.87	0.03	VC
00SC021	62	43.83	-148	23.10	2.93	2.92	2.92	0.01	BA
00SC022	62	43.68	-148	25.55	2.77	2.77	2.76	0.02	VC
00SC024	62	43.68	-148	25.55	2.73	2.70	2.68	0.00	US
00SC025	62	43.68	-148	25.55	2.88	2.85	2.83	0.04	VC
00SC026	62	42.17	-148	30.28	2.73	2.71	2.69	0.02	VC
00SC027	62	42.17	-148	30.28	2.78	2.74	2.72	0.02	TU
00SC029	62	59.38	-148	48.36	2.67	2.64	2.63	0.39	TU
00SC030	62	59.38	-148	48.36	2.69	2.68	2.66	0.02	TU
00SC031	62	58.09	-148	49.03	2.69	2.68	2.67	0.07	TU
00SC032	62	59.29	-148	50.92	2.99	2.93	2.89	0.02	UM
00SC033	62	58.20	-148	50.72	2.66	2.55	2.52	0.69	TU
00SC034	62	58.20	-148	50.72	2.67	2.64	2.62	0.26	TU
00SC035	62	58.67	-148	52.32	2.73	2.67	2.64	0.02	TU
00SC036	63	0.24	-148	53.20	2.68	2.63	2.60	0.01	GN
00SC037	62	57.84	-148	40.11	2.60	2.52	2.48	0.00	GR
00SC038	62	56.83	-148	41.46	2.60	2.54	2.51	0.00	GD
00SC039	62	56.83	-148	41.46	2.66	2.63	2.61	0.00	GD
00SC03A	62	43.16	-148	26.30	2.82	2.80	2.79	0.02	VC
00SC040	62	58.28	-148	53.62	2.82	2.80	2.79	0.02	UD
00SC041	62	58.28	-148	53.62	2.65	2.62	2.60	0.22	TU
00SC043	62	59.13	-148	50.78	2.66	2.63	2.61	0.01	TU
00SC044	62	59.13	-148	50.78	2.37	2.64	2.84	0.01	AR
00SC045	62	57.78	-148	49.82	2.65	2.61	2.59	0.32	TU
00SC046	62	57.67	-148	50.08	2.55	2.41	2.31	0.00	UN
00SC048	62	57.67	-148	50.08	2.75	2.67	2.62	0.02	UV
00SC049	62	40.82	-148	14.41	2.74	2.71	2.69	0.01	QV
00SC050	62	40.46	-148	14.55	2.68	2.65	2.63	0.01	AR
00SC051	62	40.46	-148	14.55	2.66	2.64	2.63	0.32	DA
00SC052	62	59.36	-148	47.85	2.70	2.68	2.67	0.19	TU
00SC053	62	59.45	-148	49.01	2.92	2.83	2.78	0.03	BR
00SC054	62	59.45	-148	49.01	2.73	2.68	2.65	0.05	DA
00SC055	62	59.50	-148	49.80	2.73	2.70	2.68	0.02	UV
00SC056	62	59.56	-148	49.82	2.74	2.70	2.68	0.19	GD

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
00SC057	62	59.45	-148	49.67	2.76	2.74	2.72	0.02	DA
00SC058	62	59.43	-148	50.00	2.64	2.61	2.60	0.02	GR
00SC059	62	59.39	-149	50.14	2.62	2.58	2.56	0.00	GR
00SC060	62	59.15	-148	50.25	2.58	2.50	2.45	0.00	PH
00SC061	62	59.14	-148	50.81	2.60	2.56	2.53	0.00	RH
00SC062	62	59.27	-148	51.03	3.02	2.99	2.98	0.04	US
00SC065	62	39.47	-148	21.93	2.80	2.79	2.78	0.09	BA
00SC11A	62	43.28	-148	23.71	2.70	2.63	2.59	0.00	PH
00SC13A	62	43.48	-148	23.33	2.97	2.94	2.93	0.02	UP
00SC16A	62	43.75	-148	23.18	2.67	2.65	2.64	0.00	UV
00SC16B	62	43.75	-148	23.18	2.89	2.89	2.88	0.04	UP
00SC16C	62	43.75	-148	23.18	2.70	2.69	2.69	0.01	UN
00SC17A	62	43.17	-148	26.13	2.77	2.76	2.75	0.01	VC
00SC21A	62	43.83	-148	23.10	2.72	2.67	2.64	0.03	UV
00sc21B1	62	43.83	-148	23.10	2.68	2.62	2.59	0.01	UV
00sc21B2	62	43.83	-148	23.10	2.67	2.64	2.63	0.00	UV
00sc21B3	62	43.83	-148	23.10	2.68	2.64	2.62	0.01	UV
00SC21C	62	43.83	-148	23.10	2.94	2.92	2.91	0.03	DB
00SC22A	62	43.68	-148	25.55	2.83	2.81	2.80	0.02	TU
00SC22B	62	43.68	-148	25.55	2.77	2.72	2.70	0.02	VC
00SC24A	62	43.68	-148	25.55	2.71	2.68	2.66	0.00	US
00SC32A	62	59.29	-148	50.92	2.71	2.67	2.65	0.01	UM
00SC36A	63	0.24	-148	53.20	2.78	2.75	2.73	0.03	HF
00SC40D	62	58.28	-148	53.62	2.66	2.61	2.58	0.00	UP
00SC42A	62	59.38	-148	50.14	2.69	2.67	2.65	0.02	AR
00SC42B	62	59.38	-148	50.14	2.63	2.60	2.58	0.01	GD
00SC42C	62	59.38	-148	50.14	2.72	2.69	2.67	0.02	GN
00SC42D	62	59.38	-148	50.14	2.67	2.64	2.62	0.01	UN
00SC46A	62	57.67	-148	50.08	2.59	2.50	2.45	0.00	MO
00SC49A	62	40.82	-148	14.41	2.77	2.74	2.73	0.01	QV
00SC58A	62	59.43	-148	50.00	2.67	2.63	2.61	0.01	UV
00SC59A	62	59.39	-149	50.14	2.72	2.68	2.66	0.01	DA
00SC64A	62	39.47	-148	21.93	3.03	3.01	3.00	0.02	AR
00SC64B	62	39.47	-148	21.93	2.63	2.59	2.57	0.01	UN
00TK12	62	37.44	-148	17.24	2.73	2.71	2.70	0.02	BA
00TK12	62	37.44	-148	17.24	2.83	2.81	2.81	0.03	BA
01AG15	62	43.56	-147	53.46	2.87	2.83	2.81	0.03	GN
01AG15	62	43.56	-147	53.46	2.92	2.85	2.81	0.02	GN
01AG15	62	43.56	-147	53.46	3.09	3.02	2.98	0.32	GN

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
01AG16	62	43.50	-147	54.18	2.85	2.79	2.76	0.02	GN
01AG16	62	43.50	-147	54.18	2.91	2.88	2.86	0.02	GN
01AG16	62	43.50	-147	54.18	2.92	2.89	2.87	0.03	GN
01AG16	62	43.50	-147	54.18	2.94	2.91	2.89	0.03	GN
01AG21B	62	39.30	-148	25.38	2.66	2.65	2.64	0.01	UV
01AG25C	62	36.60	-148	12.30	2.81	2.81	2.80	0.25	DI
01AG35C	62	40.02	-148	26.16	2.94	2.92	2.91	0.02	UV
01AG35D	62	40.02	-148	26.16	2.93	2.90	2.88	0.02	UV
01AG39	62	38.64	-148	19.56	2.99	2.97	2.96	0.02	UV
01ANS05F	63	10.56	-149	4.80	2.43	2.38	2.34	0.01	TU
01ANS06A	62	47.46	-148	19.98	2.98	2.92	2.89	0.88	BA
01ANS06B	62	46.92	-148	20.28	2.88	2.83	2.79	0.03	VC
01ANS06C	62	47.28	-148	20.40	2.94	2.90	2.88	1.38	GE
01ANS07A	63	0.12	-147	46.20	2.66	2.66	2.65	0.01	HF
01ANS07A	63	0.12	-147	46.20	2.68	2.65	2.63	0.07	HF
01ANS09B	62	42.30	-148	3.42	2.70	2.62	2.57	0.02	SL
01ANS09B	62	42.30	-148	3.42	2.72	2.67	2.64	0.02	SL
01ANS09B	62	42.30	-148	3.42	2.73	2.69	2.67	0.02	SL
01ANS10B	62	42.66	-148	7.86	3.04	3.01	2.99	3.58	BA
01ANS14D	62	32.76	-148	7.02	2.97	2.94	2.93	0.09	HB
01ANS20B	62	38.34	-148	28.74	2.84	2.81	2.80	0.01	CH
01ANS20G	62	38.76	-148	29.46	2.95	2.92	2.90	0.02	VC
01ANS20H	62	37.92	-148	29.70	2.66	2.65	2.64	0.00	TU
01ANS20K	62	39.18	-148	30.48	2.95	2.94	2.93	0.07	BA
01ANS22B	62	36.30	-148	24.60	2.71	2.68	2.66	0.00	AR
01ANS22E	62	36.24	-148	25.50	2.91	2.89	2.89	0.09	GB
01ANS23A	62	40.44	-148	34.80	2.70	2.37	2.18	0.01	VC
01ANS26B	62	55.56	-148	56.82	2.89	2.84	2.81	0.02	SL
01ANS27C	62	46.14	-148	11.64	2.95	2.91	2.89	0.05	VB
01ANS27F	62	47.22	-148	11.70	2.89	2.87	2.86	0.03	VB
01ANS27J	62	46.44	-148	11.82	2.72	2.70	2.69	0.00	LS
01ANS31B	62	41.76	-148	11.04	2.66	2.65	2.65	0.00	CH
01ANS36B	62	46.68	-148	36.12	2.63	2.58	2.54	0.27	SH
01ANS44A	62	51.00	-148	37.44	2.69	2.57	2.51	0.05	US
01DM14A	63	12.96	-145	56.28	2.90	2.84	2.81	1.13	DN
01DM15A	63	12.72	-145	54.30	3.10	3.05	3.03	0.87	PT
01DM16A	63	13.92	-145	54.18	3.01	2.97	2.94	0.47	BA
01DM27A	62	51.00	-146	18.84	2.98	2.93	2.91	0.05	GE
01DM30A	63	14.52	-145	56.40	3.04	3.03	3.02	0.04	GB

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
01DM32A	63	15.66	-145	57.12	2.71	2.67	2.64	0.02	VB
01DM33A	63	17.04	-145	57.30	3.00	2.95	2.92	0.07	BA
01DM34A	63	17.94	-145	56.88	2.97	2.95	2.94	0.04	VB
01DM35A	63	20.58	-145	58.56	2.97	2.96	2.96	0.18	BR
01DM49A	63	13.92	-146	30.96	2.97	2.93	2.91	0.29	BA
01DM50A	63	13.86	-146	29.88	3.02	3.00	2.99	1.24	BA
01DM51A	63	14.70	-146	27.30	3.04	3.03	3.02	1.99	BA
01DM77A	62	45.60	-146	21.48	3.04	3.00	2.98	0.05	GE
01DM78A	62	47.76	-146	22.08	3.04	2.99	2.97	0.04	GB
01DM85A	63	14.58	-146	3.66	2.64	2.62	2.60	5.31	SE
01DM86A	63	13.92	-146	3.06	3.11	3.06	3.04	1.14	DN
01JS03A	62	36.96	-148	45.18	2.70	2.68	2.67	0.00	LS
01JS05A	62	39.12	-148	48.00	3.21	3.10	3.05	10.42	GB
01JS05B	62	39.12	-148	48.00	3.05	3.02	3.00	10.35	GB
01JS07A	62	43.92	-149	14.10	2.71	2.75	2.77	0.01	GD
01JS07A	62	43.92	-149	14.10	2.78	2.75	2.73	0.16	GD
01JS07B	62	43.92	-149	14.16	2.66	2.63	2.61	2.72	TU
01JS07B	62	43.92	-149	14.16	2.73	2.70	2.68	0.01	TU
01JS07B	62	43.92	-149	14.16	2.75	2.72	2.71	0.04	TU
01JS07C	62	43.92	-149	14.16	2.75	2.72	2.70	0.02	TU
01JS07C	62	43.92	-149	14.16	2.75	2.72	2.71	0.02	TU
01JS08A	62	43.74	-149	14.40	2.59	2.46	2.38	0.00	TU
01JS08D	62	43.62	-149	14.40	2.63	2.57	2.54	0.01	GR
01JS08D	62	43.62	-149	14.40	2.63	2.59	2.56	0.01	GR
01JS10E	62	28.74	-148	47.28	2.87	2.85	2.84	13.90	BA
01JS10E	62	28.74	-148	47.28	2.91	2.89	2.87	1.86	BA
01JS10E	62	28.74	-148	47.28	3.02	2.98	2.96	0.03	GB
01JS10F	62	28.74	-148	47.34	2.71	2.68	2.66	0.01	BA
01JS10H	62	28.74	-148	47.22	2.53	2.36	2.26	0.24	BA
01JS10H	62	28.74	-148	47.22	2.56	2.40	2.30	0.02	BA
01JS10P	62	28.98	-148	47.10	2.71	2.70	2.69	1.84	BA
01JS10P	62	28.98	-148	47.10	2.34	2.05	1.83	0.36	TU
01JS10P	62	28.98	-148	47.10	2.44	2.22	2.08	0.37	TU
01JS11D	62	43.86	-148	5.70	2.98	2.95	2.94	0.03	BA
01JS13C	62	43.98	-148	4.86	2.93	2.92	2.91	0.04	TU
01JS16C	62	32.28	-148	1.44	2.61	2.58	2.56	0.00	PG
01JS20D	62	35.16	-148	18.90	3.10	3.08	3.08	0.03	GN
01JS23A	62	34.68	-148	16.32	2.83	2.82	2.81	1.09	GD
01JS23B	62	34.26	-148	15.72	2.78	2.74	2.72	1.23	GD

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
01JS24B	62	32.10	-148	13.02	2.98	2.94	2.93	0.05	GD
01JS24C	62	32.10	-148	13.02	3.08	3.02	2.99	0.05	GN
01JS27	62	37.62	-148	10.14	3.08	3.06	3.05	6.54	GB
01JS29	62	46.14	-148	38.94	2.78	2.76	2.74	0.03	BA
01JS39C	62	55.56	-149	3.66	2.71	2.61	2.55	0.01	SC
01JS46A	62	42.42	-148	19.56	2.71	2.69	2.69	0.00	GB
01JS49A	62	43.32	-148	24.18	2.70	2.67	2.66	0.00	GB
01JS50	62	43.20	-148	55.32	2.71	2.66	2.64	0.02	LS
01JS51B	62	42.30	-148	28.20	2.63	2.60	2.57	0.00	CO
01JS55C	62	40.80	-148	17.28	2.77	2.75	2.74	0.02	LS
01JS56D	62	40.74	-148	18.30	2.89	2.86	2.84	0.00	LS
01JS61C	62	45.90	-148	31.62	2.80	2.78	2.76	0.05	HF
01JS61D	62	45.90	-148	31.62	2.75	2.74	2.73	0.09	HF
01JS61E	62	45.90	-148	31.62	2.91	2.90	2.89	0.10	GR
01JS62B	62	44.46	-148	36.96	2.69	2.63	2.60	0.06	BA
01JS64A	62	49.44	-148	36.06	2.67	2.64	2.63	0.02	UV
01JS66A	62	46.86	-148	51.12	2.65	2.64	2.63	0.01	GR
01JS66B	62	46.86	-148	51.12	2.69	2.67	2.65	0.01	GT
01JS66D	62	46.86	-148	51.12	2.68	2.66	2.65	0.04	GN
01JS67B	62	45.90	-148	49.08	2.81	2.80	2.80	0.04	BA
01JS71F	62	45.60	-148	43.26	2.96	2.95	2.95	0.12	TU
01JS72	62	47.40	-148	45.48	2.62	2.59	2.57	0.01	GT
01MN06	62	44.04	-147	49.44	2.66	2.64	2.62	0.00	GD
01MN06	62	44.04	-147	49.44	2.76	2.74	2.72	0.05	GD
01MN06	62	44.04	-147	49.44	2.98	2.95	2.94	0.07	GD
01PJ42A	62	47.07	-148	49.11	2.62	2.60	2.58	0.00	GT
01PJ42B	62	47.07	-148	49.11	2.80	2.79	2.79	0.01	BA
01SC09A	62	39.36	-148	22.44	2.99	2.96	2.95	0.01	DI
01SC11B	62	39.42	-148	22.98	2.71	2.54	2.45	0.01	LS
01SC16B	62	39.84	-148	24.06	2.87	2.84	2.83	1.37	MC
01SC18	62	39.90	-148	24.18	3.02	2.97	2.95	0.02	GB
01TK01B	62	29.38	-148	23.73	2.68	2.66	2.65	0.33	GB
01TK04	62	30.27	-148	28.08	1.93	1.92	1.91	2.15	GD
01TK04	62	30.27	-148	28.08	2.75	2.72	2.71	1.39	GD
01TK06	62	32.69	-148	33.21	2.68	2.65	2.63	1.49	BA
01TK06	62	32.69	-148	33.21	2.72	2.68	2.66	1.27	BA
01TK06	62	32.69	-148	33.21	2.73	2.69	2.66	1.35	BA
01TK06	62	32.69	-148	33.21	2.74	2.66	2.62	1.27	BA
01TK26	62	57.91	-148	55.07	2.65	2.58	2.53	0.36	UP

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
01TK27	62	59.60	-148	59.52	2.64	2.59	2.56	0.01	BA
01TK27	62	59.60	-148	59.52	2.66	2.64	2.64	0.01	BA
01TK27	62	59.60	-148	59.52	2.68	2.61	2.57	0.01	BA
01TK27	62	59.60	-148	59.52	2.72	2.68	2.65	0.01	BA
01TK29	63	1.78	-149	2.77	2.64	2.61	2.59	0.04	GT
01TK51	63	6.32	-149	24.40	2.92	2.90	2.89	0.06	US
01TK57A	63	10.84	-149	36.51	2.69	2.68	2.68	0.02	SS
01TK83	63	3.02	-147	48.90	2.61	2.53	2.49	0.01	SL
01TK83	63	3.02	-147	48.90	2.63	2.58	2.55	0.01	SL
01TK86	63	1.33	-147	44.71	2.66	2.64	2.63	0.01	GB
01TK86	63	1.33	-147	44.71	2.69	2.66	2.65	0.01	GB
01TK86	63	1.33	-147	44.71	2.70	2.68	2.66	0.01	GB
01TK86	63	1.33	-147	44.71	2.93	2.90	2.88	0.72	GB
01TK86	63	1.33	-147	44.71	3.15	3.12	3.11	0.09	GB
02DM001	63	18.62	-146	18.84	2.99	2.97	2.96	0.05	MC
02DM002	63	20.84	-146	15.73	2.76	2.74	2.73	0.02	US
02DM003	63	18.50	-146	17.30	2.79	2.78	2.77	0.02	MD
02DM003B1	63	18.50	-146	17.30	2.50	2.40	2.34	1.27	CO
02DM004	63	20.19	-146	17.55	2.89	2.88	2.87	0.02	AN
02DM005	63	18.70	-146	23.76	2.79	2.78	2.77	0.01	GD
02DM008	63	16.69	-146	18.39	2.96	2.96	2.95	2.71	DN
02DM009	63	16.64	-146	27.33	2.98	2.93	2.90	0.77	MD
02DM012	63	15.45	-146	27.04	3.01	2.98	2.97	3.97	MD
02DM013	63	15.50	-146	24.62	2.98	2.96	2.95	1.20	MD
02DM017	63	13.59	-146	17.53	3.00	2.99	2.98	1.11	MD
02DM018	63	13.09	-146	20.90	3.01	2.99	2.99	1.98	BA
02DM019A	63	12.40	-146	18.17	3.04	3.01	3.00	1.44	BA
02DM019B	63	12.40	-146	18.17	2.99	2.96	2.94	2.50	MD
02DM022	63	9.90	-146	20.24	3.01	2.99	2.99	1.74	BA
02DM023	63	8.72	-146	18.64	3.03	3.02	3.01	2.08	BA
02DM024	63	8.16	-146	17.14	3.05	3.03	3.02	1.09	BA
02DM025	63	8.16	-146	21.32	3.02	3.00	2.98	1.92	BA
02DM033A	63	24.48	-145	56.52	2.76	2.73	2.71	0.02	SC
02DM033B	63	24.48	-145	56.52	2.65	2.63	2.62	0.00	GD
02DM034A	63	18.92	-145	32.53	2.81	2.81	2.80	2.47	BA
02DM034B	63	18.92	-145	32.53	2.98	2.97	2.97	0.03	BA
02DM035	63	21.34	-145	41.75	2.64	2.63	2.61	3.71	BA
02DM036A	63	15.16	-145	36.31	2.87	2.85	2.84	0.01	DA
02DM036B	63	15.16	-145	36.31	2.82	2.80	2.79	0.01	DA

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
02DM036C	63	15.16	-145	36.31	2.73	2.71	2.70	0.02	DA
02DM038	63	16.09	-145	32.48	2.69	2.68	2.67	0.01	AN
02DM039	63	18.60	-146	4.24	2.67	2.64	2.62	0.01	UV
02DM040	63	17.96	-146	1.19	3.04	3.01	2.99	0.04	BA
02DM045	63	14.53	-145	33.78	2.71	2.70	2.70	0.01	BA
02DM053	63	6.08	-145	43.92	2.90	2.87	2.86	0.02	GD
02DM054	63	5.62	-145	45.47	2.96	2.92	2.90	0.02	FS
02DM060	63	6.29	-145	49.45	2.96	2.93	2.91	0.04	GD
02DM061	63	7.68	-145	52.36	2.99	2.95	2.93	0.65	BA
02DM062	63	7.03	-145	47.61	3.00	2.98	2.98	0.05	DI
02DM068	63	0.08	-145	57.66	2.97	2.94	2.92	0.03	UV
02DM070	63	12.74	-146	41.28	2.80	2.77	2.76	0.69	BA
02DM072	63	14.07	-146	37.35	2.99	2.98	2.98	2.22	BA
02DM077	63	18.33	-146	40.78	2.74	2.70	2.67	0.03	SC
02DM078	63	14.91	-146	48.94	2.73	2.70	2.68	0.02	SC
02DM085	63	6.58	-146	51.17	3.00	2.99	2.99	0.11	BA
02DM086	63	6.55	-146	56.78	3.03	3.02	3.02	3.46	BA
02DM090	63	21.02	-145	28.94	2.71	2.69	2.68	0.01	SC
02DM091	63	19.40	-145	53.64	2.92	2.92	2.91	1.13	DN
02DM092	63	20.29	-145	52.71	2.74	2.73	2.73	0.00	UV
02DM093	63	19.70	-145	59.61	2.99	2.98	2.98	0.12	GB
02DM094A	63	19.03	-146	29.14	2.87	2.86	2.85	0.02	MD
02DM094B	63	19.03	-146	29.14	2.90	2.88	2.86	0.02	FS
02DM095	63	17.65	-146	28.65	3.01	3.00	3.00	0.14	BA
02DM096	63	20.79	-146	30.32	2.76	2.74	2.72	0.02	SC
02DM097	63	20.26	-146	46.19	2.95	2.91	2.90	0.02	SC
02DM098	63	17.47	-146	38.14	3.00	3.00	2.99	1.11	BA
02DM099	63	16.65	-146	35.95	3.04	3.04	3.03	2.07	BA
02DM100	63	17.56	-145	33.33	2.77	2.75	2.74	1.72	TU
02DM102	63	19.99	-146	1.08	2.74	2.72	2.71	0.03	TU
02DM103	63	21.35	-146	2.89	2.77	2.75	2.73	0.02	SL
02DM104	63	20.30	-146	5.70	2.73	2.72	2.72	0.02	BA
02DMA	63	16.09	-145	32.48	3.03	3.03	3.02	0.05	MD
02DMB	63	0.19	-146	4.24	2.72	2.71	2.71	0.02	MD
02DMC	63	17.96	-146	1.19	2.80	2.79	2.79	0.03	MD
99ARJ25	62	20.11	-149	12.48	-	-	-	1.59	BA
99ARJ27	62	17.4	-149	15.71	-	-	-	1.59	GB
99ARJ28	62	17.91	-149	9.43	-	-	-	1.99	DI
99ARJ29	62	19.18	-149	10.55	-	-	-	2.39	GB

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99ARJ30	62	20.17	-149	3.73	-	-	-	0.00	LS
99ARJ30A	62	20.17	-149	3.73	-	-	-	1.03	US
99ARJ30B	62	20.17	-149	3.73	-	-	-	0.00	UN
99ARJ30C	62	20.17	-149	3.73	-	-	-	0.04	DI
99ARJ31	62	19.95	-149	3.55	-	-	-	0.06	GE
99ARJ32	62	19.85	-149	2.73	-	-	-	0.06	MC
99ARJ33	62	21.26	-149	3.26	-	-	-	1.03	BA
99ARJ34A	62	21.37	-149	3.92	-	-	-	0.40	UN
99ARJ34B	62	21.37	-149	3.92	-	-	-	0.56	GB
99ARJ34C	62	21.37	-149	3.92	-	-	-	0.06	GB
99ARJ35A	62	23.14	-149	4.59	-	-	-	0.20	DB
99ARJ35B1	62	23.14	-149	4.59	-	-	-	0.56	GB
99ARJ35B2	62	23.14	-149	4.59	-	-	-	0.09	BA
99ARJ37	62	23.89	-149	3.59	-	-	-	1.19	UN
99ARJ37A	62	23.89	-149	3.59	-	-	-	1.90	VC
99ARJ37B	62	23.89	-149	3.59	-	-	-	0.36	GE
99ARJ37C	62	23.89	-149	3.59	-	-	-	0.87	VC
99ARJ38	62	23.88	-149	3.23	-	-	-	0.08	UN
99ARJ38A	62	23.88	-149	3.23	-	-	-	0.20	UP
99ARJ38B	62	23.88	-149	3.23	-	-	-	0.01	UN
99ARJ39	62	23.71	-149	3.36	-	-	-	0.02	UN
99ARJ39A	62	23.71	-149	3.36	-	-	-	0.01	GB
99ARJ39B	62	23.71	-149	3.36	-	-	-	0.00	UD
99ARJ39C	62	23.71	-149	3.36	-	-	-	0.00	GT
99ARJ41	62	25.14	-149	3.35	-	-	-	0.02	GB
99ARJ42	62	25.27	-149	3.65	-	-	-	0.08	UN
99ARJ42A	62	25.27	-149	3.65	-	-	-	0.05	GT
99ARJ42B	62	25.27	-149	3.65	-	-	-	0.00	UN
99ARJ44	62	25.94	-149	4.18	-	-	-	0.02	UN
99ARJ44A	62	25.94	-149	4.18	-	-	-	0.02	SS
99ARJ44B	62	25.94	-149	4.18	-	-	-	0.00	BR
99ARJ46	62	23.73	-149	1.24	-	-	-	0.00	GR
99ARJ52A	62	26.55	-149	5.43	-	-	-	0.02	VC
99ARJ52B	62	26.55	-149	5.43	-	-	-	0.00	VC
99ARJ53	62	26.44	-149	5.38	-	-	-	0.02	UN
99ARJ53A	62	26.44	-149	5.38	-	-	-	0.02	VC
99ARJ54	62	26.25	-149	5.25	-	-	-	0.04	UN
99ARJ54A	62	26.25	-149	5.25	-	-	-	0.05	VC
99ARJ54B	62	26.25	-149	5.25	-	-	-	0.03	SE

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99ARJ54C	62	26.25	-149	5.25	-	-	-	0.03	GB
99ARJ55	62	26.2	-149	5.09	-	-	-	0.03	UN
99ARJ55A	62	26.2	-149	5.09	-	-	-	0.02	VC
99ARJ55B	62	26.2	-149	5.09	-	-	-	0.02	TU
99ARJ55C	62	26.2	-149	5.09	-	-	-	0.02	VC
99ARJ56	62	26.1	-149	4.77	-	-	-	0.03	SE
99ARJ57	62	26.07	-149	4.59	-	-	-	0.03	DI
99ARJ58	62	26.03	-149	4.41	-	-	-	0.03	SS
99ARJ59	62	17.95	-149	12.4	-	-	-	0.48	UN
99ARJ59A	62	17.95	-149	12.4	-	-	-	0.03	GB
99ARJ59B	62	17.95	-149	12.4	-	-	-	0.74	US
99ARJ60	62	20.37	-149	1.49	-	-	-	2.79	GS
99ARJ60A	62	20.37	-149	1.49	-	-	-	3.06	BA
99ARJ60B	62	20.37	-149	1.49	-	-	-	0.07	SC
99ARJ61	62	20.37	-149	1.78	-	-	-	0.00	UN
99ARJ63	62	20.17	-149	2.92	-	-	-	0.00	UN
99ARJ65	62	18.82	-149	3.96	-	-	-	0.00	UN
99ARJ66A	62	16.67	-149	1.04	-	-	-	1.39	TU
99ARJ66B	62	16.67	-149	1.04	-	-	-	0.05	GB
99ARJ68	62	22.67	-149	2.03	-	-	-	0.70	GB
99ARJ69	62	20.35	-149	5.33	-	-	-	1.25	BA
99ARJ70A	62	17.22	-149	3.37	-	-	-	0.03	DI
99ARJ70B	62	17.22	-149	3.37	-	-	-	0.23	PG
99ARJ70C	62	17.22	-149	3.37	-	-	-	0.02	MC
99ARJ70D	62	17.22	-149	3.37	-	-	-	1.49	GB
99ARJ71A	62	17.71	-149	3.68	-	-	-	0.01	TU
99ARJ71B	62	17.71	-149	3.68	-	-	-	0.01	TU
99ARJ72	62	16.93	-149	4.02	-	-	-	0.02	GB
99ARJ73A	62	19	-149	13.04	-	-	-	0.09	TU
99ARJ73B	62	19	-149	13.04	-	-	-	0.68	GB
99ARJ73C	62	19	-149	13.04	-	-	-	0.14	MC
99JS23	62	20.08	-149	10.81	-	-	-	1.75	BA
99JS24	62	20.18	-149	13.46	-	-	-	0.12	UN
99JS25A	62	17.9	-149	16.36	-	-	-	0.01	GR
99JS25B	62	17.9	-149	16.36	-	-	-	2.39	UN
99JS26	62	17.98	-149	11.75	-	-	-	1.75	DI
99JS27A	62	19.12	-149	9.87	-	-	-	1.19	UN
99JS27B	62	19.12	-149	9.87	-	-	-	0.24	UN
99JS28A	62	19.65	-149	3.3	-	-	-	0.05	DI

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99JS28B	62	19.65	-149	3.3	-	-	-	0.02	UN
99JS28C	62	19.65	-149	3.3	-	-	-	0.01	UN
99JS28D	62	19.65	-149	3.3	-	-	-	0.00	UN
99JS28E	62	19.65	-149	3.3	-	-	-	0.02	UN
99JS28F	62	19.65	-149	3.3	-	-	-	0.02	UN
99JS28G	62	19.65	-149	3.3	-	-	-	0.00	UN
99JS28H	62	19.67	-149	3.36	-	-	-	0.02	UN
99JS28J	62	19.75	-149	3.43	-	-	-	0.02	UN
99JS28L	62	19.81	-149	3.48	-	-	-	0.01	UN
99JS28M	62	19.85	-149	3.51	-	-	-	0.01	UN
99JS29A	62	21.07	-149	0.94	-	-	-	0.20	UN
99JS29B	62	21.07	-149	0.94	-	-	-	0.03	UN
99JS29D	62	21.16	-149	0.85	-	-	-	1.03	UN
99JS29E	62	21.17	-149	1.01	-	-	-	0.02	UN
99JS29G	62	21.24	-149	1.43	-	-	-	0.00	UN
99JS29H	62	21.24	-149	1.43	-	-	-	0.00	UN
99JS31A	62	23.59	-149	4.22	-	-	-	0.72	UN
99JS31B	62	23.59	-149	4.22	-	-	-	0.06	UN
99JS31C	62	23.59	-149	4.22	-	-	-	0.05	UN
99JS32A	62	23.94	-149	4.66	-	-	-	0.08	UN
99JS33A	62	24.9	-149	3.51	-	-	-	0.02	GB
99JS34A	62	25.04	-149	3.64	-	-	-	0.01	UN
99JS34B	62	25.07	-149	3.67	-	-	-	0.01	UN
99JS34C	62	25.11	-149	3.72	-	-	-	0.00	UN
99JS35A	62	24.62	-149	3.5	-	-	-	0.04	UN
99JS35B	62	24.68	-149	3.67	-	-	-	0.02	UN
99JS35D	62	24.69	-149	3.96	-	-	-	0.00	UN
99JS35F	62	24.69	-149	4.06	-	-	-	0.02	UN
99JS35G	62	24.69	-149	4.11	-	-	-	0.00	UN
99JS35H	62	24.71	-149	4.2	-	-	-	0.04	UN
99JS36A	62	22.95	-149	3.24	-	-	-	1.19	BA
99JS39A	62	24.7	-149	3.32	-	-	-	0.01	UN
99JS39B	62	24.71	-149	3.2	-	-	-	0.00	UN
99JS39C	62	24.69	-149	2.95	-	-	-	0.01	UN
99JS39E	62	24.6	-149	2.69	-	-	-	0.00	UN
99JS40A	62	24.33	-149	1.17	-	-	-	0.01	GB
99JS41C	62	23.14	-149	7.84	-	-	-	0.08	UN
99JS41D	62	23.1	-149	8.07	-	-	-	2.58	UN
99JS41E	62	23.08	-149	8.49	-	-	-	0.00	UN

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99JS41F	62	23.07	-149	8.67	-	-	-	0.00	UN
99JS42	62	19.07	-149	9.21	-	-	-	1.99	DI
99JS43	62	20.84	-149	2.71	-	-	-	0.02	UN
99JS44A	62	20.44	-148	59.8	-	-	-	0.10	UN
99JS44B	62	20.44	-148	59.8	-	-	-	0.00	UN
99JS44C	62	20.44	-148	59.8	-	-	-	0.01	UN
99JS44D	62	20.44	-148	59.8	-	-	-	0.01	UN
99JS45A	62	20.22	-149	0.89	-	-	-	0.01	UN
99JS45B	62	20.22	-149	0.89	-	-	-	0.02	UN
99JS46A	62	20.5	-149	3.23	-	-	-	0.04	UN
99JS46B	62	20.5	-149	3.23	-	-	-	1.43	UN
99JS46F	62	20.5	-149	3.23	-	-	-	2.39	BA
99JS46G	62	20.5	-149	3.23	-	-	-	2.39	UN
99JS47A	62	19.46	-149	4.11	-	-	-	0.00	UN
99JS48A	62	16.13	-149	1.59	-	-	-	0.95	UN
99JS48B	62	16.13	-149	1.59	-	-	-	0.95	DA
99JS49A	62	19.21	-149	1.58	-	-	-	0.26	DI
99JS49C	62	19.21	-149	1.58	-	-	-	0.01	UN
99JS49D	62	19.21	-149	1.58	-	-	-	0.04	UN
99JS49F	62	19.21	-149	1.42	-	-	-	0.00	UN
99JS49G	62	19.21	-149	1.42	-	-	-	0.01	UN
99JS49H	62	19.21	-149	1.42	-	-	-	0.01	UN
99JS49J	62	19.21	-149	1.23	-	-	-	0.01	UN
99JS50	62	19.83	-149	0.84	-	-	-	0.00	UN
99JS51	62	21.99	-149	8.19	-	-	-	0.79	UN
99JS52	62	21.82	-149	9.97	-	-	-	0.74	GB
99JS53A	62	22.2	-149	12.12	-	-	-	0.09	UN
99JS53B	62	22.2	-149	12.12	-	-	-	0.03	UN
99JS54A	62	22.41	-149	14.34	-	-	-	0.84	GB
99JS54B	62	22.41	-149	14.34	-	-	-	0.31	UN
99JS55A	62	23.07	-149	13.44	-	-	-	0.04	GD
99JS55B	62	23.27	-149	12.59	-	-	-	0.31	UN
99JS56	62	18.64	-149	15.18	-	-	-	0.01	GR
99JS57B	62	18.24	-149	14.75	-	-	-	0.02	UN
99JS58A	62	18.77	-149	13.67	-	-	-	0.04	UN
99JS58B	62	18.77	-149	13.67	-	-	-	0.86	UN
99JS59A	62	18.19	-149	8.2	-	-	-	0.90	DI
99JS61A	62	22.03	-149	0.42	-	-	-	2.15	UN
99JS61B	62	22.37	-148	59.72	-	-	-	0.80	UN

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99JS62	62	22.27	-149	2.43	-	-	-	0.37	UN
99JS63	62	22.55	-149	3.14	-	-	-	0.70	UN
99JS64A	62	21.13	-149	5.58	-	-	-	0.02	BA
99JS64B	62	21.13	-149	5.58	-	-	-	0.00	UN
99JS64C	62	21.06	-149	5.78	-	-	-	0.00	UN
99JS65A	62	17.17	-149	4.1	-	-	-	0.02	UN
99JS65B	62	17.17	-149	4.1	-	-	-	0.00	UN
99JS66A	62	17.41	-149	6.21	-	-	-	1.69	UN
99JS66B	62	17.41	-149	6.21	-	-	-	0.80	UN
99JS66C	62	17.49	-149	6.68	-	-	-	0.30	UN
99JS66E	62	17.48	-149	6.86	-	-	-	0.72	UN
99JS67	62	19.26	-149	11.93	-	-	-	0.09	UN
99MBW403	62	23.65	-149	17.5	-	-	-	0.45	GD
99MBW405A	62	23.83	-149	17.75	-	-	-	1.05	HF
99MBW406	62	23.91	-149	18.05	-	-	-	0.76	GD
99MBW407	62	24.01	-149	18.12	-	-	-	0.11	UP
99MBW408A	62	23.91	-149	18.52	-	-	-	1.50	VC
99MBW408B	62	23.91	-149	18.52	-	-	-	1.24	VC
99MBW410A	62	24.19	-149	18.92	-	-	-	0.96	GD
99MBW410B	62	24.19	-149	18.92	-	-	-	0.31	AP
99MBW411	62	20.14	-149	13.45	-	-	-	1.29	AN
99MBW414	62	19.56	-149	16.24	-	-	-	0.56	GB
99MBW415	62	19.6	-149	16.14	-	-	-	0.86	GB
99MBW416	62	18.54	-149	12.92	-	-	-	3.15	GB
99MBW418B	62	18.5	-149	10.58	-	-	-	1.29	MO
99MBW419A	62	21.1	-149	0.64	-	-	-	0.10	AN
99MBW419B	62	21.1	-149	0.64	-	-	-	0.05	GB
99MBW419C	62	21.1	-149	0.64	-	-	-	0.16	GR
99MBW420B	62	21.01	-149	0.72	-	-	-	0.05	AN
99MBW421	62	20.99	-149	0.74	-	-	-	1.50	GB
99MBW422	62	21.02	-149	1.05	-	-	-	0.05	GB
99MBW423	62	21.01	-149	1.13	-	-	-	0.00	GB
99MBW424	62	21.06	-149	1.19	-	-	-	0.00	UV
99MBW426	62	21.04	-149	1.21	-	-	-	0.00	LS
99MBW427	62	21.09	-149	1.34	-	-	-	0.04	TU
99MBW428	62	21.05	-149	1.31	-	-	-	0.09	AN
99MBW429	62	21.09	-149	1.45	-	-	-	0.00	LS
99MBW430A	62	21.08	-149	1.47	-	-	-	0.66	GE
99MBW430B	62	21.08	-149	1.47	-	-	-	0.01	UN

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99MBW431	62	21.08	-149	1.52	-	-	-	0.00	UN
99MBW432	62	21.11	-149	1.57	-	-	-	0.00	LS
99MBW433	62	21.14	-149	1.69	-	-	-	0.38	SH
99MBW434A	62	21.12	-149	1.72	-	-	-	1.85	AN
99MBW434B	62	21.12	-149	1.72	-	-	-	0.00	DO
99MBW434C	62	21.12	-149	1.72	-	-	-	0.00	DO
99MBW434D	62	21.12	-149	1.72	-	-	-	0.00	LS
99MBW435	62	21.13	-149	1.77	-	-	-	0.78	GB
99MBW436	62	21.15	-149	1.86	-	-	-	0.03	UV
99MBW437	62	21.51	-149	3.93	-	-	-	1.16	GE
99MBW438	62	28.59	-149	29.87	-	-	-	1.21	VB
99MBW439A	62	28.58	-149	29.85	-	-	-	0.28	VB
99MBW440	62	23.74	-149	4.84	-	-	-	0.14	GB
99MBW441A	62	23.77	-149	4.72	-	-	-	2.45	RH
99MBW442	62	23.81	-149	4.73	-	-	-	3.41	GB
99MBW446B	62	23.68	-149	4.51	-	-	-	0.00	PG
99MBW446C	62	23.68	-149	4.51	-	-	-	1.14	GB
99MBW449A	62	23.73	-149	4.52	-	-	-	0.04	GB
99MBW449B	62	23.73	-149	4.52	-	-	-	0.33	UP
99MBW450	62	23.69	-149	4.31	-	-	-	0.98	GD
99MBW452	62	25.17	-149	3.83	-	-	-	0.01	UN
99MBW453	62	25.2	-149	3.84	-	-	-	0.00	GR
99MBW454	62	25.22	-149	3.88	-	-	-	0.00	GR
99MBW455	62	25.27	-149	4	-	-	-	0.02	GB
99MBW456	62	25.34	-149	4.04	-	-	-	0.00	GR
99MBW457	62	25.36	-149	4.1	-	-	-	0.08	MC
99MBW458	62	25.45	-149	4.33	-	-	-	0.03	GR
99MBW459	62	25.2	-149	3.07	-	-	-	0.03	GB
99MBW460	62	25.29	-149	3.17	-	-	-	0.03	GB
99MBW464	62	25.53	-149	3.3	-	-	-	0.00	GR
99MBW465	62	25.6	-149	3.34	-	-	-	0.06	HF
99MBW468	62	25.08	-149	2.72	-	-	-	0.05	GB
99MBW469	62	25.01	-149	2.7	-	-	-	0.01	UP
99MBW470	62	25	-149	2.73	-	-	-	0.03	US
99MBW472	62	24.97	-149	2.65	-	-	-	0.03	GB
99MBW473	62	24.96	-149	2.61	-	-	-	0.01	US
99MBW474	62	24.95	-149	2.62	-	-	-	0.02	DI
99MBW475	62	24.93	-149	2.5	-	-	-	0.01	UN
99MBW476	62	24.92	-149	2.41	-	-	-	0.03	DI

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99MBW477	62	24.91	-149	2.36	-	-	-	0.04	AN
99MBW478	62	24.89	-149	2.35	-	-	-	0.02	DI
99MBW480	62	24.86	-149	2.28	-	-	-	0.03	BA
99MBW481	62	24.84	-149	2.23	-	-	-	0.01	GR
99MBW484	62	24.79	-149	1.95	-	-	-	0.02	UV
99MBW485	62	24.79	-149	1.93	-	-	-	0.05	GB
99MBW486	62	24.78	-149	1.83	-	-	-	0.01	UV
99MBW487	62	24.78	-149	1.84	-	-	-	1.09	UP
99MBW488	62	24.78	-149	1.75	-	-	-	0.02	MC
99MBW491	62	24.73	-149	1.2	-	-	-	0.05	GB
99MBW492	62	24.64	-149	1.1	-	-	-	0.01	DI
99MBW493	62	24.43	-149	0.92	-	-	-	0.05	BA
99MBW494	62	23.09	-149	7.43	-	-	-	0.06	BA
99MBW495	62	22.99	-149	7.37	-	-	-	0.24	BA
99MBW498	62	22.96	-149	7.28	-	-	-	0.93	BA
99MBW499	62	22.82	-149	7.22	-	-	-	0.02	VB
99MBW500	62	22.75	-149	7.24	-	-	-	2.11	BA
99MBW501	62	22.73	-149	7.23	-	-	-	0.02	BA
99MBW502	62	22.65	-149	7.24	-	-	-	0.60	VB
99MBW503	62	22.6	-149	7.34	-	-	-	1.42	BA
99MBW505	62	22.43	-149	7.18	-	-	-	0.03	VB
99MBW506	62	20.43	-149	19.87	-	-	-	1.78	GB
99MBW507	62	18.83	-149	11.16	-	-	-	2.29	GB
99MBW508	62	18.83	-149	11.04	-	-	-	3.80	BA
99MBW513	62	20.35	-149	1.34	-	-	-	0.01	UN
99MBW514	62	19.96	-149	1.6	-	-	-	1.11	DI
99MBW515	62	19.83	-149	1.48	-	-	-	0.01	MC
99MBW516	62	19.8	-149	1.45	-	-	-	1.01	RH
99MBW517	62	19.82	-149	1.44	-	-	-	0.10	UN
99MBW519	62	20.93	-149	6.18	-	-	-	0.01	GR
99MBW520	62	18.53	-149	6.38	-	-	-	0.19	FI
99MBW521	62	17.69	-149	4.92	-	-	-	0.01	HF
99MBW522	62	17.73	-149	4.99	-	-	-	2.37	HF
99MBW523	62	17.74	-149	4.84	-	-	-	0.03	DI
99MBW524	62	17.74	-149	4.83	-	-	-	0.23	GD
99MBW525	62	17.82	-149	4.78	-	-	-	0.66	DI
99MBW527A	62	21.48	-149	0.32	-	-	-	0.00	LS
99MBW527C	62	21.48	-149	0.32	-	-	-	1.55	PH
99MBW527D	62	21.48	-149	0.32	-	-	-	0.04	GE

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99MBW528	62	21.55	-149	0.39	-	-	-	1.25	GE
99MBW529A	62	21.53	-149	0.39	-	-	-	0.00	FV
99MBW532	62	21.61	-149	0.49	-	-	-	0.03	PH
99MBW534	62	21.62	-149	0.56	-	-	-	0.99	BA
99MBW535	62	21.62	-149	0.67	-	-	-	0.03	PH
99MBW537	62	21.63	-149	0.93	-	-	-	0.02	GE
99MBW540	62	22.23	-149	11.29	-	-	-	1.60	GR
99MBW541B	62	22.2	-149	12.93	-	-	-	0.75	GB
99MBW542	62	22.53	-149	12.63	-	-	-	1.19	DI
99MBW544	62	23.59	-149	6.88	-	-	-	0.03	AN
99MBW546A	62	23.67	-149	6.72	-	-	-	0.37	UN
99MBW546B	62	23.67	-149	6.72	-	-	-	0.17	GB
99MBW548	62	23.74	-149	6.58	-	-	-	0.20	BA
99MBW550B	62	23.84	-149	6.48	-	-	-	0.01	UP
99MBW551A	62	18.91	-149	15.49	-	-	-	0.00	UP
99MBW551B	62	18.91	-149	15.49	-	-	-	1.36	BA
99MBW551C	62	18.91	-149	15.49	-	-	-	0.47	VC
99MBW552	62	18.47	-149	15.33	-	-	-	0.47	GB
99MBW554B	62	19.52	-149	8.54	-	-	-	1.23	BA
99MBW556	62	23.88	-148	59.78	-	-	-	0.85	DA
99MBW557A	62	23.81	-148	59.77	-	-	-	1.83	BA
99MBW557B	62	23.81	-148	59.77	-	-	-	0.24	BA
99MBW558	62	23.60	-148	59.64	-	-	-	0.19	BA
99MBW559	62	23.54	-148	59.78	-	-	-	0.15	BA
99MBW563	62	20.56	-149	6.14	-	-	-	0.05	GB
99MBW575	62	18.62	-149	14.57	-	-	-	0.06	BA
99PE10A	62	20.39	-149	4.27	-	-	-	2.17	UN
99PE10B	62	20.39	-149	4.27	-	-	-	0.43	GE
99PE11A	62	20.38	-149	4.17	-	-	-	1.75	GE
99PE11B	62	20.38	-149	4.17	-	-	-	0.03	UN
99PE12	62	20.3	-149	4.02	-	-	-	0.01	CH
99PE14	62	21.55	-149	2.88	-	-	-	1.67	GB
99PE15	62	21.71	-149	2.9	-	-	-	0.48	BA
99PE16	62	21.79	-149	3.17	-	-	-	0.06	UN
99PE17	62	21.77	-149	3.45	-	-	-	2.39	GE
99PE2	62	23.81	-149	18.16	-	-	-	3.18	AN
99PE20	62	23.49	-149	3.87	-	-	-	1.59	GB
99PE20A	62	23.49	-149	3.87	-	-	-	0.61	GE
99PE20B	62	23.49	-149	3.87	-	-	-	0.03	UN

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99PE21	62	23.4	-149	3.76	-	-	-	0.01	MC
99PE22	62	23.28	-149	3.74	-	-	-	1.99	AN
99PE23	62	23.15	-149	3.77	-	-	-	0.00	FI
99PE24	62	23.01	-149	3.86	-	-	-	0.01	GR
99PE25	62	22.87	-149	3.8	-	-	-	2.79	GE
99PE26	62	24.47	-149	3.86	-	-	-	0.00	GB
99PE27	62	24.45	-149	4.06	-	-	-	0.10	US
99PE28	62	24.47	-149	4.15	-	-	-	0.04	GB
99PE29	62	24.48	-149	4.29	-	-	-	0.02	DI
99PE3	62	23.89	-149	18.35	-	-	-	0.03	BA
99PE30	62	24.41	-149	4.4	-	-	-	0.04	DI
99PE32	62	24.51	-149	4.65	-	-	-	0.03	DI
99PE34	62	24.22	-149	4.96	-	-	-	0.01	FP
99PE35	62	24.2	-149	5.24	-	-	-	0.04	DI
99PE36	62	24.25	-149	5.55	-	-	-	0.08	GR
99PE37	62	23.99	-149	0.07	-	-	-	0.02	TU
99PE38	62	24.02	-149	0.25	-	-	-	0.00	TU
99PE39	62	24.09	-149	0.68	-	-	-	1.99	BA
99PE4	62	23.97	-149	18.48	-	-	-	1.59	AR
99PE40	62	25.39	-149	1.79	-	-	-	0.03	GB
99PE40B	62	25.39	-149	1.79	-	-	-	0.04	LS
99PE45	62	25.13	-149	0.52	-	-	-	0.08	BA
99PE45B	62	25.13	-149	0.52	-	-	-	0.00	GR
99PE45C	62	25.13	-149	0.52	-	-	-	0.02	UP
99PE45D	62	25.13	-149	0.52	-	-	-	0.02	DI
99PE47	62	24.69	-149	0.69	-	-	-	0.02	GR
99PE48	62	24.41	-149	0.65	-	-	-	0.40	BA
99PE49	62	23.2	-149	7.47	-	-	-	0.08	TR
99PE5	62	20.26	-149	11.73	-	-	-	0.88	BA
99PE53	62	23.68	-149	7.35	-	-	-	0.05	GR
99PE54	62	23.74	-149	7.25	-	-	-	0.01	FI
99PE55	62	23.84	-149	7.16	-	-	-	0.08	TR
99PE59	62	20.3	-149	0.48	-	-	-	0.03	GE
99PE6	62	17.59	-149	15.96	-	-	-	1.35	BA
99PE60	62	20.28	-149	0.68	-	-	-	0.04	DI
99PE61	62	20.61	-149	3.52	-	-	-	1.59	GB
99PE63	62	20.67	-149	3.8	-	-	-	0.01	GE
99PE64A	62	18.17	-149	5.55	-	-	-	1.11	UP
99PE64B	62	18.17	-149	5.55	-	-	-	0.72	UP

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99PE66	62	17.75	-149	3.35	-	-	-	1.19	DI
99PE7	62	18.36	-149	8.74	-	-	-	0.08	LS
99PE8	62	18.48	-149	8.9	-	-	-	0.12	GD
99PE9A	62	20.44	-149	4.39	-	-	-	7.96	UN
99RJN500	62	19.14	-149	0.58	-	-	-	1.99	UN
99RJN501A	62	19.15	-149	0.84	-	-	-	0.04	HF
99RJN501B	62	19.15	-149	0.84	-	-	-	0.04	GE
99RJN502	62	19.19	-149	1.04	-	-	-	0.02	VB
99RJN503	62	19.21	-149	1.13	-	-	-	0.08	DI
99RJN504A	62	19.87	-149	0.97	-	-	-	0.04	DI
99RJN504B	62	19.87	-149	0.97	-	-	-	0.60	PO
99RJN504C	62	19.87	-149	0.97	-	-	-	0.08	HF
99RJN505	62	19.83	-149	1.08	-	-	-	0.56	HF
99RJN506	62	22.39	-149	8.35	-	-	-	1.59	BA
99RJN507	62	22.05	-149	10.49	-	-	-	1.35	BA
99RJN508	62	22.12	-149	12.64	-	-	-	0.72	GB
99RJN509	62	22.87	-149	13.18	-	-	-	0.99	DI
99RJN510D	62	23.74	-149	7.26	-	-	-	0.03	DB
99RJN511B	62	23.69	-149	7.36	-	-	-	0.72	SC
99RJN513	62	19.87	-149	14.8	-	-	-	1.83	GB
99RJN514	62	19.12	-149	16.06	-	-	-	1.59	GB
99RJN516	62	18.73	-149	12.17	-	-	-	3.18	BA
99RJN518	62	21.93	-149	1.11	-	-	-	1.91	GB
99RJN519A	62	21.87	-149	1.25	-	-	-	1.99	GB
99RJN519B	62	21.87	-149	1.25	-	-	-	2.15	GE
99RJN520	62	21.78	-149	1.52	-	-	-	1.99	GB
99RJN521	62	21.8	-149	1.8	-	-	-	0.08	UN
99RJN522	62	21.73	-149	2.05	-	-	-	0.08	GE
99RJN523	62	21.81	-149	1.99	-	-	-	1.99	UN
99RJN523A	62	21.81	-149	1.99	-	-	-	1.47	GE
99RJN524	62	21.84	-149	2.12	-	-	-	0.95	UN
99RJN525	62	21.83	-149	2.22	-	-	-	0.95	UN
99RJN526	62	21.8	-149	2.31	-	-	-	0.10	UN
99RJN526A	62	21.8	-149	2.31	-	-	-	1.35	GB
99RJN527	62	21.82	-149	2.39	-	-	-	0.32	UN
99RJN528	62	17.53	-149	2.83	-	-	-	0.04	UN
99RJN529A	62	17.09	-149	2.71	-	-	-	1.59	GB
99RJN529B	62	17.09	-149	2.71	-	-	-	0.00	AR
99RJN529C	62	17.09	-149	2.71	-	-	-	0.00	UN

Table 3. Density and magnetic susceptibility measurements -- continued.

Sample ID	Latitude		Longitude		Density			Magnetic Susceptibility	Rock type
	deg	min	deg	min	Grain	Saturated bulk	Dry bulk		
99RJN530A	62	16.71	-149	3.29	-	-	-	0.00	GT
99RJN530A	62	16.71	-149	3.29	-	-	-	0.12	UN
99RJN530B	62	16.71	-149	3.29	-	-	-	0.04	DB
99RJN530D	62	16.71	-149	3.29	-	-	-	0.06	UN
99RJN531	62	16.76	-149	3.19	-	-	-	1.59	UN
99RJN532	62	19.68	-149	12.8	-	-	-	1.19	MC

Appendix 1. Explanation of sample names for rocks from the study area

Sample names are coded according to the following format: The year in which the sample was collected, the sample location or collector's initials, and site number which is occasionally followed by a letter indicating multiple samples at the same site.

For example:

01AG39 was collected in 2001 by Bruce Gamble at location 39.
02DM093B is one of multiple samples collected in 2002 in the Delta River Mining District, location 093.

Sample location abbreviations and collector initials used in this report include:

AG – Bruce Gamble (USGS, Anchorage)
ANS – Steve Nelson (retired, USGS, Anchorage)
ARJf – Jim Reihle (retired, USGS, Anchorage)
DM – Delta River Mining District (Jonathan Glen, USGS, Menlo Park)
JS – Jeanine Schmidt (USGS, Anchorage)
MBW – Melanie Werdon (ADGGS, Fairbanks)
MN – Mike O'Neil (USGS, Denver)
PE – Gar Pessel (retired, ADGGS, Fairbanks)
PJ – Peter Oswald (USGS, Anchorage)
RJN – Rainer Newberry (ADGGS and University of Alaska, Fairbanks)
SC – Skip Cunningham (USGS, Reston)
TK – Talkeetna Mountains (Jonathan Glen, USGS, Menlo Park)

Appendix 2. Description of rock type abbreviations used for rocks from the study area.

<u>Abbreviation</u>	<u>Rock Type</u>	<u>Count</u>
AN	Andesite	11
AP	Aplite	1
AR	Argillite	9
BA	Basalt	88
BR	Breccia	3
CH	Chert	4
CO	Conglomerate	4
DA	Dacite	9
DB	Diabase	4
DI	Diorite	30
DN	Dunite	4
DO	Dolomite	2
FI	Felsic igneous	3
FP	Felsic plutonic	1
FS	Felsite	2
FV	Felsic volcanic	1
GB	Gabbro	74
GD	Granodiorite	26
GE	Greenstone	21
GN	Gneiss	12
GR	Granite	24
GS	Greenschist	1
GT	Granitic	8
GW	Greywacke	2
HB	Hornblendite	1
HF	Hornfels	13
LS	Limestone	18
MC	Mafic	10
MD	Mafic dike	10
MO	Monzonite	2
PG	Pegmatite	3
PH	Phyllite	5
PO	Porphyry	2
PT	Peridotite	1
QV	Quartz vein	2
RH	Rhyolite	3
SC	Schist	9
SE	Serpentinite	3
SH	Shale	2
SK	Skarn	1
SL	Slate	7
SS	Sandstone	4
ST	Siltstone	1
TR	Trachyte	2
TU	Tuff	44
UD	Unidentified dike	2
UM	Unidentified metamorphic	2
UN	Unidentified	126
UP	Unidentified plutonic	21
US	Unidentified sedimentary	11
UV	Unidentified volcanic	24
VB	Volcanic breccia	10
VC	Volcaniclastic	23

Appendix 3. Detailed statistics of magnetic susceptibility values for rocks from the study area (produced by WINKS 4.62 statistical analysis program from TexaSoft). See figure 5 for graphical representation.

WINKS 4.62 March 9, 2003

Descriptive Statistics

Variable Name is MAGNETIC SUSCEPTIBILITY (10⁻³ cgs)

N	= 706	Missing or Deleted = 0
Mean	= 0.48504	St. Dev (n-1) = 1.10894
Median	= 0.04	St. Dev (n) = 1.10816
Minimum	= 0.00	S.E.M. = 0.04174
Maximum	= 13.90	Variance = 1.22975
Sum	= 342.44	Coef. Var. = 2.28628

Percentiles:			Tukey Five Number Summary:	
0.0%	= 0.00	Minimum	Minimum	= 0.00
0.5%	= 0.00		Fourth	= 0.01
2.5%	= 0.00		Median	= 0.04
10.0%	= 0.00		Fourth	= 0.56
25.0%	= 0.01	Quartile	Maximum	= 13.90
50.0%	= 0.04	Median		
75.0%	= 0.56	Quartile		
90.0%	= 1.59			
97.5%	= 2.79			
99.5%	= 9.07136		Test for normality results:	
100.0%	= 13.90	Maximum	D = .331	p <= 0.001

Five number summary was calculated using the technique from UNDERSTANDING ROBUST AND EXPLORATORY DATA ANALYSIS by Hoaglin, Mosteller And Tukey (1983).

Confidence Intervals about the mean:

80 % C.I. based on a t critical value of 1.2816 is (0.43155, 0.53853)
 90 % C.I. based on a t critical value of 1.6449 is (0.41639, 0.55369)
 95 % C.I. based on a t critical value of 1.96 is (0.40324, 0.56684)
 98 % C.I. based on a t critical value of 2.3263 is (0.38795, 0.58213)
 99 % C.I. based on a t critical value of 2.5758 is (0.37754, 0.59254)

The normality test suggests that the data are not normally distributed (modified Kolmogorov Smirnov test based on Lilliefors, 1967 and Dallal and Wilkinson, 1986)

Appendix 4. Statistics on magnetic susceptibility values for rocks from the study area, grouped by rock type (produced by WINK 4.6 statistical analysis program by TexaSoft). See figures 6 and 7 for graphical representation.

WINKS 4.62		March 9, 2003											

Independent Group Analysis													

Grouping variable is ROCK_TYPE													
Analysis variable is MAGNETIC SUSCEPTIBILITY (10 ⁻³ cgs)													
Group Means and Standard Deviations													
Igneous													
Extrusive													
1	Felsic	mean = .5833	s.d. = .9982	n = 6									
2	Intermediate	mean = .5445	s.d. = .8881	n = 20									
3	Mafic	mean = .9579	s.d. = 1.5254	n = 123									
4	Unidentified	mean = .1919	s.d. = .4577	n = 101									
Intrusive													
5	Felsic	mean = .0988	s.d. = .3086	n = 43									
6	Intermediate	mean = .4095	s.d. = .6045	n = 56									
7	Mafic	mean = 1.008	s.d. = 1.7877	n = 90									
8	Unidentified	mean = .1796	s.d. = .3189	n = 28									
9	Metamorphic	mean = .3017	s.d. = .8909	n = 53									
Sedimentary													
10	Clastic	mean = .1397	s.d. = .37	n = 29									
11	Carbonate	mean = .0095	s.d. = .0196	n = 20									
12	Unidentified	mean = .1891	s.d. = .3513	n = 11									
13	Unidentified	mean = .362	s.d. = .9019	n = 126									

Newman-Keuls Multiple Comp.		Difference	P	Q	Critical q (.05)								

Mean(7)-Mean(11) =		0.9985	13	5.37	4.68 *								
Mean(7)-Mean(5) =		0.9092	12	6.52	4.62 *								
Mean(7)-Mean(10) =		0.8683	11	5.407	4.55 *								
Mean(7)-Mean(8) =		0.8284	10	5.09	4.47 *								
Mean(7)-Mean(12) =		0.8189	9	3.409	4.39								
Mean(3)-Mean(11) =		0.9484	12	5.23	4.62 *								
Mean(3)-Mean(5) =		0.859	11	6.447	4.55 *								
Mean(3)-Mean(10) =		0.8182	10	5.27	4.47 *								
Mean(3)-Mean(8) =		0.7782	9	4.942	4.39 *								
Mean(1)-Mean(11) =		0.5738	11	1.639	4.55								

Homogeneous Populations, groups ranked													
	Gp	Gp	Gp	Gp	Gp	Gp	Gp	Gp	Gp	Gp	Gp	Gp	Gp
	11	5	10	8	12	4	9	13	6	2	1	3	7

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.													

Appendix 5. Detailed statistics of grain density values for rocks from the study area (produced by WINKS 4.62 statistical analysis program from TexaSoft). See figure 8 for graphical representation.

WINKS 4.62 March 8, 2003

 Descriptive Statistics

Variable Name is GRAIN DENSITY

N	= 306	Missing or Deleted	= 0
Mean	= 2.80056	St. Dev (n-1)	= 0.1635
Median	= 2.76	St. Dev (n)	= 0.16323
Minimum	= 1.93	S.E.M.	= 0.00935
Maximum	= 3.42	Variance	= 0.02673
Sum	= 856.97001	Coef. Var.	= 0.05838

Percentiles:		Tukey Five Number Summary:	
0.0%	= 1.93 Minimum	Minimum	= 1.93
0.5%	= 2.14935	Fourth	= 2.69
2.5%	= 2.5435	Median	= 2.76
10.0%	= 2.64	Fourth	= 2.95
25.0%	= 2.69 Quartile	Maximum	= 3.42
50.0%	= 2.76 Median		
75.0%	= 2.95 Quartile		
90.0%	= 3.013		
97.5%	= 3.09		
99.5%	= 3.30765	Test for normality results:	
100.0%	= 3.42 Maximum	D = .117	p <= 0.001

Five number summary was calculated using the technique from UNDERSTANDING ROBUST AND EXPLORATORY DATA ANALYSIS by Hoaglin, Mosteller And Tukey (1983).

Confidence Intervals about the mean:

80 % C.I. based on a t critical value of 1.2816 is (2.78858, 2.81253)
 90 % C.I. based on a t critical value of 1.6449 is (2.78518, 2.81593)
 95 % C.I. based on a t critical value of 1.96 is (2.78224, 2.81888)
 98 % C.I. based on a t critical value of 2.3263 is (2.77881, 2.8223)
 99 % C.I. based on a t critical value of 2.5758 is (2.77648, 2.82463)

The normality test suggests that the data are not normally distributed (modified Kolmogorov Smirnov test based on Lilliefors, 1967 and Dallal and Wilkinson, 1986).

Appendix 6. Statistics on grain density values for rocks from the study area, grouped by rock type (produced by WINK 4.6 statistical analysis program by TexaSoft). See figures 9 and 10 for graphical representation.

WINKS 4.62 March 8, 2003

Independent Group Analysis

Grouping variable is ROCK TYPE
Analysis variable is GRAIN DENSITY

Group Means and Standard Deviations

Igneous					
Extrusive					
1	Felsic	mean = 2.82	s.d. = .1929	n = 3	
2	Intermediate	mean = 2.7633	s.d. = .0797	n = 9	
3	Mafic	mean = 2.8756	s.d. = .1493	n = 57	
4	Unidentified	mean = 2.7503	s.d. = .1323	n = 72	
Intrusive					
5	Felsic	mean = 2.6713	s.d. = .0843	n = 15	
6	Intermediate	mean = 2.7523	s.d. = .2237	n = 22	
7	Mafic	mean = 2.9306	s.d. = .1515	n = 33	
8	Unidentified	mean = 2.8171	s.d. = .1487	n = 14	
9	Metamorphic	mean = 2.8095	s.d. = .1688	n = 38	
Sedimentary					
10	Clastic	mean = 2.7477	s.d. = .1623	n = 22	
11	Carbonate	mean = 2.737	s.d. = .0606	n = 10	
12	Unidentified	mean = 2.805	s.d. = .1337	n = 6	
13	Unidentified	mean = 2.706	s.d. = .1632	n = 5	

Analysis of Variance Table

Source	S.S.	DF	MS	F	Appx P
Total	8.15	305			
Treatment	1.53	12	.13	5.64	<.001
Error	6.62	293	.02		

Error term used for comparisons = .02 with 293 d.f.

Newman-Keuls Multiple Comp.	Difference	P	Q	Critical q (.05)
Mean(7)-Mean(5) =	0.2593	13	7.832	4.734 *
Mean(7)-Mean(13) =	0.2246	12	4.402	4.669
Mean(3)-Mean(5) =	0.2043	12	6.621	4.669 *
Mean(1)-Mean(5) =	0.1487	11	2.211	4.599

Homogeneous Populations, groups ranked

Gp Gp Gp Gp Gp Gp Gp Gp Gp Gp Gp Gp Gp Gp
5 13 11 10 4 6 2 12 9 8 1 3 7

This is a graphical representation of the Newman-Keuls multiple comparisons test. At the 0.05 significance level, the means of any two groups underscored by the same line are not significantly different.