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Some magnetic properties of rocks from the Silverton Caldera area, Western San Juan Mountains, Colorado

by

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Abstract

In-situ rock magnetic susceptibilities and (or) remanent magnetic polarity measurements for 408 sites in the Silverton Caldera area of the San Juan Mountains of southwestern Colorado are reported. Of these, 108 sites are underground and 300 sites are distributed on the surface. These data form the basis for a detailed study of magnetic susceptibility as a function of rock alteration in this mineralized system. The data show that the alteration processes homogenize the magnetic susceptibility at low values, whereas the susceptibility distributions of the unaltered rocks are extremely heterogeneous and are in fact fractally distributed. Polarity of remanent magnetization measurements of the Eureka tuff have shown that the tuff mapped within the Silverton Caldera is normally polarized whereas that outside the ring faults is reversely polarized. Magnetic susceptibility measurements also show that the two tuffs are distinct.

Introduction

This report presents the results of in-situ measurements of rock magnetic susceptibility and remanent magnetic polarity carried out during the summers of 1991 and 1992 on outcrops of rocks of the Silverton Caldera and its surrounds in the Western San Juan Mountains in southwestern Colorado. This activity was completed as part of a larger project to study the relationships between the magnetic field measured at high spatial resolution and rock alteration associated with mineralization in several well-explored but essentially unmined mineralized porphyry systems. Our purpose here is to present the data collected in some detail so that it will be available to other investigators working on related problems. Many of the analyses and implications of these data will be presented in subsequent papers.

Data description

Measurements of rock magnetic susceptibility, remanent polarity, or both, have been completed at 408 sites within the study area, of which 108 are underground. The results of these measurements are presented in tabular form in Appendix 1 and the distribution of sites on the surface is shown on the sketch map of Plate 1. Magnetic susceptibility was measured using a Sapphire Instruments model SI-1 equipped with a 20x20 cm flat field coil designed for measurements on outcrops. Remanent magnetic polarities were measured using several fluxgate magnetometers made by California Instruments (model 70 magnetometer). The use of brand names in this document is for descriptive purposes only and does not constitute endorsement. For the polarity measurements, oriented hand samples of 0.5 to 5 kg mass were used. Care was taken in collection of oriented samples to sample from areas which appeared to be as protected from lightning strikes as possible. Most specimens were measured for polarity at least twice to minimize errors in direction of polarization.

In the laboratory, numerous tests and repeated measurements have shown that the SI-1 has a precision of 2E-7 cgs/cc (cubic centimeter) or better, providing the sample volume is adequate. In the field, however, our results have been more ambiguous and our experience indicates that the precision as indicated by the standard deviation of repeated measurements is more often about 0.4% of the mean susceptibility. For example, a calibration site at the Idarado Mine Offices about 10 m from the nearest building gave a mean susceptibility of 1.012E-3 cgs/cc and a standard deviation of 4.367E-6 cgs/cc for 22 sets of 5 measurements each over a 17 day period. In a profile (AJAX-1to -33, Append.1) well removed from power lines, three occupations of 5 measurements each over a 5 hour period gave a mean of 1.4101E-6 cgs/cc with a relatively large standard deviation of 4.43E-7 cgs/cc. Power fluctuations in power lines and other magnetic disturbances cause variations of the background which contribute to a less precise measurement in outside conditions. Absolute accuracy has not been evaluated but is claimed to be better than 80% under all conditions by the manufacturer. It should be noted that the inductive technique used by the SI-1 to measure magnetic susceptibility does not work in conductive substances and yields negative values due to eddy currents. Some measurements at sites with high sulphide contents show this behavior (Append. 1).

Initially, we used N values, the number of repeat measurements at a site, of 7, 9, 11, or

13. We soon discovered that for the rock outcrops in the study area, it was generally impossible to find more than about five different, relatively flat, coil-size areas on the outcrop to measure. One of the objectives of our measurements was to establish the variability of the distribution of magnetic minerals in the rocks at outcrop scale so that repeating an area of the outcrop was undesirable. Thus we settled on using 5 measurements at most outcrops as a standard. If more flat spots were available (rarely), a second set of measurements was taken. A sample time of 2.6 sec for each measurement was used for all sites. The field coil for the SI-1 measures the average susceptibility for a 20 by 20 cm area to a depth of about 15 cm, and thus samples about a 6000 cc volume. Most outcrops measured were about 2 by 3 m in size with the five sample spots essentially randomly distributed over the outcrop. For consistency in measurements, it was found to be important to measure only relatively flat portions of the outcrop where the sample coil made close contact; measurements on rough surfaces always yielded larger standard deviations because of gaps beneath the coil.

Site latitude, longitude, and altitude were obtained from 1:24,000 scale topographic maps except for specimen SAPM-1, obtained from a 1:250,000 scale map, and the underground sites. Geologic data were obtained from published geologic maps (Burbank and Luedke, 1964, 1966; Lipman, 1976; Luedke and Burbank, 1962, 1987; and Steven and others, 1974) and field examinations.

Discussion

Our objective is to characterize the magnetic susceptibility of the various rock units of the Silverton Caldera and surrounds in a simple yet robust way. We have chosen to do this by producing scatterplots of measured mean magnetic susceptibility versus standard deviation of susceptibility for all sites within a given map unit. We have observed that the variability of the magnetic susceptibility is as important a property as the mean in characterization of these rocks. Accordingly, the data from Appendix 1 have been grouped by map unit to produce the plots shown in Figures 1 to 10 for the following formations and rock units: 1) Telluride conglomerate; 2) San Juan formation, 3) Picayune formation; 4) Eureka tuff; 5) Burns formation; 6) Henson formation; 7) Potosi volcanic series (Gilpin Peak tuffs); 8) Carpenter Ridge, Clear Lake and Fish Canyon tuffs; 9) dikes and veins; and 10) quartz latites. In these plots, no attempt has been made to eliminate rocks which were altered or otherwise unrepresentative, thus the plots represent the true observed range of mean and standard deviation of magnetic susceptibility for each map unit. For some units there are not enough sites to properly characterize the unit, but the data at least offers a lower bound on the range of mean and variability of susceptibility for the unit.

Examination of the figures shows that, in general, the sites with the lower magnetic susceptibilities are less variable in their susceptibility, whereas the sites with higher susceptibilities are more variable. Since the low susceptibilities correspond to the most altered rocks, we conclude that the alteration process has been very efficient at reducing susceptibility and has led to a more homogeneous susceptibility distribution than in the unaltered areas. The large variability of susceptibility in the unaltered rocks is consistent with the observation by Pilkington and Todoeschuck (1993) that magnetic susceptibility is fractally distributed at least on the scale of centimeters to meters. The data shown here and in Gettings and others (1993) show that the scale of fractal distribution can be extended to km.

The Eureka tuff unit (Append. 1 and Fig. 4) has yielded some very interesting results. All sites within the sub-circular pattern of faults defining the Silverton Caldera (sketched in Plate 1) are normal in polarity (sites AR-4, AR-10, AR-15, AR-17, AR-19, AR-20, AR-21, AR-22 (the type locality at Eureka townsite), PG-1, PG-2, PG-3, KM-1, TTM-1, and OPR-1A and OPR-1B). Site OPR-1A and -1B (about 2m apart) are near the summit of Ophir Pass and are regarded as anomalous since their direction was very abnormal (pole down just magnetic south of vertical) and four other specimens, one from the same outcrop (OPR-1E) and three from surrounding outcrops (OPR-1C, -1F, and -1G) within 30 m were all reversed. Specimens from Eureka tuff outcrops outside the caldera to the south, west, and northeast are all reversed (sites SP-5, SP-6,

BR-3, GAM-1, CG-1, IP-4, IP-4B, OPR-1C, -1E, -1F, -1G, MC-1A, -1B, NG-2, -3, and -4). As Figure 4 shows, the fields of magnetic susceptibility of the normal and reversed groups, while not totally mutually exclusive, are distinct, with the normally polarized rocks generally having a higher magnetic susceptibility. One of the objectives of our continuing fieldwork is to sample the Eureka tuff outcrops outside the eastern edge of the Silverton Caldera to determine if the normally polarized Eureka tuff is entirely intracaldera or if it flowed eastward beyond the caldera wall. We have also discovered a section of ash flow tuffs of significant thickness on Ohio Peak, whose correlation with the rest of the stratigraphic section is as yet unknown.

We have grouped all measurements in a map unit and recomputed a single N (number of measurements), mean susceptibility, and standard deviation for the unit. These results are shown in Table 1 and displayed graphically in Figure 11. While the figure does appear to discriminate between some units, it must be used with caution because examination of the individual distributions shows that the mean frequently lies in a very sparsely populated part of the distribution. This emphasizes the dangers in using a mean value and assuming homogeneity of a property which is in fact extremely heterogeneous. One notable result in Figure 11 is the similarity of the Eureka tuff sites of reverse polarity to the Gilpin Peak unit 3 samples. Comparison of the distribution of mean and standard deviation for sites in these units (Fig. 4 and Fig.7) shows that they are indeed similar.

Included in the data reported here are several profiles both on the surface and underground across major productive veins, especially the Ajax and Argentine veins. The aim of this work was to get a three-dimensional picture of the variation of susceptibility as a function of distance from the vein. Figure 12 shows the results for one surface profile across the Ajax vein near Ingram Falls (AJAX-1 to AJAX-33, Append. 1 and Plate 1). The profile shows a reduction in magnetic susceptibility as one approaches the vein, with a superimposed high from the andesite dike. Further analyses of the profiles will document the relationship between vein (and mineralization) proximity and magnetic susceptibility.

Conclusions

The dataset presented here forms a solid basis for the evaluation of the detailed relationship between rock alteration and magnetic susceptibility in the Silverton Caldera district. Based upon our results to date we are optimistic that, in this area at least, our goal of mapping rock alteration using the magnetic field may be achievable. We have shown that the distribution of magnetic susceptibility is highly variable in nature and recognize that it is fractally distributed at scales from cm to km. The recognition of two different Eureka tuffs within and without the Silverton Caldera together with the discovery of as yet uncorrelated ash flow tuffs on Ohio Peak (Plate 1) means that a significant revision of the volcanic stratigraphy in the area is required. This may have a significant impact on the rock alteration and mineralization histories.

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Figure captions

1. Mean and standard deviation of magnetic susceptibility for Tt (Telluride conglomerate).

2. Mean and standard deviation of magnetic susceptibility for Tsj (San Juan formation).

3. Mean and standard deviation of magnetic susceptibility for Tsp (Picayune formation).

4. Mean and standard deviation of magnetic susceptibility for Tse (Eureka tuff).

5. Mean and standard deviation of magnetic susceptibility for Tsb (Burns formation).

6. Mean and standard deviation of magnetic susceptibility for Tsh (Henson formation).

7. Mean and standard deviation of magnetic susceptibility for Tpg 1,2,3,4-5, and 6 (Potosi volcanic series, Gilpin Peak tuffs).

8. Mean and standard deviation of magnetic susceptibility for Tcr, Tcl, and Tf (Carpenter Ridge, Crystal Lake, and Fish Canyon tuffs)

9. Mean and standard deviation of magnetic susceptibility for dikes and veins.

10. Mean and standard deviation of magnetic susceptibility for quartz latites.

11. Mean and standard deviation of magnetic susceptibility for all sites in each map unit.

12. In-situ magnetic susceptibility profile across the Ajax vein near Ingram Falls (AJAX-1 to AJAX-33, plate 1). The multiplicative factor of 65.15 for the susceptibility value is due to an error in data reduction. "Tsj" is the San Juan formation host rocks and "An dike" is an andesite dike.

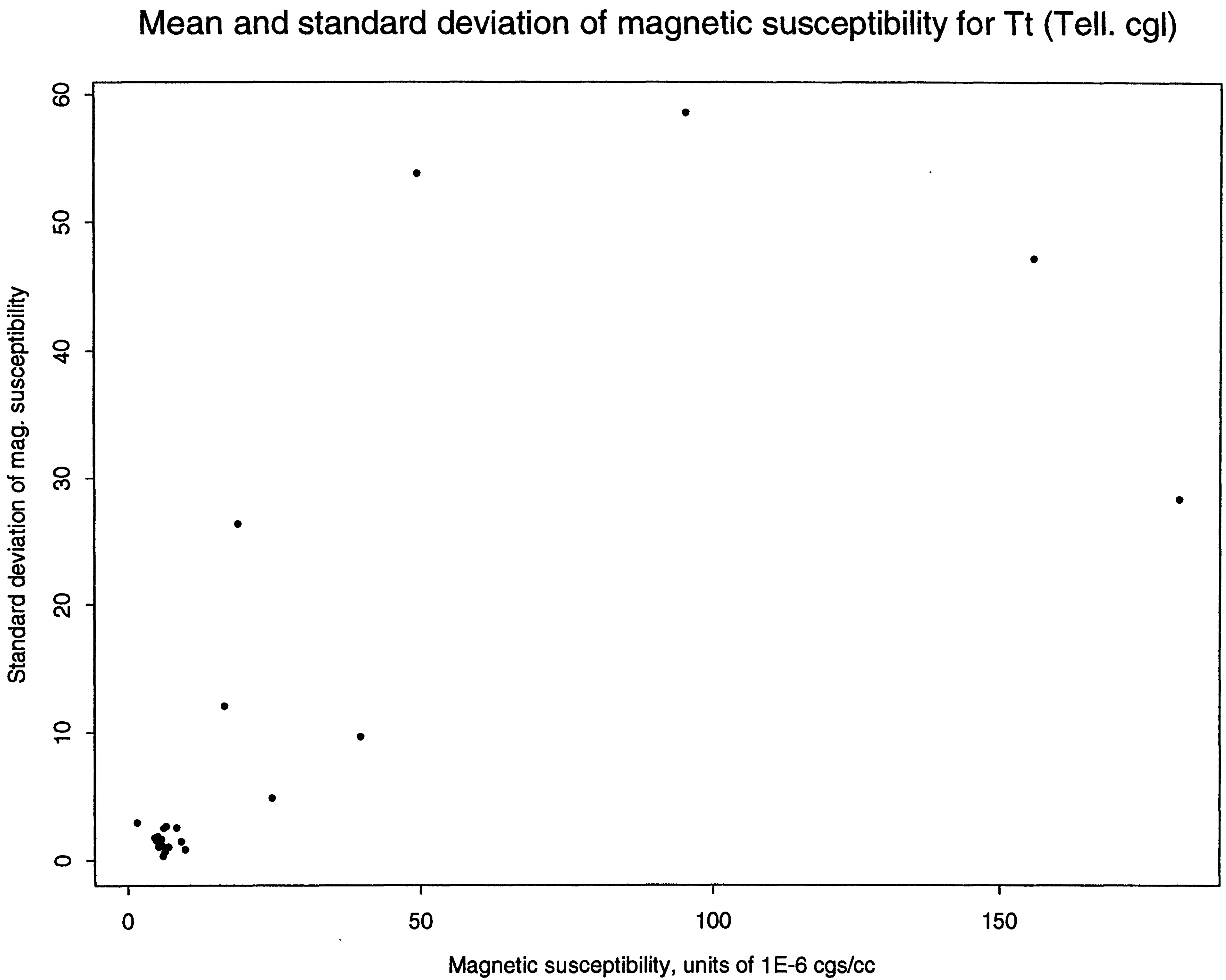
Mean and standard deviation of magnetic susceptibility for Tt (Tell. cgl)
Standard deviation of mag. susceptibility
0
10
20
30
40
50
60
0
50
100
150
Magnetic susceptibility, units of 1E-6 cgs/cc

Fig. 1

Mean and standard deviation of magnetic susceptibility for Tsj (San Juan)

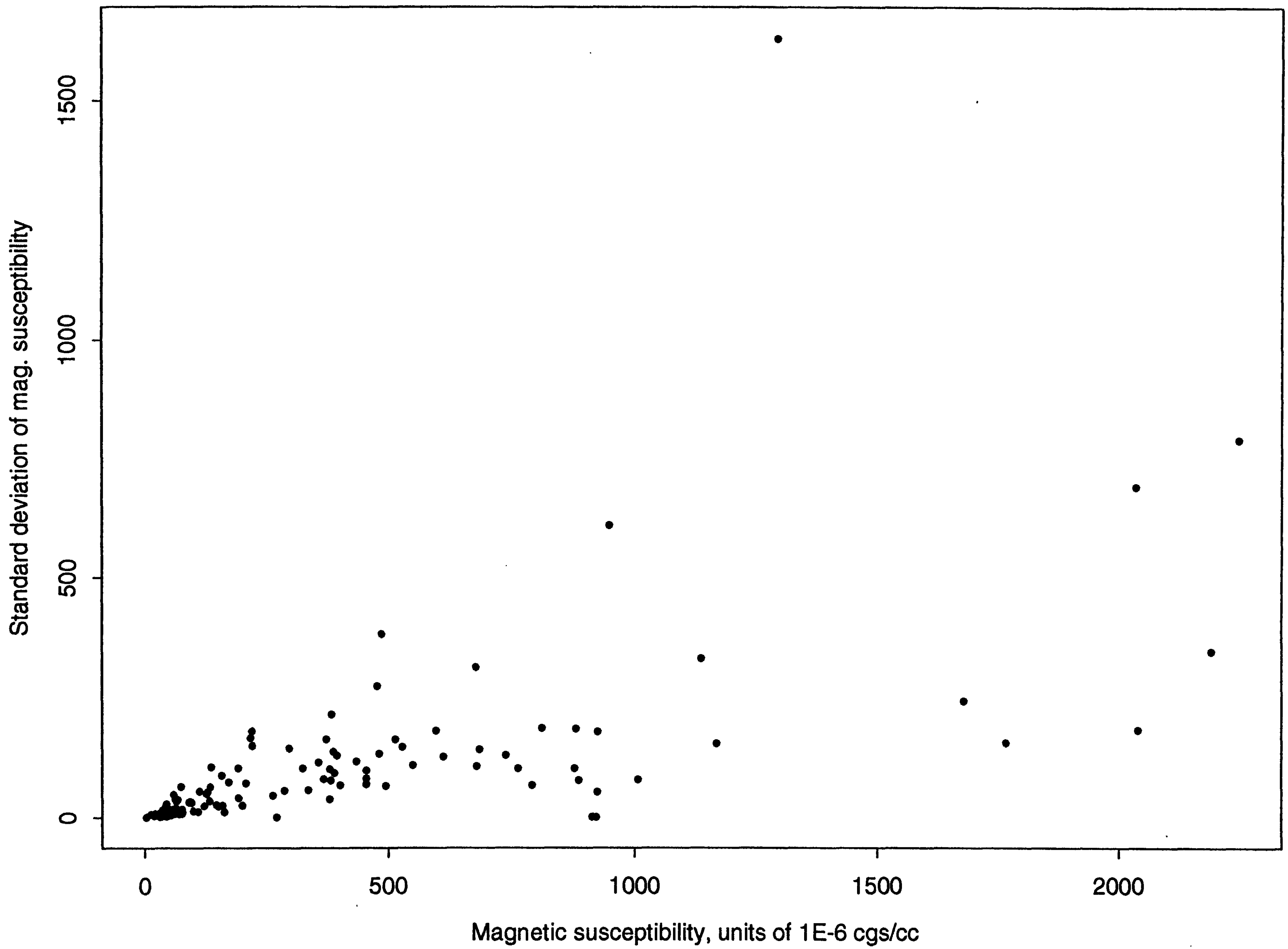

Fig. 2.

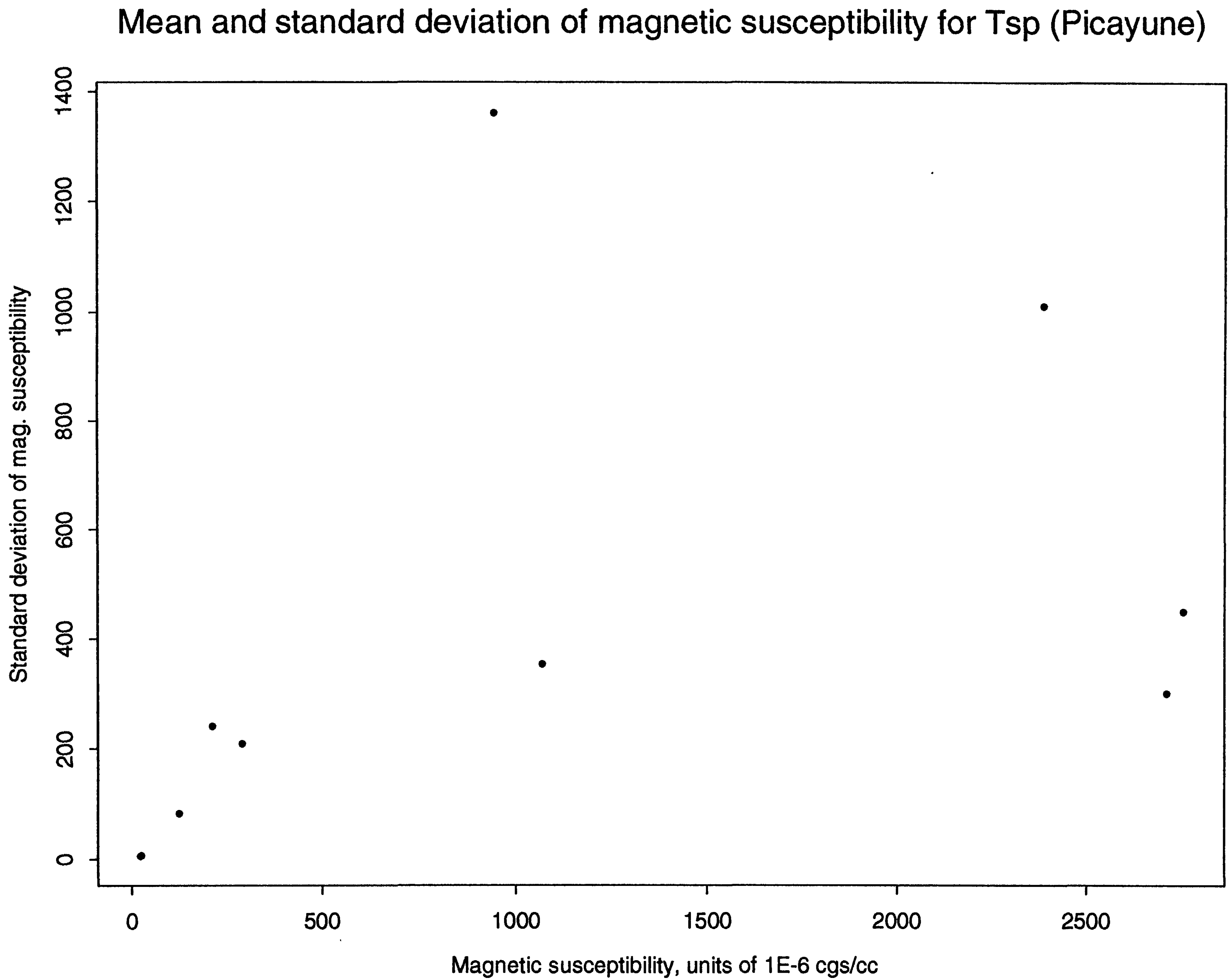
Mean and standard deviation of magnetic susceptibility for Tsp (Picayune)
Standard deviation of mag. susceptibility
0
200
400
600
800
1000
1200
1400
0
500
1000
1500
2000
2500
Magnetic susceptibility, units of 1E-6 cgs/cc

Fig. 3.

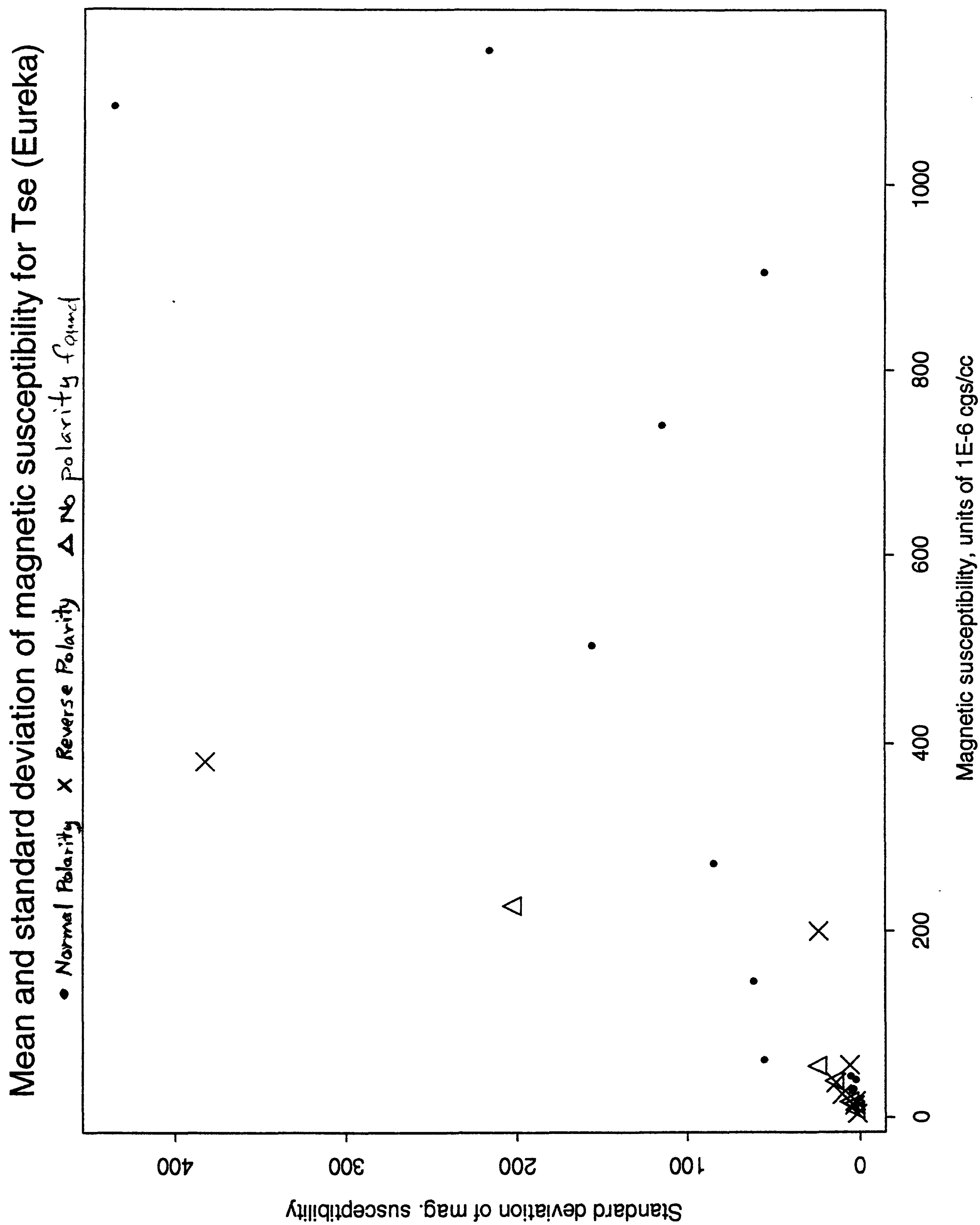
Mean and standard deviation of magnetic susceptibility for Tse (Eureka)
• Normal Polarity
× Reverse Polarity
Δ No polarity found
Magnetic susceptibility, units of 1E-6 cgs/cc
Standard deviation of mag. susceptibility
0
200
400
600
800
1000
0
100
200
300
400

Fig. 4.

Mean and standard deviation of magnetic susceptibility for Tsb (Burns)

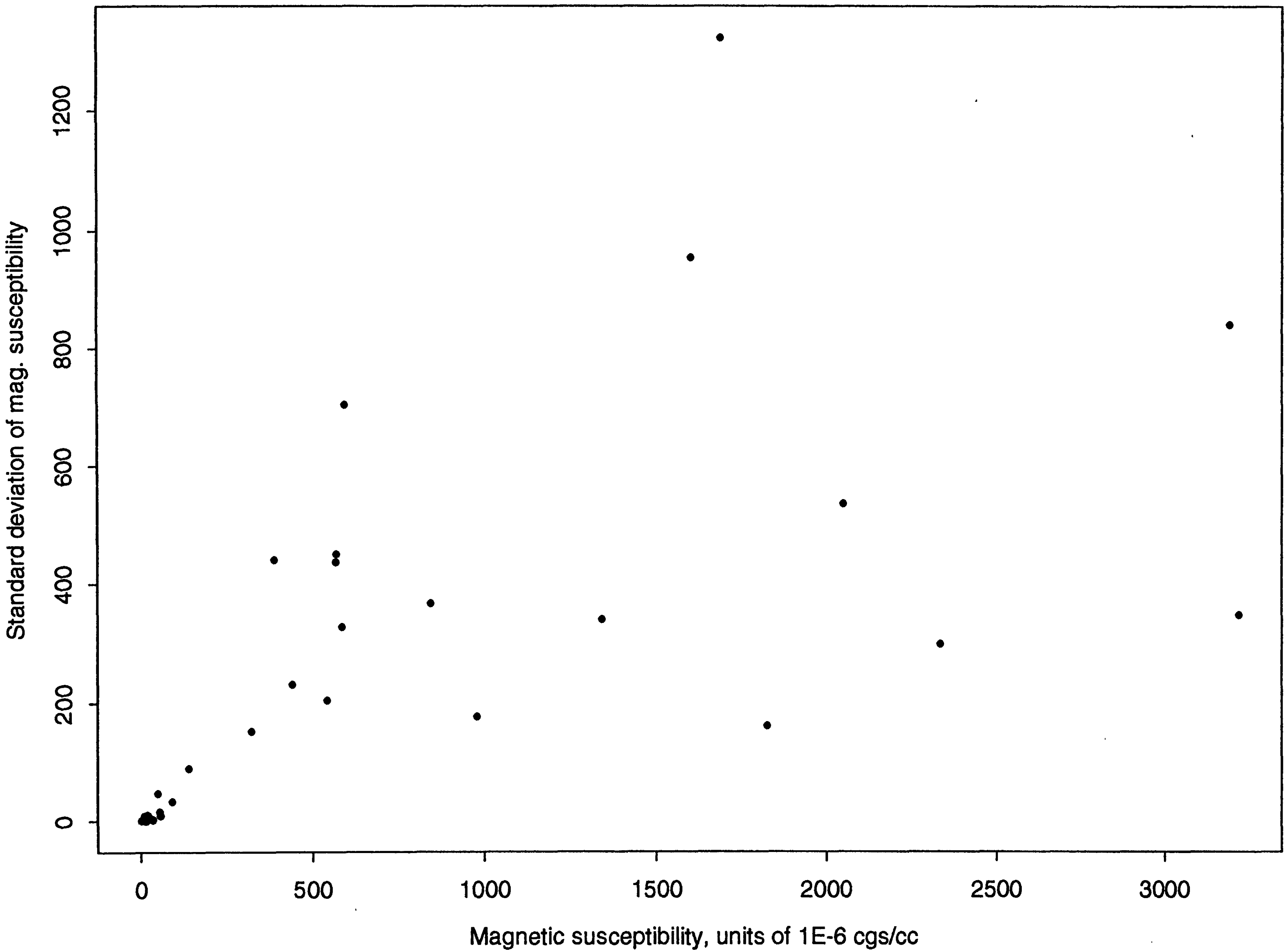

Fig. 5.

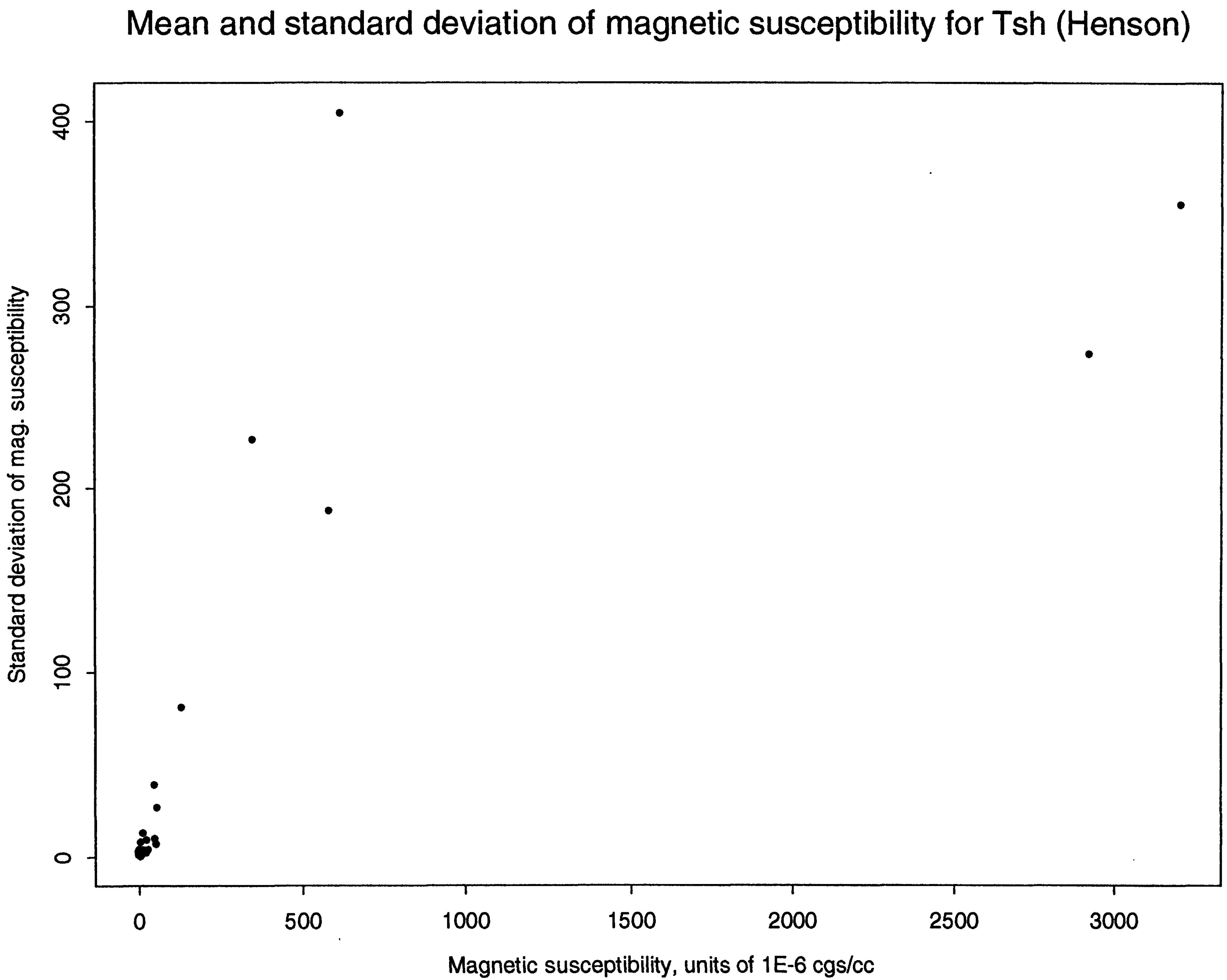
Mean and standard deviation of magnetic susceptibility for Tsh (Henson)
Standard deviation of mag. susceptibility
0
100
200
300
400
0
500
1000
1500
2000
2500
3000
Magnetic susceptibility, units of 1E-6 cgs/cc

Fig. 6.

Mean and standard deviation of magnetic susceptibility for Tpg1,2,3,4-5,and 6

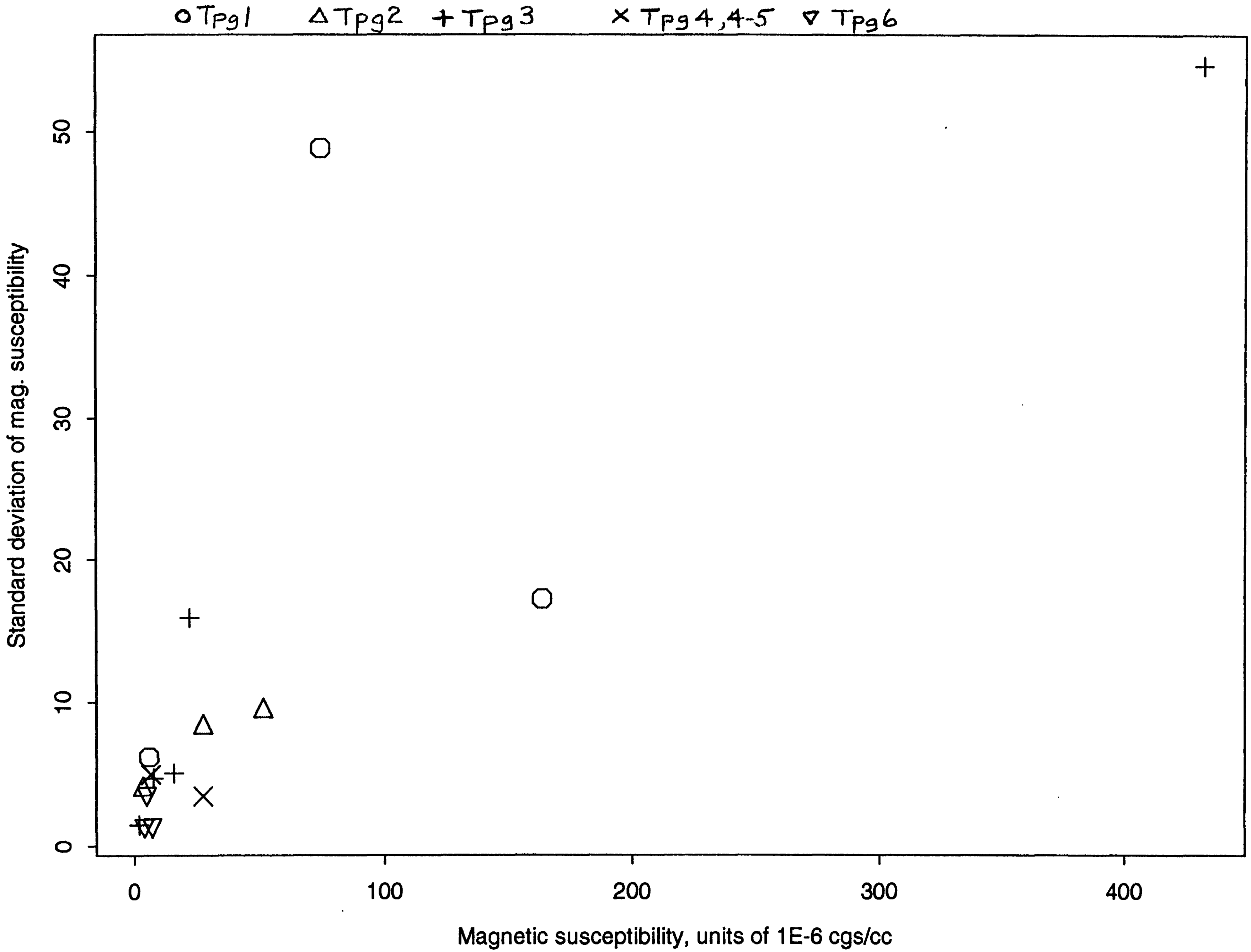

Fig. 7a

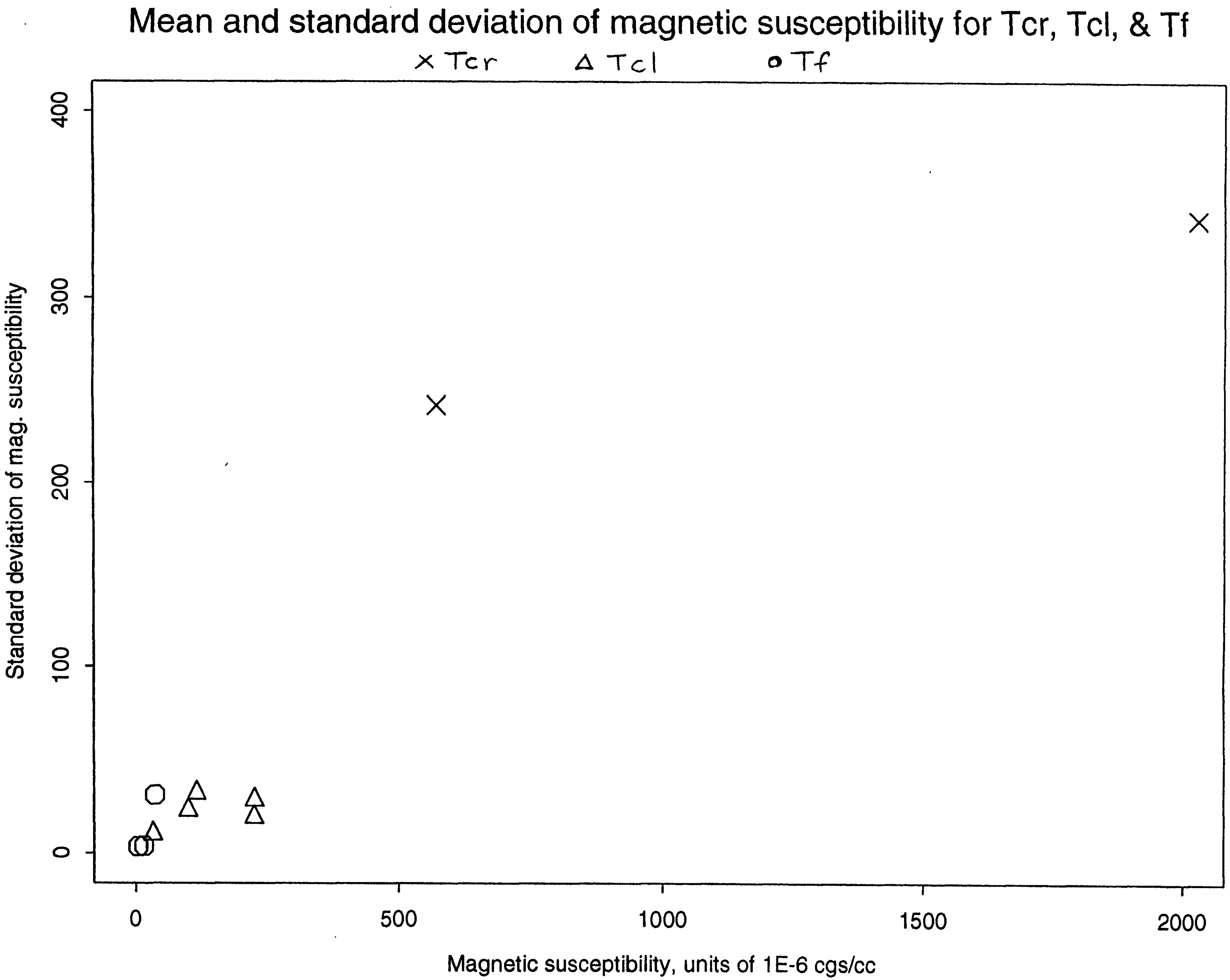
Mean and standard deviation of magnetic susceptibility for Tcr, Tcl, & Tf
× Tcr
Δ Tcl
o Tf
Standard deviation of mag. susceptibility
0
100
200
300
400
0
500
1000
1500
2000
Magnetic susceptibility, units of 1E-6 cgs/cc

Fig. 8.

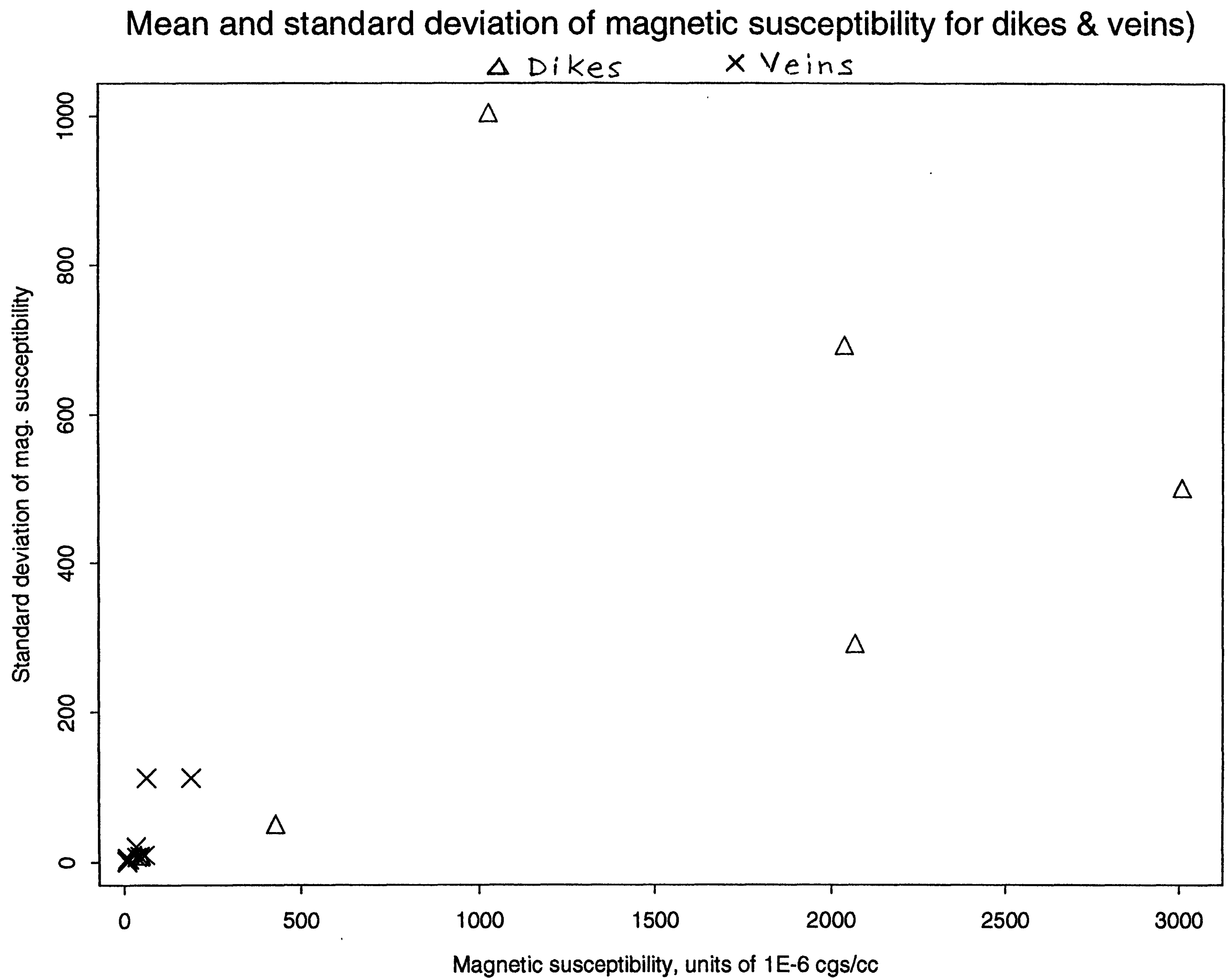
Mean and standard deviation of magnetic susceptibility for dikes & veins)
Δ Dikes
X Veins
Standard deviation of mag. susceptibility
0
200
400
600
800
1000
0
500
1000
1500
2000
2500
3000
Magnetic susceptibility, units of 1E-6 cgs/cc

Fig. 9.

Mean and standard deviation of magnetic susceptibility for ql

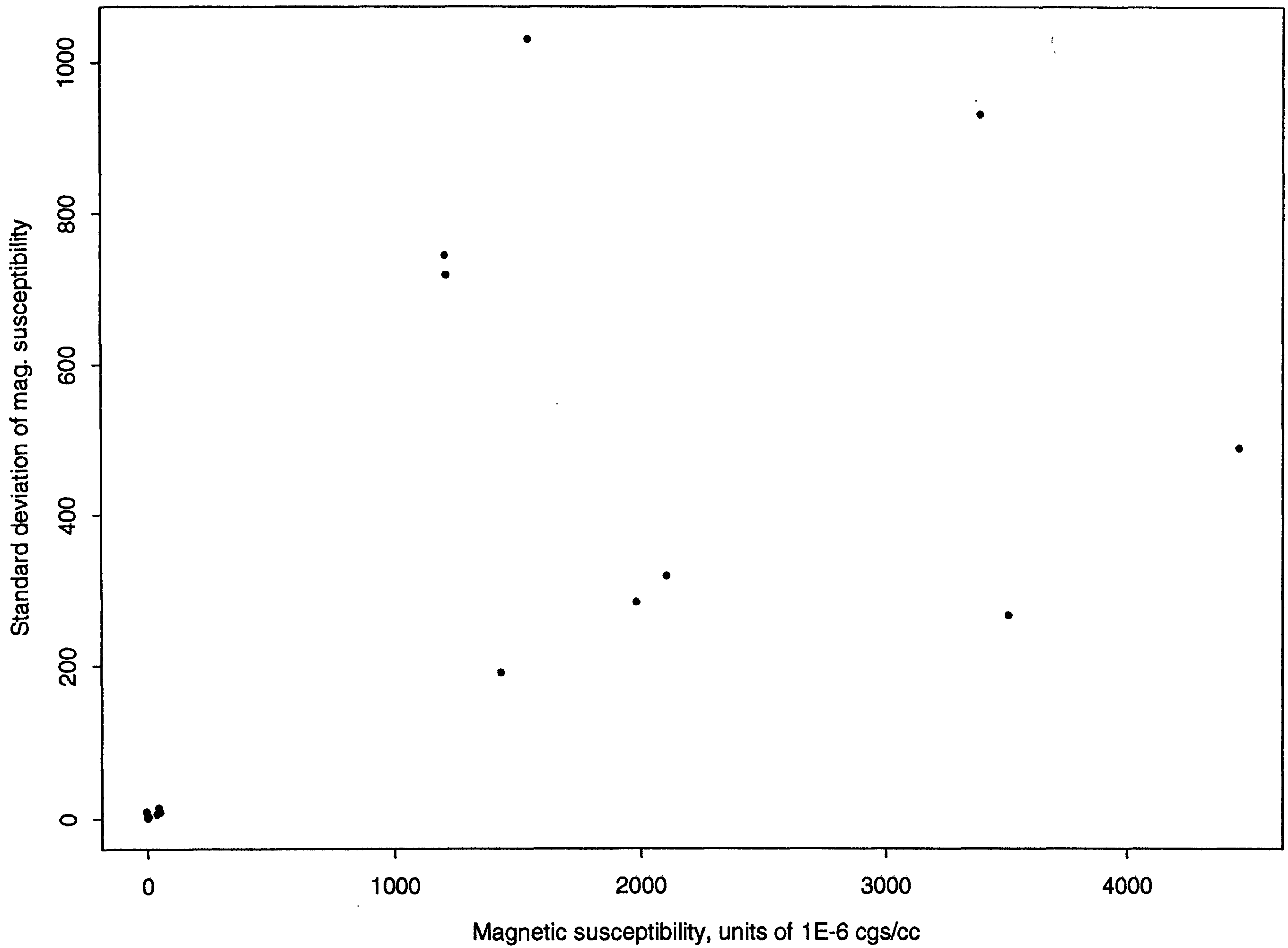

Fig.10.

Mean and standard deviation of magnetic susceptibility for map units

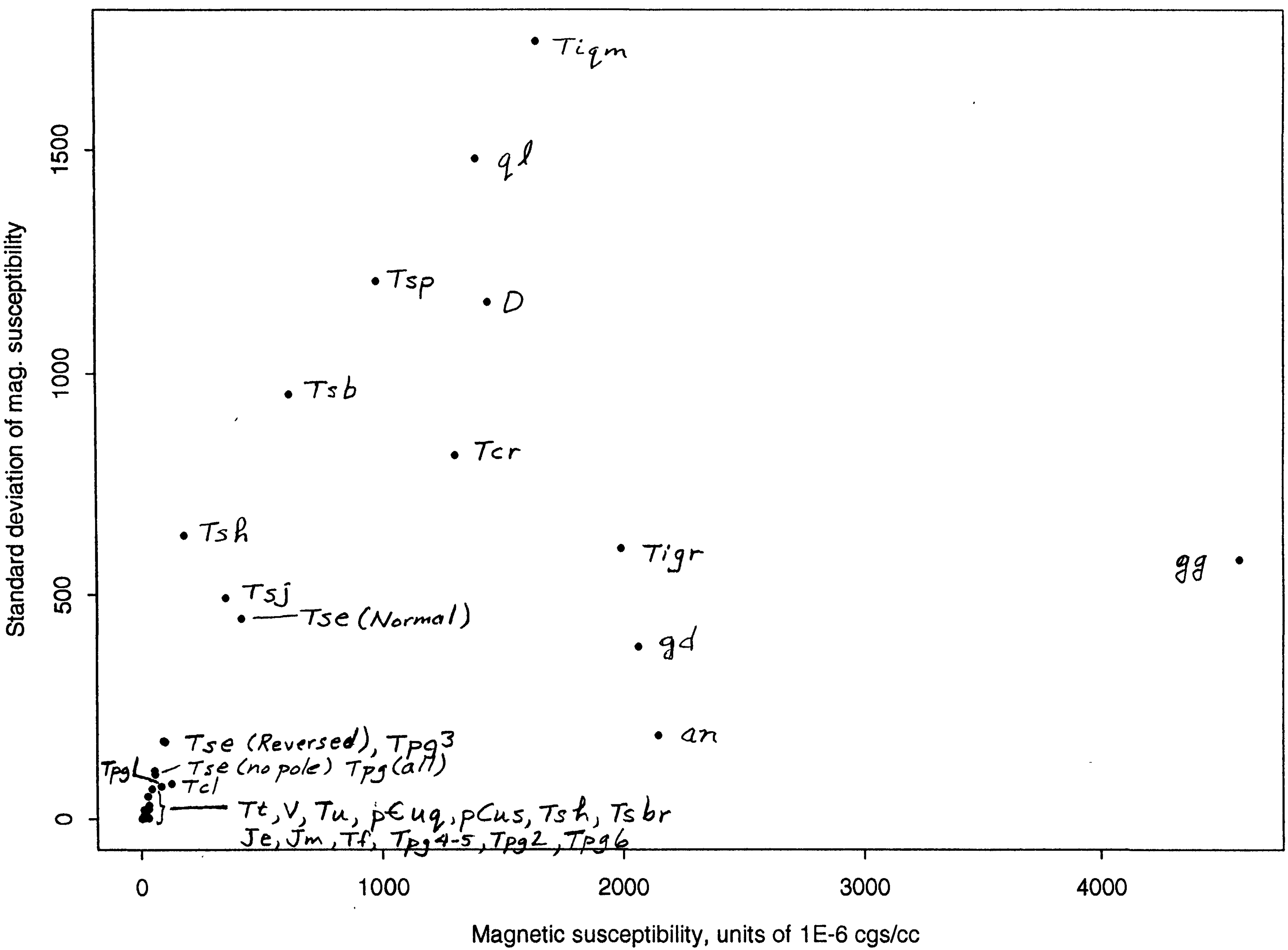

Fig. 11.

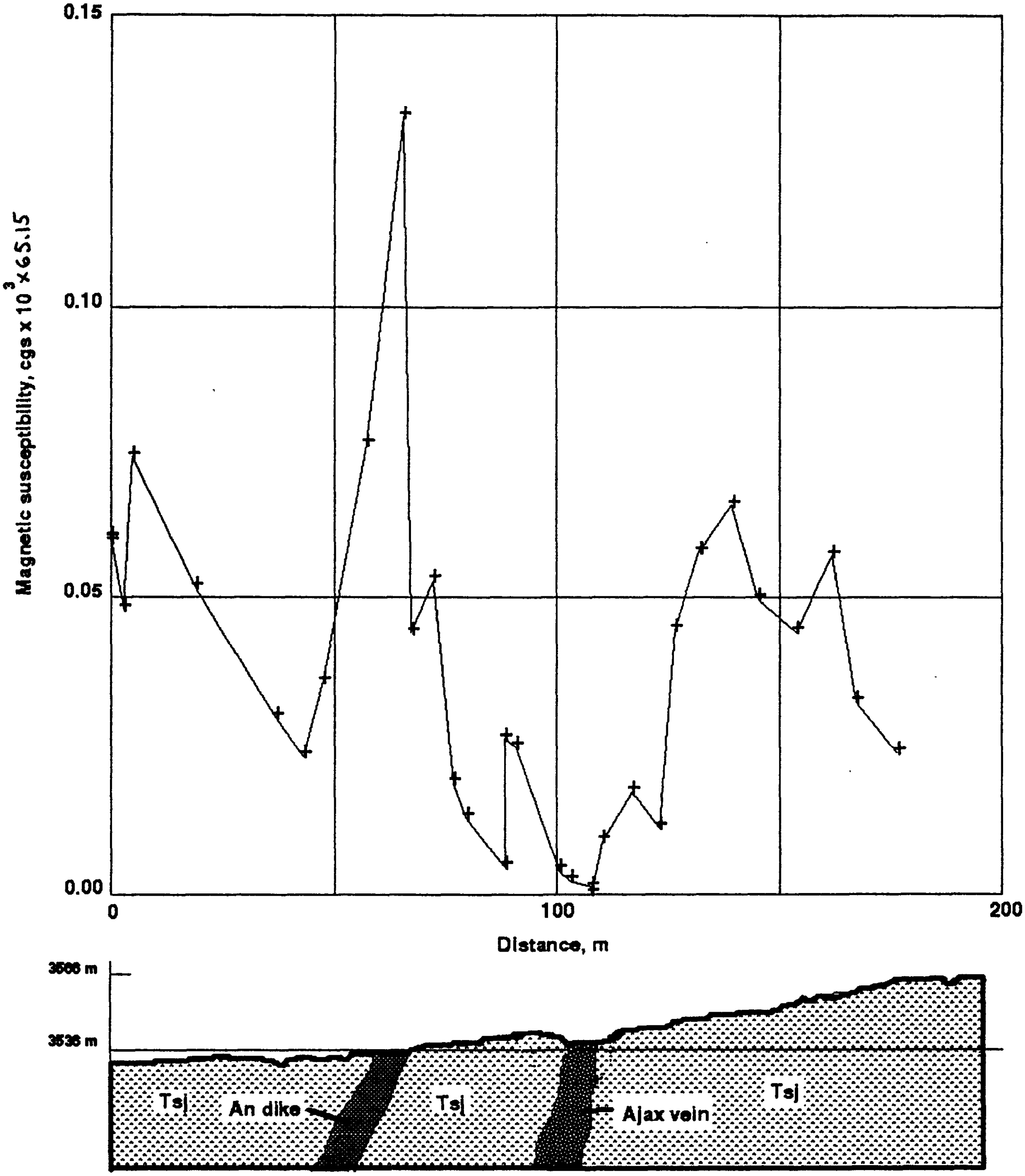
0.15
0.10
0.05
0.00
Magnetic susceptibility, cgs x 10^3 x 65.15
0
100
200
Distance, m
3566 m
3536 m
Tsj
An dike
Tsj
Ajax vein
Tsj

Fig. 12.

Table 1. Grouped number, mean magnetic susceptibility, and standard deviation of magnetic susceptibility for sites in listed map units. Mean and standard deviation of magnetic susceptibility are in units of 1E-6 cgs per unit volume.

Map unit	N	Mean	Standard Deviation
D	30	1436.0	1160.0
Je	5	12.13	2.73
Jm	5	5.78	5.79
Pc	20	20.3	6.1
Tcl	19	125.1	79.2
Tcr	10	1300.0	816.4
Tf	16	21.0	23.0
Tigr	5	1991.65	606.52
Tiqm	10	1638.0	1747.0
Tpg1	15	81.6	72.5
Tpg2	15	27.8	21.8
pg3	25	96.1	173.4
Tpg4	5	27.86	3.48
Tpg4-5	5	6.69	4.98
Tpg6	15	5.5	2.5
Tpg (all)	80	53.7	107.8
Tsb	225	618.4	955.1
Tsbr	5	1.77	1.52
Tse (N)	60	416.8	447.5
Tse (no pole)	36	55.4	99.9
Tse (R)	40	91.5	175.7
Tsh	229	179.3	637.6
sht	5	18.35	5.70
Tsj	690	350.7	494.1
Tsp	62	979.8	1209.0
Tt	125	27.3	49.8
Tu	15	8.4	5.6
V	55	43.5	67.1
an	5	2147.64	188.49
gd	10	2063.0	385.9
gg	5	4584.80	580.88
pCuq	20	8.6	21.0
pCus	20	31.7	29.9
ql	86	1385.0	1482.0

Appendix 1. Measured in-situ rock magnetic susceptibilities and polarities in the Silverton caldera, Colorado, area. Measurements were made in 1991 and 1992 by M.E.Gettings, F.S.Fisher, and P.E.Gettings. Map unit refers to geologic map unit of the relevant geologic map. Some abbreviations are: bxd-brecciated; altn-alteration; sulph-sulphides; pyr-pyrite; frax-fractures; DOMN-degrees off magnetic north; MN,MS,ME,MW-magnetic north, south, east, west; mean K-average magnetic susceptibility in units of 1E-6 cgs/cubic cm for measurements on N different spots of outcrop; std dev K-standard deviation of the N measurements; P-Remanent magnetic polarity from oriented hand sample: U-not determined; X-measured but no pole determined; N-normally polarized (i.e., approximately in direction of present Earth magnetic field), R-reversely polarized; UTM-Universal Transverse Mercator coordinates.

Site ID Map unit	UTM east,m Remarks/Notes	UTM north, m	Longitude (D,M,S)			Latitude (D,M,S)			Altitude (ft)	N	mean K	std dev K	P
MH-2.1	266356.4	4209349.3	-107	39	39.599	38	0	12.915	8080	9	1.01	1.58	U
pCuq	Uncompahgre quartzite;inside NE end tunnel												
MH-2.2	266416.4	4208943.2	-107	39	36.663	37	59	59.807	8555	9	44.80	41.03	U
pCus	Uncompahgre slate; N side road, N of falls												
MH-2.3	267376.2	4207681.1	-107	38	55.879	37	59	19.788	8860	11	20.94	8.46	U
pCus	Uncompahgre slate; sandier than 2.2												
MH-3.1	267333.7	4207493.0	-107	38	57.403	37	59	13.652	8920	11	14.76	27.24	U
pCuq	Uncompahgre quartzite; limonitic alteration												
MH-3.2	261808.3	4220855.0	-107	42	59.666	38	6	21.558	7200	11	19.79	7.14	U
Pc	Cutler fm; red ss;volx,gr, & mm rx in cgl lenses												
MH-7.1	263632.3	4216703.7	-107	41	39.909	38	4	8.738	7360	9	20.98	4.99	U
Pc	Cutlerfm; msv red ss; cgl lenses												
CG-7.2	265450.7	4201963.9	-107	40	8.018	37	56	12.697	9730	7	14.09	6.79	U
Tsb?	Burns? tuff breccia; alt. on frax												
CG-7.3	264878.2	4201313.0	-107	40	30.683	37	55	51.068	10060	9	1.52	2.26	U
Tsb	Burns fm; msv silic. lava altered on frax												
CG-7.4	265041.2	4199992.9	-107	40	22.463	37	55	8.433	10800	9	10.68	4.25	U
Tsh	Henson fm; in addit; silic. rk altered on frax;pyr.												
CG-7.5	265046.6	4199854.2	-107	40	22.078	37	55	3.943	10850	9	14.62	3.94	U
Tsh	Henson; silic. tuff alt. thruout, pyr.& chalcopy.;oc bxd.												
CG-7.6	265241.2	4199752.3	-107	40	13.997	37	55	0.819	11190	7	3503.51	265.93	U
ql	qtz latite;N of addit; pyr. & qtz phenos												
CG-7.7	265237.9	4199759.2	-107	40	14.143	37	55	1.040	11170	5	3387.26	930.33	U
ql	qtz latite;S wall of addit; alt on frax												
CG-7.8	264546.7	4198872.9	-107	40	41.376	37	54	31.672	11680	9	-2.17	4.50	U
Tsh	Henson; highly altered;lots sulphides; in mouth addit												
CG-7.9	264550.9	4198870.3	-107	40	41.202	37	54	31.590	11680	9	-4.09	3.62	U
Tsh	Henson; in first 3m of addit, highly alt; lots sulphides												
CG-7.11	264549.1	4198872.2	-107	40	41.276	37	54	31.651	11680	9	4.84	2.10	U
Tsh	Henson; just west of addit on surface												
CG-7.12	264852.9	4198903.8	-107	40	28.888	37	54	32.956	11480	7	4.56	1.59	U
Tsh	Henson; qtz eyes; sulphide pseudomorphs; highly altd												
CG-7.13	264932.6	4198774.0	-107	40	25.474	37	54	28.823	11570	7	-1.53	3.93	U
Tsh	Henson; silic. & full voids; highly bxd; dissem. sulphides												
CG-7.14	265384.9	4198793.2	-107	40	6.997	37	54	29.868	11400	7	44.72	10.38	U
Tsh	Henson; High bxd&altd bwn/yellow in btm wash; voids												

CG-7.15	265505.6	4198844.1	-107	40	2.116	37	54	31.629	11565	7	5.90	3.72	U
Tsh	Henson; N side addit on W face; silic. sinter; hematiized&limonized												
CG-7.16	265857.5	4198581.1	-107	39	47.414	37	54	23.431	12040	7	2105.26	318.99	U
ql	qtz latite												
CG-7.17	265939.8	4198775.8	-107	39	44.275	37	54	29.819	12120	7	20.53	9.50	U
Tsh	Henson; bxd 10-50cm scale; hem. altn on frax												
CG-7.18	266084.5	4198620.6	-107	39	38.175	37	54	24.921	12220	7	3.83	2.52	U
Tsh	Henson; gray silic. hem/lim altn on frax, pyr?												
PG-8.1	265680.1	4196408.1	-107	39	52.130	37	53	12.832	10480	7	441.55	231.79	U
Tsb	Burns; dissem sulphides; iron altn on frax												
PG-8.2	265188.9	4196213.5	-107	40	11.989	37	53	6.071	10770	7	9.11	9.36	U
Tsb	Burns; silic; qtz veins; Fe altn; sulphides gone												
PG-8.3	263867.2	4197038.6	-107	41	7.011	37	53	31.583	11500	11	20.62	9.99	U
Tsb	Burns; silic.; xtensive frax; altd; lots of sulphides veins & dissem.												
PG-8.4	263951.5	4197244.8	-107	41	3.807	37	53	38.347	11620	5	54.90	16.64	U
Tsb	Burns; silic.; lots pyr&chalcopyr veins/dissem; altd												
PG-8.5	264134.1	4197300.3	-107	40	56.402	37	53	40.314	11660	5	5.39	1.27	U
Tsh	Henson; fine gr silic; dissem sulphides; Fe altn on frax												
PG-8.6	264090.5	4197255.5	-107	40	58.135	37	53	38.821	11680	5	0.97	2.40	U
Tsh	Henson; silic, bxd & rehealed; dissem sulphides; Fe altn												
PG-8.7	263850.4	4197314.2	-107	41	8.023	37	53	40.501	11870	7	3.14	2.24	U
Tsh	Henson; silic tuff bx; near ql												
PG-8.8	264368.5	4197640.1	-107	40	47.215	37	53	51.546	12255	7	0.51	3.48	U
Tsh	Henson; silic fine gr tuff; Fe altn; slickensides in altd rk												
PG-8.9	264182.0	4197652.7	-107	40	54.860	37	53	51.782	12395	9	2.71	1.81	U
Tsh	Henson; silic fine gr lava; Fe altn on frax; dissem sulph												
PG-8.11	264091.0	4197672.0	-107	40	58.603	37	53	52.323	12445	5	8.06	3.06	U
Tsh	Henson;fine gr silic; high altn; altd sulph;is altd&bxd contact zone of ql												
PG-8.12	264091.0	4197672.0	-107	40	58.603	37	53	52.323	12445	5	1205.46	744.36	U
ql	qtz latite; dissem sulph												
PG-8.13	264188.5	4197708.0	-107	40	54.657	37	53	53.579	12523	5	1.60	0.79	U
Tsh	Henson; silic. sinter												
PG-8.14	264168.0	4197716.0	-107	40	55.507	37	53	53.822	12523	5	3.23	1.82	U
Tsh	Henson; silic; Fe altn.												
PG-8.15	263996.3	4197893.8	-107	41	2.739	37	53	59.422	12675	7	-2.94	1.63	U
Tsh	Henson; fine gr silicite; sulph;Fe altn frax;texture has ghost phenos												
PG-8.16	264009.4	4197734.3	-107	41	2.014	37	53	54.266	12710	7	9.38	13.58	U
Tsh	Henson; fine gr silic; pervasive limonization; secondary qtz?												
GC-91	267009.0	4196954.4	-107	38	58.420	37	53	31.768	10810	9	1601.20	954.69	U
Tsb	Burns; altd andes; dissem sulph												
GC-92.1	267358.7	4198471.9	-107	38	45.878	37	54	21.276	11340	4	9.55	1.63	U
Tsb	Burns; highly altd tuff bx												
GC-92.2	267358.7	4198471.9	-107	38	45.878	37	54	21.276	11340	5	387.84	441.34	U
Tsb	Burns; propylitc altd andesite flow												
GC-93	269188.9	4199980.9	-107	37	32.749	37	55	11.867	12715	9	1687.25	1324.19	U
Tsb	Burns; andesite flow fairly fresh; no sulphides												
GC-94	266723.3	4199562.0	-107	39	13.140	37	54	56.024	11520	7	592.44	705.73	U
Tsb	Burns; andesite flow some altn												
GC-95	266754.0	4199366.3	-107	39	11.657	37	54	49.711	11605	5	10.40	7.93	U

Tsb	Burns; silic. tuff; 5% pyr; pheno ghosts; lithic frags propyl. altered, Fe altn frax												
GC-96	267037.4	4199174.3	-107	38	59.838	37	54	43.747	11790	7	17.58	11.01	U
Tsb	Burns; fine gr tuff?; 5% pyr; Fe altn												
GC-97	267306.0	4198913.8	-107	38	48.547	37	54	35.553	11710	5	92.16	34.26	U
Tsb	Burns; andes lava; <1% pyr; Fe altn												
GC-98	267269.5	4198692.1	-107	38	49.784	37	54	28.333	11660	5	21.45	7.42	U
Tsb	Burns; andes. lava; 5% pyr; extensive alteration												
GC-99	266904.8	4198599.7	-107	39	4.595	37	54	25.000	11820	5	-5.21	9.64	U
ql	qtz latite; highly alterd; cns clays; 1% pyr												
GC-910	266904.8	4198599.7	-107	39	4.595	37	54	25.000	11820	5	3.36	2.80	U
ql	qtz latite dike; altd?												
GC-911	266904.8	4198599.7	-107	39	4.595	37	54	25.000	11820	5	1978.86	283.42	U
ql	qtz latite; fresh												
GC-912	266904.8	4198599.7	-107	39	4.595	37	54	25.000	11820	5	4.53	2.78	U
Tsh	Henson; xl tuff; silic.; secondary silica in voids; Fe altn on frax												
GC-913	266737.0	4198641.1	-107	39	11.507	37	54	26.187	11930	5	6.25	3.22	U
Tsh	Henson; silic. tuff bx; 10% dissem pyr												
GC-914	266365.6	4198532.7	-107	39	26.575	37	54	22.333	12100	5	3.04	8.52	U
Tsh	Henson; silic. tuff; 10% pyr; secondary silica												
BM-131	262097.7	4201450.4	-107	42	24.622	37	55	52.918	11990	9	22.51	6.48	U
Tsp	prob. Picayune; tuff bx with lithic frags; <1% pyr												
BM-132	262091.4	4201378.9	-107	42	24.793	37	55	50.595	11995	9	38.97	14.91	U
Tse	Eureka tuff; partly altered												
BM-133	262092.5	4201319.7	-107	42	24.679	37	55	48.675	12000	7	17.05	6.22	U
Tse	Eureka tuff?; xl-lithic tuff bx												
BM-134	261368.4	4202028.1	-107	42	55.151	37	56	10.955	12240	7	2714.76	300.96	U
Tsp	Picayune andes. lava; altd; secondary magnetite												
BM-135	261690.1	4200463.2	-107	42	40.124	37	55	20.537	11160	7	288.84	210.36	U
Tsp	Picayune andes; bxd; altd; no magnetite obsvd												
BM-136	261892.7	4200239.9	-107	42	31.567	37	55	13.490	10955	9	48.70	47.23	U
Tsb	Burns; chloritized andesite bx; dissem pyr												
BM-137	262232.3	4200030.5	-107	42	17.426	37	55	7.025	10680	7	1541.35	1032.27	U
ql	quartz latite porphyry; fine dissem pyr												
BM-138	262402.0	4199766.7	-107	42	10.170	37	54	58.633	10670	7	139.96	90.27	U
Tsb	Burns; andes volc bx; variable texture bx to tuff; chloritic altn												
BM-139	262375.0	4199734.4	-107	42	11.234	37	54	57.560	10680	7	2333.00	299.29	U
Tsb	Burns; fresh, fine gr thick andes flow > 20m thk												
SF-1	259970.1	4206106.0	-107	43	57.270	37	58	21.794	10160	5	1678.90	242.48	U
Tsj	San Juan; clastic; in undercut abv Sneffels Ck.												
SF-2	259970.1	4206106.0	-107	43	57.270	37	58	21.794	10160	5	2192.40	346.35	U
Tsj	San Juan; msv flow 3m thk; in undercut abv Sneffels Ck.												
SF-3	259970.1	4206106.0	-107	43	57.270	37	58	21.794	10160	5	1768.00	157.06	U
Tsj	San Juan; flow bx; chloritic; in undercut abv Sneffels Ck.												
SF-4	259970.1	4206106.0	-107	43	57.270	37	58	21.794	10160	5	2039.20	183.21	U
Tsj	San Juan; msv flow 2m thk; in undercut abv Sneffels Ck.												
CB-1	262222.9	4207492.6	-107	42	26.686	37	59	8.869	9080	5	12.13	2.73	U
Je	Entrada ss; .5-2m abv ct w/ Cutler												
CB-2	261983.7	4207385.5	-107	42	36.356	37	59	5.174	9235	5	2067.62	291.14	U
D	dike; chloritized												

CB-3	261968.9	4207447.8	-107	42	37.036	37	59	7.177	9200	5	2016.22	292.70	U
gd	porphyritic granodiorite; some pyr; chloritized												
CB-4	261965.2	4207447.9	-107	42	37.186	37	59	7.177	9200	5	2110.39	493.74	U
gd	porphyritic granodiorite fresh												
CB-5	261828.4	4207200.8	-107	42	42.495	37	58	59.041	9350	5	5.78	5.79	U
Jm	Morrison; qtz ss; pyr; 2m below ct Telluride cgl												
CB-6	257289.4	4207099.8	-107	45	48.225	37	58	51.438	10980	5	4584.80	580.88	U
gg	Stony Mtn stock qtz diorite; some pyr												
CB-7	257435.5	4206702.0	-107	45	41.760	37	58	38.686	11340	5	1293.88	1630.48	U
Tsj	San Juan rhyodacite flow bx												
CB-8	261827.2	4207201.5	-107	42	42.545	37	58	59.061	9350	5	16.28	12.05	U
Tt	Telluride cgl; 15cm to 2m above base												
CB-9	261782.8	4207142.1	-107	42	44.291	37	58	57.096	9360	5	9.71	0.84	U
Tt	Telluride cgl; abt 4m belo ct												
CB-10	261770.3	4207130.3	-107	42	44.790	37	58	56.699	9365	5	93.42	33.32	U
Tsj	San Juan; 3m above ct												
CB-11	261757.0	4207114.7	-107	42	45.314	37	58	56.183	9370	5	57.80	15.75	U
Tsj	San Juan; abt 8m above ct w/ Tt												
EP-1	269313.9	4205415.6	-107	37	33.907	37	58	8.138	10340	5	63.39	10.77	U
Tsj	San Juan; flow bx												
EP-2	269388.5	4205375.5	-107	37	30.806	37	58	6.907	10360	5	541.64	205.21	U
Tsb	Burns; flow bx; altd; chloritized												
EP-3	271702.4	4204690.1	-107	35	55.287	37	57	46.795	11340	5	977.24	178.49	U
Tsb	Burns; propyl. altd volc flow bx; porphyritic												
EP-4	274351.8	4204919.8	-107	34	7.080	37	57	56.623	12760	5	9.81	2.19	U
Tsb	Burns; v. porphyritic; hdrotherma. altd												
EP-5	274353.6	4204832.4	-107	34	6.907	37	57	53.791	12010	5	15.24	1.05	U
Tsb	Burns; porp. hbd-bio andesite; felds & hbd some altd												
EP-6	274369.3	4204797.8	-107	34	6.225	37	57	52.684	12000	5	10.74	4.74	U
Tsb	Burns; porp. hbd-bio andesite; felds & hbd some altd; wthrs blocky												
EP-7	272361.5	4205413.8	-107	35	29.130	37	58	10.849	12940	5	18.75	4.19	U
Tsh	Henson; v. fine gr												
EP-8	272366.3	4205324.5	-107	35	28.831	37	58	7.958	12880	5	2920.25	273.30	U
Tsh	Henson; amygd. porph.pyroxene andes flow												
EP-9	272627.3	4205573.3	-107	35	18.425	37	58	16.259	12960	5	5.11	3.33	U
Tf	Fish cyn tuff; poorly welded; altd; pyr												
EP-10	272575.6	4205517.7	-107	35	20.480	37	58	14.409	12940	5	16.33	3.62	U
Tf	Fish cyn tuff; poorly wlded; deformed by qtz latite up hill												
EP-11	273066.7	4206133.4	-107	35	1.071	37	58	34.809	12885	5	771.45	159.58	U
Ts	Sunshine Pk tuff; 3 to 7 m above ct												
AR-1	275360.6	4198940.7	-107	33	19.057	37	54	43.710	10650	7	943.50	1362.49	U
Tsp	Picayune megabx; andes flows; altd; pyr dissem & veins												
AR-3	275154.9	4199552.8	-107	33	28.161	37	55	3.368	10720	5	55.22	24.86	U
Tse	Eureka tuff; highly wlded; some pyr												
AR-4	274372.3	4200791.6	-107	34	1.580	37	55	42.827	11050	5	503.27	155.89	N
Tse	Eureka tuff; highly wlded; some pyr; some altn												
AR-5	274510.3	4200837.3	-107	33	55.984	37	55	44.432	11060	7	24.34	7.62	N
Tpa	Picayune megabx; lge variety of andes blox in tuff matrix												
AR-6	276435.0	4201706.2	-107	32	38.191	37	56	14.309	12240	5	8.43	4.33	U

Tsh	Henson; limestone												
AR-7	276430.9	4201658.0	-107	32	38.304	37	56	12.744	12260	5	25.06	4.50	U
Tsh	Henson; tuffac. ss												
AR-8	276954.9	4201466.4	-107	32	16.644	37	56	6.996	12570	5	3007.85	500.24	U
D	fresh porph. andes dike; dissem pyr; mt?												
CL-1	291000.1	4214252.7	-107	22	55.184	38	3	13.534	12230	5	33.72	11.60	U
Tcl	Crystal Lake tuff; abt 5m belo Tcr vitrophyre												
CL-2	290966.2	4214290.1	-107	22	56.614	38	3	14.718	12275	5	2028.45	341.05	U
Tcr	Carpenter ridge tuff;basal vitrophyre												
CL-3	291007.3	4214333.8	-107	22	54.973	38	3	16.169	12325	5	572.51	241.59	U
Tcr	Carpenter ridge tuff; steep dip fault block												
CL-4	290938.2	4214153.3	-107	22	57.615	38	3	10.258	12050	6	38.18	30.65	U
Tf	Fish cyn tuff; upper part abt 10m belo vitroph. of Cryst. lk tuff												
CL-5	290941.8	4214177.6	-107	22	57.495	38	3	11.051	12080	3	225.34	20.46	U
Tcl	Crystal lake tuff basal vitrophyre												
CL-6	290944.2	4214202.6	-107	22	57.424	38	3	11.863	12140	3	116.60	33.37	U
Tcl	Crystal Lake tuff abt 5m abov vitroph.												
CL-7	290982.3	4214217.1	-107	22	55.877	38	3	12.363	12170	5	101.28	24.25	U
Tcl	Crystal lake tuff abt 4m belo vitroph of Carpenter ridge												
CL-8	290982.3	4214218.3	-107	22	55.878	38	3	12.403	12170	3	225.56	29.71	U
Tcl	Crystal lake tuff; grusse zone abt 2m thk 1m belo CL-7												
SM-1	277950.3	4185059.9	-107	31	17.760	37	47	16.034	12860	5	2.31	1.62	U
Tu	Ute ridge tuff; altd; abt 2m belo overlying Henson lavas												
SM-2	277957.8	4185065.1	-107	31	17.459	37	47	16.211	12885	5	344.67	227.10	U
Tsh	Henson lava 3-5m abov ct w/ Tu												
SM-3	277826.3	4185189.4	-107	31	22.968	37	47	20.123	12850	5	127.56	81.32	U
Tsh	Henson lava; flow bnded qtz latite												
SM-4	277653.5	4185224.4	-107	31	30.064	37	47	21.108	12685	5	580.84	187.74	U
Tsh	Henson lava; flow banded												
SM-5	277512.6	4185227.9	-107	31	35.821	37	47	21.096	12570	5	9.96	3.10	U
Tu?	tuff Ute rdg?; very altered; in prospect pit 1m fr qtz veins												
SM-6	277451.7	4185250.1	-107	31	38.334	37	47	21.762	12475	5	13.02	4.55	U
Tu?	tuff Ute rdg?; highly wlded; fresh												
SM-7	276972.1	4185632.3	-107	31	58.348	37	47	33.733	12340	5	1339.12	339.90	U
Tsb	Burns? lava; flow foliated; plag twins												
SM-8	275457.9	4186101.9	-107	33	0.723	37	47	47.619	12560	5	2047.04	536.00	N
Tsb	Burns? lava; andes some propyl altn; polarity steep												
SP-1	275666.6	4186045.5	-107	32	52.134	37	47	45.974	12720	5	3221.38	347.24	N
Tsb	Burns lava; 1st flow abv Stony Pass NE on Canby Mtn; fresh andes												
SP-2	274987.9	4186155.9	-107	33	19.981	37	47	48.954	12360	5	1824.99	163.55	N
Tsb	Burns; andes lava; some altn												
SP-3	274972.2	4186256.2	-107	33	20.735	37	47	52.190	12210	5	57.89	9.60	N
Tsb	Burns; andes lava beneath SP-2; signif. altn												
SP-4	274457.2	4186908.2	-107	33	42.500	37	48	12.867	11900	5	584.92	328.19	N
Tsb	Burns; andes. flow; altn; dissem pyr; Cu staining												
SP-5	274393.1	4187286.5	-107	33	45.546	37	48	25.075	11720	5	17.40	2.39	R
Tse	Eureka tuff; polarity R but nr horiz.; blk rotn?; pole verified with SP5A,B(10sep92)												
SP-6	274303.3	4187092.5	-107	33	48.997	37	48	18.706	11800	5	3.98	1.54	R
Tse	Eureka tuff; highly wlded & altd; hard to get pole & odd directn; blk rotn?												

BR-1	261690.1	4200463.2	-107	42	40.124	37	55	20.537	11160	5	384.04	216.00 N
Tsj	San Juan; volcaniclastic flow bx; Fe & chlor altn; steep inclin mag vctr											
BR-2	261368.4	4202028.1	-107	42	55.151	37	56	10.955	12240	5	2387.83	1011.42 N
Tsp	Picayune; lava at mine at hd Spirit Glch; pole N but flat											
BR-3	261360.5	4202052.8	-107	42	55.502	37	56	11.748	12270	5	36.99	13.83 R
Tse	Eureka tuff j. abov mine at hd Spirit Glch;											
BR-4	261361.1	4202052.2	-107	42	55.477	37	56	11.728	12270	5	845.30	367.41 N
Tsb	Burns; lava											
PP-1	258268.8	4208419.6	-107	45	9.721	37	59	35.153	12980	5	15.99	5.08 R
Tpg3	Gilpin Pk tuff unit 3											
PP-2	257914.6	4208440.0	-107	45	24.254	37	59	35.474	12880	5	432.53	54.66 R
Tpg3	Gilpin Pk tuff unit 3, vitrophyre belo PP-1											
PP-3	257923.7	4208439.7	-107	45	23.878	37	59	35.474	12878	0	0.00	0.00 N
Tpg1	Gilpin Pk tuff unit 1, ash flow beneath PP-2											
PP-4	257868.7	4208401.0	-107	45	26.083	37	59	34.166	12740	5	163.95	17.22 N
Tpg1	Gilpin Pk tuff unit 1; abt 140 ft belo PP-2											
PP-5	257732.3	4208419.8	-107	45	31.695	37	59	34.644	12510	0	0.00	0.00 R
Tsp	Picayune lava; pole R but flat											
PP-6	257580.3	4208452.5	-107	45	37.959	37	59	35.558	12400	5	2759.51	450.27 R
Tsp	Picayune lava amygdaloidal; pole R but flat; abt 100 ft belo PP-5											
NB-1	261305.0	4202724.0	-107	42	58.574	37	56	33.448	13200	5	5.07	3.44 R
Tpg6	Gilpin Pk tuff unit 6; abt 5m above vitophyre; pole R but rotated to abt EW											
NB-2	261295.2	4202653.9	-107	42	58.894	37	56	31.166	13180	5	27.86	3.48 R
Tpg4	Gilpin Pk tuff unit 4; green tuff abt 3m belo ct w/ Tpg6											
NB-3	261398.9	4202626.5	-107	42	54.619	37	56	30.375	13310	5	4.11	1.24 R
Tpg6	Gilpin Pk tuff unit 6; v. fissile; pole R but rotated to abt EW											
NB-4	261514.2	4202358.2	-107	42	49.577	37	56	21.789	13120	5	1.97	1.47 X
Tpg3	Gilpin Pk tuff unit 3; shattered; couldn't get pole											
NB-5	261501.4	4202266.7	-107	42	49.995	37	56	18.813	12880	5	11.91	0.93 R
Tsb	Burns; lava flow; pole R but flat											
NB-6	261376.5	4202189.5	-107	42	55.012	37	56	16.192	12560	5	21.59	6.20 N
Tsb	Burns; gray-grn tuff bx; v. thk											
BB-1	259284.8	4197306.8	-107	44	14.736	37	53	35.956	12600	5	6.00	6.21 R
Tpg1	Gilpin Pk tuff unit 1; 1m abov ct w/ Tsj											
BB-2	259322.9	4197247.6	-107	44	13.108	37	53	34.073	12635	5	3.46	4.16 X
Tpg2	Gilpin Pk tuff unit 2; msv tuff; couldn't get pole											
BB-3	259277.5	4197218.9	-107	44	14.929	37	53	33.099	12760	5	7.77	4.72 X
Tpg3	Gilpin Pk tuff unit 3; v. fissile; couldn't get pole											
BB-5	259845.6	4197069.3	-107	43	51.517	37	53	28.791	12320	0	0.00	0.00 X
Tpg3	Gilpin Pk tuff unit 3; couldn't get pole											
BB-6	259761.9	4197068.0	-107	43	54.938	37	53	28.670	12415	0	0.00	0.00 X
Tpg3	Gilpin Pk tuff unit 3; couldn't get pole											
BB-7	259582.9	4197175.3	-107	44	2.389	37	53	31.978	12590	0	0.00	0.00 R
Tpg3	Gilpin Pk tuff unit 3; pole R but to E; chilld densely wlded											
BB-10	258861.4	4197343.9	-107	44	32.096	37	53	36.756	12960	5	6.69	4.98 R
Tpg4-5	Gilpin Pk tuff unit 4-5; abt 1m belo ct w/ overlying Tpg6; fossil frags in tuff;R flat											
BB-11	258828.4	4197363.8	-107	44	33.472	37	53	37.370	13000	5	7.18	1.26 X
Tpg6	Gilpin Pk tuff unit 6; highly welded; reddish bio; couldn't get pole											
IP-1	259506.5	4202273.3	-107	44	11.637	37	56	17.133	12840	5	322.97	153.69 N

Tsb	Burns lithic tuff bx; 3m belo ct w/ Tpg1; pole N but EW												
IP-2	259507.7	4202272.0	-107	44	11.587	37	56	17.094	12850	0	0.00	0.00	N
Tpg1	Gilpin Pk tuff unit 1; chilled base												
IP-3	259511.3	4202272.5	-107	44	11.437	37	56	17.113	12870	0	0.00	0.00	N
Tpg1	Gilpin Pk tuff unit 1; 7-10m above IP-2; pole N but weak												
BR-5A	262232.1	4199963.0	-107	42	17.355	37	55	4.837	10770	0	0.00	0.00	N
ql	qtz latite												
BR-5B	262232.1	4199963.0	-107	42	17.355	37	55	4.837	10770	0	0.00	0.00	N
ql	qtz latite												
BR-6A	262276.0	4200094.0	-107	42	15.715	37	55	9.123	10650	0	0.00	0.00	N
ql	qtz latite												
BR-6B	262276.0	4200094.0	-107	42	15.715	37	55	9.123	10650	0	0.00	0.00	N
ql	qtz latite												
GAM-1	258688.6	4199348.4	-107	44	41.578	37	54	41.556	12005	5	380.47	382.23	R
Tse	Eureka tuff; highly wlded; S side addit; start of profile												
GAM-2	258695.4	4199383.4	-107	44	41.342	37	54	42.698	12005	5	40.77	7.80	U
Tsj	San Juan; 40 paces @357DOMN fm last point												
GAM-3	258697.9	4199396.5	-107	44	41.255	37	54	43.125	12005	5	486.42	383.14	U
Tsj	San Juan; 15 paces @357DOMN fm last point												
GAM-4	258703.4	4199408.7	-107	44	41.045	37	54	43.525	12005	5	879.26	185.25	U
Tsj	San Juan; 15 paces @010DOMN fm last point												
GAM-5	258703.3	4199414.9	-107	44	41.057	37	54	43.726	12005	5	43.77	29.44	U
Tsj	San Juan; 7 paces @345DOMN fm last point												
GAM-6	258702.5	4199421.1	-107	44	41.097	37	54	43.926	12005	5	46.78	4.39	U
Tsj	San Juan; 7 paces @339DOMN fm last point												
GAM-7	258721.2	4199445.9	-107	44	40.362	37	54	44.748	12005	5	99.52	13.93	U
Tsj	San Juan; 35 paces @023DOMN fm last point												
GAM-8	258734.5	4199444.3	-107	44	39.816	37	54	44.709	12005	5	163.64	12.58	U
Tsj	San Juan; 15 paces @083DOMN fm last point												
GAM-9	258741.1	4199452.7	-107	44	39.556	37	54	44.987	12005	5	151.34	24.39	U
Tsj	San Juan; 12 paces @024DOMN fm last point												
GAM-10	258754.3	4199458.1	-107	44	39.023	37	54	45.175	12005	5	108.78	13.49	U
Tsj	San Juan; 16 paces @054DOMN fm last point												
GAM-11	258779.9	4199445.6	-107	44	37.960	37	54	44.794	12005	5	58.66	15.98	U
Tsj	San Juan; 32 paces @102DOMN fm last point												
GAM-12	258785.3	4199463.5	-107	44	37.761	37	54	45.379	12005	5	39.05	4.68	U
Tsj	San Juan; 21 paces @003DOMN fm last point												
GAM-13	258796.1	4199459.1	-107	44	37.314	37	54	45.247	12005	5	159.31	26.05	U
Tsj	San Juan; 13 paces @098DOMN fm last point												
GAM-14	258803.2	4199464.5	-107	44	37.030	37	54	45.429	12005	5	191.80	41.90	U
Tsj	San Juan; 10 paces @039DOMN fm last point												
GAM-15	258809.0	4199468.6	-107	44	36.798	37	54	45.567	12005	5	147.40	26.67	U
Tsj	San Juan; 8 paces @041DOMN fm last point												
GAM-16	258813.3	4199469.6	-107	44	36.623	37	54	45.604	12001	5	55.09	16.65	U
Tsj	San Juan; 5 paces @062DOMN fm last point												
GAM-17	258813.6	4199472.3	-107	44	36.614	37	54	45.692	12000	5	75.05	17.92	U
Tsj	San Juan; 3 paces @351DOMN fm last point												
GAM-18	258838.8	4199490.6	-107	44	35.605	37	54	46.309	12015	5	34.41	4.12	X
Tsj	San Juan; 35 paces @040DOMN fm last point												

GAM-1R	258688.6	4199348.4	-107	44	41.578	37	54	41.556	12005	5	227.16	202.85	U
Tse	Eureka tuff; repeat of GAM-1; not on same measurement spots												
BB-13	259371.8	4198585.9	-107	44	12.715	37	54	17.496	13250	0	0.00	0.00	N
Tpg6	Gilpin Pk tuff unit 6; platy; top Trico Pk; pole weak												
BB-12	259221.6	4198475.7	-107	44	18.726	37	54	13.782	13100	0	0.00	0.00	X
Tpg4-5	Gilpin Pk tuff unit 4-5; couldn't get pole												
PP-10	257894.7	4208470.0	-107	45	25.106	37	59	36.427	12880	0	0.00	0.00	N
Tpg1	Gilpin Pk tuff unit 1; first ash flow tuff abov Picayune												
PP-12	258504.3	4208188.6	-107	44	59.799	37	59	27.891	13440	0	0.00	0.00	N
Tpg6	Gilpin Pk tuff unit 6; glassy; pole N but dn to W												
PP-13	258468.2	4208210.5	-107	45	1.302	37	59	28.566	13360	0	0.00	0.00	N
Tpg5	Gilpin Pk tuff unit 5;4 m belo ct w/ Tpg6; pole N but dn to W												
PP-14	258424.3	4208274.8	-107	45	3.182	37	59	30.609	13260	0	0.00	0.00	R
Tpg5	Gilpin Pk tuff unit 5; massive glass & v. magnetic-pulls Brunton 30D: highly wlded												
CB-6B	257289.4	4207099.8	-107	45	48.225	37	58	51.438	10980	0	0.00	0.00	N
gg	Stony Mtn stock qtz diorite												
AJAX-1	258241.6	4199968.6	-107	45	0.611	37	55	1.232	11580	5	912.32	1.80	U
Tsj	San Juan; profile start j. abov Ingram Falls												
AJAX-2	258241.6	4199968.6	-107	45	0.611	37	55	1.232	11580	5	923.52	53.25	U
Tsj	San Juan; same position as AJAX-1 but 5 diff sample spots												
AJAX-3	258242.5	4199973.0	-107	45	0.580	37	55	1.374	11585	5	737.76	130.09	U
Tsj	San Juan; 5 paces @357DOMN from previous pt												
AJAX-4	258243.0	4199976.5	-107	45	0.564	37	55	1.488	11590	5	1134.51	330.82	U
Tsj	San Juan; 4 paces @355DOMN from previous pt												
AJAX-5	258255.7	4199982.9	-107	45	0.052	37	55	1.707	11595	5	791.50	68.02	U
Tsj	San Juan; 16 paces @049DOMN from previous pt												
AJAX-6	258267.7	4199999.5	-107	44	59.581	37	55	2.257	11600	5	455.13	81.67	U
Tsj	San Juan; 23 paces @022DOMN from previous pt												
AJAX-7	258274.8	4199998.8	-107	44	59.290	37	55	2.241	11610	5	357.59	115.41	U
Tsj	San Juan; 8 paces @082DOMN from previous pt												
AJAX-8	258281.2	4199995.6	-107	44	59.024	37	55	2.143	11615	5	549.43	109.20	U
Tsj	San Juan; 8 paces @102DOMN from previous pt												
AJAX-9	258294.0	4199991.7	-107	44	58.496	37	55	2.029	11610	5	1167.59	154.25	U
Tsj	San Juan; 15 paces @093DOMN from previous pt; wall andes dike												
AJAX-10	258302.8	4199992.7	-107	44	58.137	37	55	2.070	11610	5	2035.14	692.46	N
D	San Juan; 10 paces @070DOMN from previous pt; andes dike												
AJAX-11	258301.2	4199999.6	-107	44	58.211	37	55	2.292	11615	5	677.68	313.75	U
Tsj	San Juan; 8 paces @333DOMN from previous pt; .5m in Tsj fr dike ct												
AJAX-12	258305.8	4200002.4	-107	44	58.026	37	55	2.387	11615	5	811.31	187.39	U
Tsj	San Juan; 6 paces @044DOMN from previous pt												
AJAX-13	258309.7	4200004.5	-107	44	57.869	37	55	2.459	11618	5	288.15	55.93	U
Tsj	San Juan; 5 paces @048DOMN from previous pt												
AJAX-14	258311.2	4200007.8	-107	44	57.812	37	55	2.567	11620	5	199.97	25.60	U
Tsj	San Juan; 4 paces @011DOMN from previous pt												
AJAX-15	258321.0	4200007.9	-107	44	57.411	37	55	2.580	11625	5	71.33	15.32	U
Tsj	San Juan; 11 paces @075DOMN from previous pt												
AJAX-17	258318.6	4200012.7	-107	44	57.515	37	55	2.733	11625	5	402.66	68.77	U
Tsj	San Juan; 6 paces @319DOMN from previous pt												
AJAX-18	258318.9	4200017.1	-107	44	57.508	37	55	2.876	11620	5	380.43	38.98	U

Tsj	San Juan; 5 paces @351DOMN from previous pt												
AJAX-19	258331.7	4200013.2	-107	44	56.980	37	55	2.762	11600	5	62.33	20.17	U
Tsj	San Juan; 15 paces @093DOMN from previous pt; S wall AJAX vein												
AJAX-20	258335.1	4200012.2	-107	44	56.839	37	55	2.733	11600	5	36.03	9.42	U
Tsj	San Juan; 4 paces @092DOMN from previous pt; AJAX vein; altd												
AJAX-21	258338.3	4200016.5	-107	44	56.714	37	55	2.875	11600	5	20.05	7.82	U
Tsj	San Juan; 6 paces @023DOMN from previous pt; N wall AJAX vein & altd Tsj												
AJAX-22	258338.3	4200016.5	-107	44	56.714	37	55	2.875	11600	5	2.94	1.36	U
Tsj	San Juan; 5 pieces of vein material; float												
AJAX-23	258339.2	4200019.9	-107	44	56.681	37	55	2.986	11615	5	136.89	105.67	U
Tsj	San Juan; 4 paces @000DOMN from AJAX-21; going upslope abt 30D												
AJAX-24	258346.1	4200021.5	-107	44	56.401	37	55	3.045	11630	5	264.10	46.97	U
Tsj	San Juan; 8 paces @063DOMN from previous pt; going upslope abt 30D												
AJAX-25	258352.2	4200022.9	-107	44	56.153	37	55	3.096	11645	5	172.33	74.03	U
Tsj	San Juan; 7 paces @063DOMN from previous pt; going upslope abt 30D												
AJAX-26	258355.3	4200024.8	-107	44	56.028	37	55	3.161	11660	5	685.03	141.92	U
Tsj	San Juan; 4 paces @045DOMN from previous pt; going upslope abt 30D												
AJAX-27	258360.2	4200026.8	-107	44	55.830	37	55	3.230	11680	5	884.92	78.01	U
Tsj	San Juan; 6 paces @054DOMN from previous pt; going upslope abt 30D												
AJAX-28	258364.4	4200034.6	-107	44	55.668	37	55	3.487	11695	5	1007.17	80.22	U
Tsj	San Juan; 10 paces @014DOMN from previous pt												
AJAX-29	258368.0	4200040.8	-107	44	55.528	37	55	3.691	11710	5	762.99	102.77	U
Tsj	San Juan; 8 paces @016DOMN from previous pt; top of hill												
AJAX-30	258374.2	4200047.1	-107	44	55.282	37	55	3.901	11715	5	679.37	107.31	U
Tsj	San Juan; 10 paces @031DOMN from previous pt												
AJAX-31	258385.2	4200043.5	-107	44	54.828	37	55	3.795	11720	5	876.52	102.89	U
Tsj	San Juan; 13 paces @094DOMN from previous pt												
AJAX-32	258390.5	4200044.5	-107	44	54.612	37	55	3.833	11725	5	495.45	66.24	U
Tsj	San Juan; 6 paces @065DOMN from previous pt												
AJAX-33	258396.3	4200053.5	-107	44	54.386	37	55	4.130	11730	5	367.50	80.91	U
Tsj	San Juan; 12 paces @019DOMN from previous pt												
AJAX-34	258241.6	4199968.6	-107	45	0.611	37	55	1.232	11580	5	920.34	1.30	U
Tsj	San Juan; repeat AJAX-1												
OP-4	262263.0	4194818.4	-107	42	9.988	37	52	18.122	12520	0	0.00	0.00	N
Tsb	Burns; abt 100ft belo summit												
OP-6	261920.7	4194994.3	-107	42	24.188	37	52	23.500	12200	0	0.00	0.00	R
???	Ash flow tuff; platy												
OP-7	261844.0	4194896.8	-107	42	27.210	37	52	20.267	12080	0	0.00	0.00	N
???	Ash flow tuff												
AR-10	274987.1	4196539.8	-107	33	31.644	37	53	25.552	10165	5	146.72	62.09	N
Tse	Eureka tuff; some sulphides												
AR-11	275135.5	4198951.9	-107	33	28.280	37	54	43.875	10940	5	209.57	242.62	N
Tsp	Picayune lava; porphyr flow; cns rnded cumulate inclus; altd												
AR-12	275343.7	4199118.3	-107	33	19.950	37	54	49.452	10685	5	123.68	83.86	N
Tsp	Picayune lave; porphyr flow; 2 kinds inclusions; lots sulphides												
AR-13	271802.4	4196800.2	-107	35	42.195	37	53	31.140	11270	5	566.99	437.35	N
Tsb	Burns; pyroxene andes; dissem pyr; inclusions; pole v weak												
AR-14	273746.9	4195524.4	-107	34	21.222	37	52	51.534	10390	5	567.79	451.12	N
Tsb	Burns; qtz latite; diss pyr												

AR-15	274950.4	4191397.7	-107	33	27.375	37	50	38.836	10400	5	271.54	85.07	N
Tse	Eureka tuff; qtz veins every few ft												
AR-16	274896.4	4191387.2	-107	33	29.572	37	50	38.449	10520	5	1991.65	606.52	N
Tigr	Granodiorite?; v fine gr												
CG-1	265444.1	4201941.0	-107	40	8.264	37	56	11.949	9755	5	12.84	3.25	R
Tse	Eureka tuff												
CG-2	264770.1	4200523.7	-107	40	34.178	37	55	25.385	10520	5	53.23	27.32	N
Tsh	Henson; hbld andes; altd; pole weak and hard to determine												
CG-3	265381.7	4199690.5	-107	40	8.175	37	54	58.947	11195	5	3201.04	354.90	N
Tsh	Henson												
CG-4	265931.9	4198128.8	-107	39	43.843	37	54	8.840	12360	5	4459.86	488.50	N
ql	apheric qtz latite flow												
CG-5	265268.6	4198167.9	-107	40	11.022	37	54	9.491	11980	5	48.13	7.44	R
Tsh	blk/rdsh/grnish tuff seds; pole dirn R but flat												
CG-6	266833.1	4198614.8	-107	39	7.544	37	54	25.426	11875	5	36.39	6.29	R
ql	qtz latite porphyry; altd												
CG-7	267052.8	4196916.3	-107	38	56.583	37	53	30.575	10600	5	3194.20	839.96	N
Tsb	Burns lava												
AR-17	275155.0	4199554.6	-107	33	28.161	37	55	3.428	10720	0	0.00	0.00	N
Tse	Eureka tuff at site of AR-3												
AR-18	275267.6	4198056.7	-107	33	21.870	37	54	14.975	10395	5	1068.46	353.73	N
Tsp	Picayune porph lava												
AR-19	274515.8	4193435.2	-107	33	47.429	37	51	44.496	10180	5	61.78	55.88	N
Tse	Eureka tuff												
AR-20	273761.3	4192626.2	-107	34	17.363	37	51	17.599	9800	5	1084.11	436.55	N
Tse	Eureka tuff												
AR-21	271693.8	4190504.1	-107	35	39.474	37	50	6.958	9680	5	1146.04	216.58	N
Tse	Eureka tuff; pmag drillholes noted												
CB-4B	261965.2	4207447.9	-107	42	37.186	37	59	7.177	9200	0	0.00	0.00	N
gd	Granodiorite												
IP-4	260434.6	4202647.8	-107	43	34.106	37	56	30.153	12160	5	24.93	10.28	R
Tse	Eureka tuff												
AV-1	257686.2	4202675.7	-107	45	26.611	37	56	28.435	11560	5	270.80	0.98	U
Tsj	San Juan; start profile ovr Argentine Vein abov Tomboy; W to E												
AV-2	257686.2	4202675.7	-107	45	26.611	37	56	28.435	11560	5	389.73	93.70	U
Tsj	San Juan; at AV-1 site but other sensor locns												
AV-3	257706.4	4202672.5	-107	45	25.781	37	56	28.351	11560	5	528.71	146.77	U
Tsj	San Juan; 23 paces fr last point, abt same elev												
AV-4	257712.6	4202671.5	-107	45	25.526	37	56	28.324	11560	5	296.79	144.47	U
Tsj	San Juan; 7 paces fr last point, abt same elev												
AV-5	257718.7	4202670.5	-107	45	25.275	37	56	28.298	11560	5	2250.95	790.46	U
Tsj	San Juan; mafic inclusion; 7 paces fr last point, abt same elev												
AV-6	257725.8	4202669.4	-107	45	24.983	37	56	28.269	11560	5	373.53	163.70	U
Tsj	San Juan; 8 paces fr last point, abt same elev												
AV-7	257730.2	4202668.7	-107	45	24.802	37	56	28.250	11560	5	386.98	138.23	U
Tsj	San Juan; 5 paces fr last point, abt same elev												
AV-8	257737.2	4202667.6	-107	45	24.514	37	56	28.222	11560	5	514.72	163.67	U
Tsj	San Juan; 8 paces fr last point, abt same elev; 3m fr edge Argent.vein												
AV-9	257740.7	4202667.1	-107	45	24.371	37	56	28.209	11560	5	189.39	112.36	U

V	Arg.Vein 4 paces fr last point, abt same elev; W edge Argent vein; bxd&altd brwn rk												
AV-10	257746.0	4202666.2	-107	45	24.153	37	56	28.185	11560	5	47.44	9.28	U
D	Andes dike; 6 paces fr last point, abt same elev;andes dike												
AV-11	257746.9	4202666.1	-107	45	24.116	37	56	28.182	11560	5	9.80	5.84	U
V	Arg.Vein; 1 paces fr last point, abt same elev; E wall vein; qtz cockscomb matl												
AV-12	257749.5	4202665.7	-107	45	24.009	37	56	28.172	11555	5	45.24	8.00	U
V	Arg.Vein; 3 paces fr last point; dnhill 1.5 pace; east 1.5 pace; E wall vein												
AV-13	257755.6	4202664.7	-107	45	23.758	37	56	28.145	11560	5	220.33	149.12	U
Tsj	San Juan; 7 paces fr last point, abt same elev												
AV-14	257766.2	4202663.0	-107	45	23.322	37	56	28.100	11560	5	598.19	180.85	U
Tsj	San Juan; 12 paces fr last point, abt same elev												
AV-15	257768.8	4202662.6	-107	45	23.215	37	56	28.090	11560	5	454.70	99.05	U
Tsj	San Juan; 3 paces fr last point, abt same elev												
AV-16	257790.8	4202659.1	-107	45	22.311	37	56	27.997	11560	5	947.77	611.64	U
Tsj	San Juan; 25 paces fr last point, abt same elev												
AV-17	257797.0	4202658.2	-107	45	22.056	37	56	27.974	11560	5	613.26	127.41	U
Tsj	San Juan; 7 paces fr last point, abt same elev												
AV-18	257803.1	4202657.2	-107	45	21.805	37	56	27.948	11560	5	481.16	133.20	U
Tsj	San Juan; 7 paces fr last point, abt same elev												
AV-19	257810.2	4202656.1	-107	45	21.513	37	56	27.918	11560	5	454.82	69.77	U
Tsj	San Juan; 8 paces fr last point, abt same elev												
AV-1	257686.2	4202675.7	-107	45	26.611	37	56	28.435	11560	5	271.37	1.31	U
Tsj	San Juan; repeat at 1522 hrs												
GM-1	263067.0	4202484.1	-107	41	46.183	37	56	27.334	11740	5	2147.64	188.49	N
an	Andesite												
GM-2	262736.2	4202848.5	-107	42	0.152	37	56	38.834	12360	5	18.35	5.70	N
Tsht	Henson ash flow tuff; Pole v. weak												
KP-1	261617.9	4197409.4	-107	42	39.440	37	53	41.490	11240	5	1209.62	718.04	R
ql	Koehler Pipe; qtz latite; sulphides												
QL-1	259494.5	4195401.1	-107	44	3.874	37	52	34.390	10780	5	-0.94	2.02	X
ql	Qtz latite; v. altd; sulphides; on S wall addit near mouth												
QL-2	259494.5	4195401.1	-107	44	3.874	37	52	34.390	10780	5	0.83	1.16	U
ql	Qtz latite; 2m fr. addit												
BR-7	262355.6	4199814.5	-107	42	12.124	37	55	0.138	10690	0	0.00	0.00	N
Tsb	Burns; apheric andes flow												
PG-1	269331.1	4204173.9	-107	37	31.767	37	57	27.906	10430	5	43.68	5.52	N
Tse	Eureka tuff												
PG-2	269144.6	4203159.6	-107	37	38.233	37	56	54.858	10720	5	739.75	114.73	N
Tse	Eureka tuff												
PG-3	269237.0	4202768.3	-107	37	33.997	37	56	42.260	11040	5	29.86	4.00	N
Tse	Eureka tuff												
PG-4	269321.5	4202440.9	-107	37	30.162	37	56	31.725	11120	5	14.46	3.90	X
Tse	Eureka tuff												
AR-22	274165.4	4195414.0	-107	34	3.982	37	52	48.329	9900	5	28.77	4.63	N
Tse	Eureka tuff; 10m inside mouth Eureka Gulch												
BRWN-1	267454.7	4201371.5	-107	38	45.322	37	55	55.351	12310	5	18.61	2.71	N
Tsh	Henson; porph qtz latite lava; lots pyr												
BRWN-2	267191.8	4201538.1	-107	38	56.274	37	56	0.509	11880	5	44.36	39.29	R
Tsh	Henson; tuff; dissem pyr												

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BRWN-3  267186.5       4201637.4      -107    38       56.603  37       56        3.722    11835    5          614.95  404.84  N
Tsh     Henson; cse porph lava; pyr; pole is N but rotatd abt 90D twrd MS
KM-1    265786.9       4186100.9      -107    39       35.749  37       47        38.846   10220    5          905.81  55.85   N
Tse     Eureka tuff
KM-2    265543.3       4186847.6      -107    39       46.570  37       48        2.824    9570     5          3270.24 458.28  N
Tiqm    Quartz monzonite of Sultan Mtn stock
TTM-1   274809.3       4198420.7      -107    33 41.031        37       54        26.365   11560    5          39.92   2.58    N
Tse     Eureka tuff; some altn; altd pyr
AR-23   274448.1       4192498.7      -107    33       49.145  37       51        14.079   10580    5          6.25    2.18    N
Tiqm    Qtz monzonite; 25m N across gulch fr upper shaft
SP-10   275848.1       4185703.1      -107    32       44.336  37       47        35.035   12460    5          55.94   5.91    R
Tse     Eureka tuff S of Stony Pass; highly wlded
GAOWN   274056.0       4188725.2      -107    34       0.931   37       49        11.412   11360    5          34.75   4.06    U
Tsb     Burns; 14m in addit GaryOwen mine on N wall
GAOWN-1 274054.2       4188724.7      -107    34       1.006   37       49        11.393   11360    5          34.19   2.69    N
Tsb     Burns; outside face 1m from addit entrance GaryOwen mine
GAOWN-2 274142.2       4188808.1      -107    33       57.502  37       49        14.176   11460    5          7.91    2.82    X
Tse     Eureka tuff; altd; pyr
QL-3    264651.2       4185458.5      -107    40       21.386  37       47        16.972   9960     5          1434.72 190.81  N
ql      qtz latite; on hiway to Durango
A3+45   underground_profile    A3+45   5      157.91   87.84   U        Tsj       AJAX 1205 crosscut
A3+39   underground_profile    A3+39   5      52.75    9.66    U        Tsj       AJAX 1205 crosscut
A3+39R  underground_profile    A3+39R  5      55.13    12.36   U        Tsj       AJAX 1205 crosscut
A3+33   underground_profile    A3+33   5      61.73    9.19    U        Tsj       AJAX 1205 crosscut
A3+27   underground_profile    A3+27   5      63.37    12.45   U        Tsj       AJAX 1205 crosscut
A3+21   underground_profile    A3+21   5      95.51    32.00   U        Tsj       AJAX 1205 crosscut
A3+15   underground_profile    A3+15   5      69.81    8.06    U        Tsj       AJAX 1205 crosscut
A3+0    underground_profile    A3+0    5      51.26    7.05    U        Tsj       AJAX 1205 crosscut
A3-6    underground_profile    A3-6    5      57.14    14.96   U        Tsj       AJAX 1205 crosscut
A3-12   underground_profile    A3-12   5      76.48    12.29   U        Tsj       AJAX 1205 crosscut
A3-17   underground_profile    A3-17   5      68.81    12.29   U        Tsj       AJAX 1205 crosscut
A3-17R  underground_profile    A3-17R  5      60.73    12.53   U        Tsj       AJAX 1205 crosscut
A3-11   underground_profile    A3-11   5      67.54    9.00    U        Tsj       AJAX 1205 crosscut; TP3-23'
A3-29   underground_profile    A3-29   5      113.20   55.19   U        Tsj       AJAX 1205 crosscut
A3-29R  underground_profile    A3-29R  5      126.53   49.86   U        Tsj       AJAX 1205 crosscut
A3-35   underground_profile    A3-35   5      324.79   103.42  U        Tsj       AJAX 1205 crosscut; 10' in Hw fr vein
A3-35R  underground_profile    A3-35R  5      336.00   57.12   U        Tsj       AJAX 1205 crosscut; 3' in HW fr vein
A3-41   underground_profile    A3-41   5      9.14     4.36    U        V         AJAX 1205 crosscut; AJAX vein
A3-44   underground_profile    A3-44   5      133.99   64.04   U        Tsj       AJAX 1205 crosscut; 3' in FW of vein
A3-44R  underground_profile    A3-44R  5      128.60   53.01   U        Tsj       AJAX 1205 crosscut
1205+0  underground_profile    1205+0  5      64.45    112.40  U        V         1205 cutout 1226+60'NW; at vein
1205+6  underground_profile    1205+6  5      207.60   71.95   U        Tsj       1205 cutout; FW
1205+12 underground_profile    1205+12 5      30.96    1.79    U        Tsj       1205 cutout; FW
1205+18 underground_profile    1205+18 5      51.79    17.06   U        Tsj       1205 cutout; FW
1219HW  underground_profile    1219HW  5      12.42    7.71    U        Tsj       1219 cutout; vein+12'; HW
1219VN  underground_profile    1219VN  5      36.04    7.19    U        V         1219 cutout; vein
1219FW  underground_profile    1219FW  5      54.16    6.23    U        Tsj       1219 cutout; vein+10'; FW
A1200+0 underground_profile    A1200+0 5      923.64   178.96  U        Tsj       fr dam twd B.Bear; paces; at dam
A1200+4 underground_profile    A1200+4 5      381.84   78.44   U        Tsj       fr dam twd B.Bear; paces
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A1200+8	underground_profile	A1200+8	5	380.92	101.69	U	Tsj	fr dam twd B.Bear; paces
A1200+12	underground_profile	A1200+12	5	435.05	117.92	U	Tsj	fr dam twd B.Bear; paces
A1200+16	underground_profile	A1200+16	5	477.28	273.82	U	Tsj	fr dam twd B.Bear; paces
A1200+20	underground_profile	A1200+20	5	38.03	10.02	U	Tsj	fr dam twd B.Bear; paces; in structure
A1200+24	underground_profile	A1200+24	5	74.34	64.86	U	Tsj	fr dam twd B.Bear; paces; ct structure
A1200+28	underground_profile	A1200+28	5	75.48	9.72	U	Tsj	fr dam twd B.Bear; paces
A1200+32	underground_profile	A1200+32	5	41.39	20.94	U	Tsj	fr dam twd B.Bear; paces
A1200+36	underground_profile	A1200+36	5	59.13	48.69	U	Tsj	fr dam twd B.Bear; paces
A1200+40	underground_profile	A1200+40	5	75.45	9.58	U	Tsj	fr dam twd B.Bear; paces
A1200+44	underground_profile	A1200+44	5	192.24	103.30	U	Tsj	fr dam twd B.Bear; paces
A1200+48	underground_profile	A1200+48	5	394.40	129.66	U	Tsj	fr dam twd B.Bear; paces
A1200+52	underground_profile	A1200+52	5	36.23	15.74	U	Tsj	fr dam twd B.Bear; paces
A1200+53	underground_profile	A1200+53	5	19.42	4.28	U	Tsj	fr dam twd B.Bear; paces; 18" in HW of vein
A1200+54	underground_profile	A1200+54	5	34.84	20.72	U	V	fr dam twd B.Bear; paces; vein in sulphidic portion
A1200+55	underground_profile	A1200+55	5	28.05	8.42	U	Tsj	fr dam twd B.Bear; paces; fr FW ct+12"
A1200+57	underground_profile	A1200+57	5	219.26	180.10	U	Tsj	fr dam twd B.Bear; paces
A1200+57R	underground_profile	A1200+57R	5	217.07	166.09	U	Tsj	fr dam twd B.Bear; paces
A1200+61	underground_profile	A1200+61	5	66.46	38.15	U	Tsj	fr dam twd B.Bear; paces
A1200+65	underground_profile	A1200+65	5	34.31	3.23	U	Tsj	fr dam twd B.Bear; paces; at TP1201
MT0	underground_profile	MT0	5	1.57	2.96	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT4	underground_profile	MT4	5	5.69	1.65	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT8	underground_profile	MT8	5	4.86	1.54	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT12	underground_profile	MT12	5	4.52	1.75	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT16	underground_profile	MT16	5	5.21	1.04	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT20	underground_profile	MT20	5	5.10	1.51	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT24	underground_profile	MT24	5	6.90	1.05	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT28	underground_profile	MT28	5	6.02	0.33	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT32	underground_profile	MT32	5	5.08	1.85	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT36	underground_profile	MT36	5	5.78	1.16	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT40	underground_profile	MT40	5	6.47	0.96	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT44	underground_profile	MT44	5	6.05	2.51	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT48	underground_profile	MT48	5	18.55	26.39	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT49	underground_profile	MT49	5	155.65	47.19	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces; 18 " fr vein
MT50	underground_profile	MT50	5	181.03	28.28	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces; dike ct
MT52	underground_profile	MT52	5	428.66	50.63	U	D	Tell. cgl; Meldrum tunnel; 2200 level; paces; in dyke
MT54	underground_profile	MT54	5	1026.42	1003.90	U	D	Tell. cgl; Meldrum tunnel; 2200 level; paces; in dyke
MT55	underground_profile	MT55	5	95.16	58.62	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces; at dyke ct SE wall
MT57	underground_profile	MT57	5	49.39	53.77	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces;

dyke ct NW wall

MT59	underground_profile	MT59	5	8.20	2.55	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT61	underground_profile	MT61	5	9.05	1.46	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT63	underground_profile	MT63	5	6.27	0.65	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT65	underground_profile	MT65	5	6.52	2.66	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces; ct qtz vein
MT66	underground_profile	MT66	5	9.02	0.64	U	V	Tell. cgl; Meldrum tunnel; 2200 level; paces; qtz vein
MT67	underground_profile	MT67	5	24.37	4.88	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces; ct qtz vein
MT69	underground_profile	MT69	5	39.61	9.68	U	Tt	Tell. cgl; Meldrum tunnel; 2200 level; paces
MT74	underground_profile	MT74	5	31.54	3.41	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces
MT77	underground_profile	MT77	5	61.77	38.36	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces
MT81	underground_profile	MT81	5	62.86	13.94	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces; switch frog
MT85	underground_profile	MT85	5	38.69	11.32	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces
MT89	underground_profile	MT89	5	63.63	34.63	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces; end switch
MT92	underground_profile	MT92	5	132.40	34.67	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces
MT94	underground_profile	MT94	5	91.87	34.06	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces
MT96	underground_profile	MT96	5	14.21	3.96	U	V	San Juan; Meldrum tunnel; 2200 level; paces; qtz vein (wet)
MT100	underground_profile	MT100	5	89.40	32.84	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces
MT104	underground_profile	MT104	5	43.34	3.30	U	Tsj	San Juan; Meldrum tunnel; 2200 level; paces
AV0	underground_profile	AV0	5	59.17	9.67	U	V	San Juan; Argentine vein at #13 Raise; ctr Arg. vein
AV-1	underground_profile	AV-1	0	0.00	0.00	N	D	Argentine dike at 2013 raise
AJAXdik	underground_profile	AJAXdik	0	0.00	0.00	N	D	Ajax dike at Meldrum tunnel
AV3	underground_profile	AV3	5	121.02	24.94	U	Tsj	San Juan; Argentine vein at #13 Raise; abt 1m fr ct
AV6	underground_profile	AV6	5	44.17	11.84	U	Tsj	San Juan; Argentine vein at #13 Raise
AV9	underground_profile	AV9	5	38.99	8.78	U	Tsj	San Juan; Argentine vein at #13 Raise
AV12	underground_profile	AV12	5	31.34	4.04	U	Tsj	San Juan; Argentine vein at #13 Raise
AV15	underground_profile	AV15	5	33.98	4.13	U	Tsj	San Juan; Argentine vein at #13 Raise
AV18	underground_profile	AV18	5	43.66	4.01	U	Tsj	San Juan; Argentine vein at #13 Raise
AV21	underground_profile	AV21	5	57.20	14.14	U	Tsj	San Juan; Argentine vein at #13 Raise
AV24	underground_profile	AV24	5	39.93	11.33	U	Tsj	San Juan; Argentine vein at #13 Raise
AV27	underground_profile	AV27	5	32.97	3.33	U	Tsj	San Juan; Argentine vein at #13 Raise
AV30	underground_profile	AV30	5	37.86	8.79	U	Tsj	San Juan; Argentine vein at #13 Raise
340	underground_profile	340	5	30.82	3.66	U	??	3400vein, Meldrum X-cut; HW-Fw twd portal; paces
344	underground_profile	344	5	63.89	33.37	U	??	3400vein, Meldrum X-cut; HW-Fw twd portal; paces
348	underground_profile	348	5	55.11	45.73	U	??	3400vein, Meldrum X-cut; HW-Fw twd portal; paces
3412	underground_profile	3412	5	50.06	19.00	U	??	3400vein, Meldrum X-cut; HW-Fw twd portal; paces
3414	underground_profile	3414	5	52.71	29.01	U	??	3400vein, Meldrum X-cut; HW-Fw twd portal; paces; 2-3' in FW vein

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3415    underground_profile     3415    5       7.01    1.54    U       V       3400vein, Meldrum X-cut; HW-Fw twd portal; pa
ces; in vein
3416    underground_profile     3416    5       21.37   1.85    U       ??      3400vein, Meldrum X-cut; HW-Fw twd portal; pa
ces
3418    underground_profile     3418    5       21.40   3.83    U       ??      3400vein, Meldrum X-cut; HW-Fw twd portal; pa
ces; TP3400
3422    underground_profile     3422    5       31.13   2.72    U       ??      3400vein, Meldrum X-cut; HW-Fw twd portal; pa
ces
3426    underground_profile     3426    5       31.74   4.67    U       ??      3400vein, Meldrum X-cut; HW-Fw twd portal; pa
ces
3430    underground_profile     3430    5       45.56   9.84    U       ??      3400vein, Meldrum X-cut; HW-Fw twd portal; pa
ces
CG-8    265853.7        4198208.9       -107    39      47.133  37      54      11.361  12400   5       48.75   8.72    U
ql      qtz latite
CG-8A   265853.7        4198208.9       -107    39      47.133  37      54      11.361  12400   5       44.57   14.44   N?
ql      qtz latite; pole is dwn to SW; lightning?
PB-1    260154.1        4196939.6       -107    43      38.745  37      53      24.880  11750   5       1.77    1.52    X
Tsbr    Burns; flow bnded rhyolite; altd; lots sulphides
PB-2    259030.4        4196434.8       -107    44      24.094  37      53      7.453   12460   5       27.96   8.54    R
Tpg2    Gilpin Pk tuff unit 2; chilled; poles steep on 2 specs
PB-3A   258601.1        4196340.9       -107    44      41.535  37      53      3.999   12560   5       52.11   9.62    R
Tpg2    Gilpin Pk tuff unit 2
PB-3C   258601.1        4196340.9       -107    44      41.535  37      53      3.999   12560   5       22.38   15.90   R
Tpg3    Gilpin Pk tuff unit 3; 1m abov ct
PB-4    258857.7        4196403.9       -107    44      31.117  37      53      6.287   12540   0       0.00    0.00    R
Tpg2    Gilpin Pk tuff unit 2
PB-5    258895.2        4196345.8       -107    44      29.516  37      53      4.440   12620   0       0.00    0.00    X
Tpg3    Gilpin Pk tuff unit 3
PB-6    258982.2        4196896.2       -107    44      26.619  37      53      22.359  12320   5       74.79   48.81   N
Tpg1    Gilpin Pk tuff unit 1; 3m abov ct; not well chilled; lots Tsj frags
GB-1    255833.8        4205875.5       -107    46      46.325  37      58      10.352  12270   5       199.88  23.90   R
Tse     Eureka tuff; highly wlded; 5-10m abov ct Picayune; frsh bio; 2 specs R
IP-4B   260434.6        4202647.8       -107    43      34.106  37      56      30.153  12130   0       0.00    0.00    R
Tse     Eureka tuff; abt 10m belo IP4
IP-5    259868.6        4201347.4       -107    43      55.705  37      55      47.471  13365   0       0.00    0.00    R
Tpg6    Gilpin Pk tuff unit 6; Pk 13365; nr horiz foliation; pole weak & flat
IP-6    259587.9        4200791.4       -107    44      6.525   37      55      29.183  13509   0       0.00    0.00    N
Tpg6    Gilpin Pk tuff unit 6; Telluride peak; 2 specs; pole dn to ME
OPR-1A  255776.6        4192782.0       -107    46      32.698  37      51      5.945   10750   0       0.00    0.00    N
Tse     Eureka tuff; highly wlded; clasts of Picayune; pole dn just MS of vertical
OPR-1B  255776.6        4192782.0       -107    46      32.698  37      51      5.945   10750   0       0.00    0.00    N
Tse     Eureka tuff; highly wlded; clasts of Picayune; pole dn just MS of vertical
OPR-1C  255776.6        4192782.0       -107    46      32.698  37      51      5.945   10750   0       0.00    0.00    R
Tse     Eureka tuff; highly wlded; clasts of Picayune
MC-1A   258399.6        4194842.1       -107    44      47.969  37      52      15.230  MC-1A   0       0.00    0.00    R
Tse     Eureka tuff; 3m abov addit on face
MC-1B   258399.6        4194842.1       -107    44      47.969  37      52      15.230  MC-1A   0       0.00    0.00    R
Tse     Eureka tuff; abt 2m in addit; no mineralizn seen
OPR-1E  255776.6        4192782.0       -107    46      32.698  37      51      5.945   10750   0       0.00    0.00    R
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Tse	Eureka tuff; R but flat												
OPR-1F	255776.6	4192782.0	-107	46	32.698	37	51	5.945	10750	0	0.00	0.00	R
Tse	Eureka tuff												
OPR-1G	255776.6	4192782.0	-107	46	32.698	37	51	5.945	10750	0	0.00	0.00	R
Tse	Eureka tuff; R but flat												
OPR-1H	255776.6	4192782.0	-107	46	32.698	37	51	5.945	10750	0	0.00	0.00	R?
Tsb	Burns lava; pole in up hemis but nr horiz to NW												
SAPM-1	303705.5	4257103.9	-107	14	56.987	38	26	33.044	8200	0	0.00	0.00	R
Ts	Sapinero Mesa tuff; roadcut .5 mi b4 top mesa on Sap Mesa rd S fr hwy jct												
NG-1	290050.7	4213463.7	-107	23	33.275	38	2	47.163	11880	0	0.00	0.00	N
Tf	Fish cyn tuff; highly wlded; 11,860 ctr on map												
NG-2	289847.1	4213429.1	-107	23	41.582	38	2	45.872	11600	0	0.00	0.00	R
Tse	Eureka tuff												
NG-3	289717.9	4213200.5	-107	23	46.638	38	2	38.353	11125	0	0.00	0.00	R
Tse	Eureka tuff; v. shattered												
NG-4	289561.9	4213074.3	-107	23	52.897	38	2	34.131	10850	0	0.00	0.00	R
Tse	Eureka tuff; biotite tuff												