U.S. DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Reconnaissance Stream-Sediment Geochemistry of Twentynine Palms Marine Corps Base, California

by

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Introduction

To meet the goals of the National Mineral Resource Assessment Program (NAMRAP) of the U.S. Geological Survey (USGS), a geochemical survey of southern California was begun in 1991 to document the geochemical landscape of this region. The southern California area under study (Figure 1) includes desert lands (Basin and Range, Mojave Desert, Sonoran Desert, and Salton Trough physiographic provinces) and southern coastal mountain ranges (Transverse and Peninsular Ranges). This area is endowed with a wide variety of mineral wealth (Albers, 1981) including active mines producing gold, rare-earth elements, zeolites, borates, and a variety of other industrial minerals and construction material and has had significant past production of base-metals, iron, silver, tungsten, and mercury. Geochemical data for much of this region is inadequate or out of date. It is thus critical for the long-term mineral supply of the nation, for informed land-use planning decisions, and for environmental concerns that we increase our understanding of the geochemical variability of this region.

Geochemical data from a variety of sources exists for much of southern California and in 1992 these data were compiled, evaluated, and an eight element (Pb, Zn, Cu, Au, Ag, As, Sb, and Mo) geochemical anomaly map was produced for the area south of latitude 37°N (Folger et al, 1994). This work showed that there were several large areas, mostly national monuments and military reservations, that had not been sampled previously. The areas lacking geochemical data are so numerous and so large in southern California desert lands (Figure 1) that mineral belts and geochemical trends in this region could be overlooked using existing data. To adequately assess the geochemical variation of southern California it is necessary to obtain data in the poorly characterized areas. As part of this effort a geochemical survey of Twentynine Palms Marine Corp Base, was conducted in May of 1993. The Base is located in the Mojave Desert region and covers portions of the San Bernardino and Needles 1°x2° quadrangles. Major features of the Base are shown on the topographic map of the area (Figure 2). Twentynine Palms Marine Corp Base is in the Bullion Mountains that are comprised of a series of linear, north to northwest trending ranges separated by alluvial valleys that locally contain playa lakes. Topographic maps of the Base at a scale of 1:50,000 are available from the Defense Mapping Agency (Stock No. V795S29PALMSE and V795S29PALMSW).

Descriptions of the geology (Bortugno and Spittler, 1986; Bishop, 1963) and mineral resources of Twentynine Palms Marine Corp Base are few (Fife and Brown, 1980; Robinson, 1981a,b; and

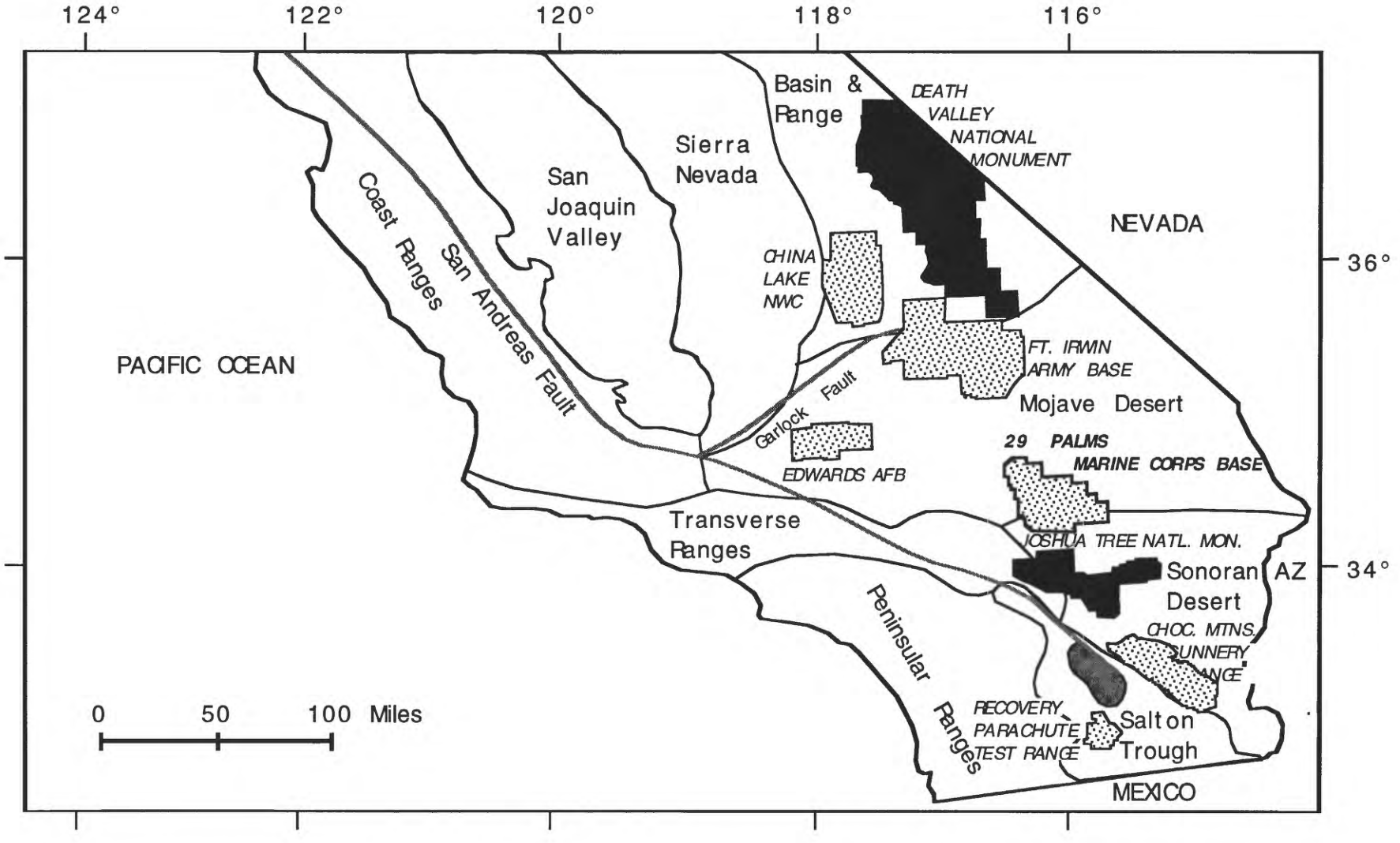

FIGURE 1. Map showing the location of Twentynine Palms Marine Corps Base and other military reservations (stippled), Death Valley National Monument, and Joshua Tree National Monument (black), in southern California.

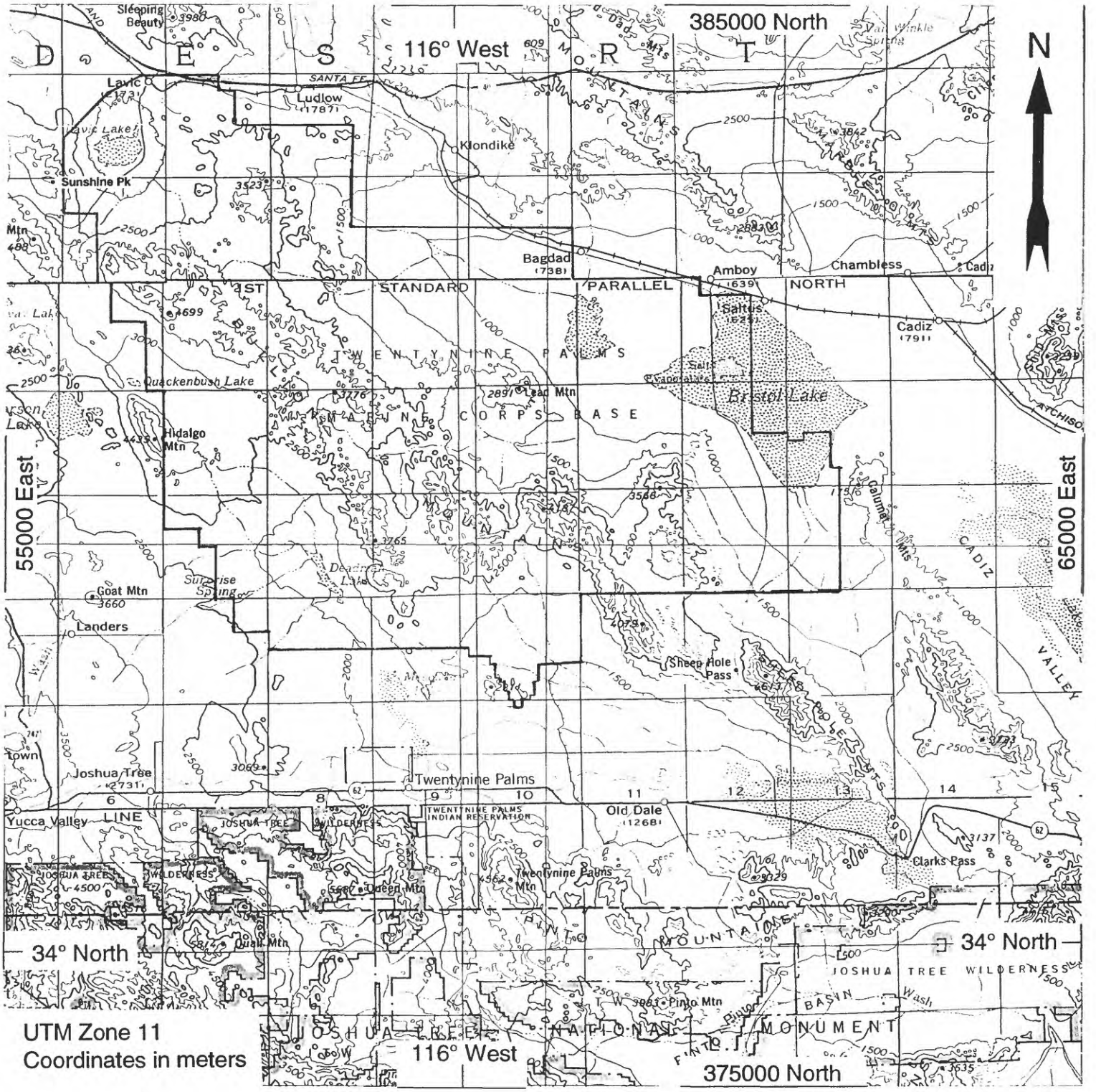

FIGURE 2. Topographic map of Twentynine Palms Marine Corp Base and surrounding area in southern California. Scale 1:500,000.

references therein). The rocks on the Base range from Mesozoic to Quaternary in age. Jurassic and Cretaceous felsic plutonic rocks are the predominant rock type on the Base. Mesozoic metavolcanic and metasedimentary rocks are present in a few places. These rocks are locally blanketed by Miocene volcanic flows and pyroclastic rocks (mainly dacites with minor andesite and basalt), and by fluvial and lacustrine sedimentary rocks. Miocene dacite intrusives are present in places. Rhyolite and basalt dikes occur at scattered locations in the southwest part of the Base. Quaternary alluvium is locally covered by basalt flows erupted from local centers on the northwest side of the Base (e.g. Amboy and Pisgah craters). Major faults strike aproximately N40W.

The largest production of base- and precious-metals has been from small mines and prospects in the Lead Mountain ([Ba, Pb, Ag, Cu, Zn, Ga, V, Au, Pd] Fife, 1980) and Sunshine Peak areas (Fig. 2) that are dominated by Miocene volcanic and/or intrusive rocks. Small mines and prospects occur at a number of other locations as well (e.g. Maumee mine, on the south side of Argos Mtn; Crystal mine, west of Hidalgo Mtn ; prospect near sample site tp-95 (Fig. 3); and gold quartz vein prospects near sample sites tp-5 and tp-3 (Fig. 3). Similar volcanic-hosted deposits occurring outside, but near the boundary, of the base include the Silverbell mine, northwest of the base, the Stedman district ([Au, Ag, Cu] Polovina, 1980), on the northeast side of the base, and the America mine [Au, Ag], on the far eastern and north side of the base. Gravel and crushed rock for aggregate are the most important industrial minerals.

The purpose of this interim report is to present analytical results for the newly collected samples and to provide a preliminary interpretation of this data. This geochemical data will eventually be combined with existing data from surrounding areas to produce a complete and up-to-date geochemical map of southern California.

Sample Collection and Preparation

The existing regional data base for southern California consists of analyses of the minus-80 mesh and minus-100 mesh fraction of stream-sediment and soil samples collected by the USGS or by the Department of Energy during the National Uranium Resource Evaluation (NURE) program over the past 20 years (Folger et al., 1994). Samples collected during the NURE program are being re-analyzed by methods described herein. Sample density for the NURE program averaged about 1 sample per 5-10 mi^2. To maintain consistent coverage, stream-sediment samples were collected at a similar sample density in Twentynine Palms Marine Corp Base.

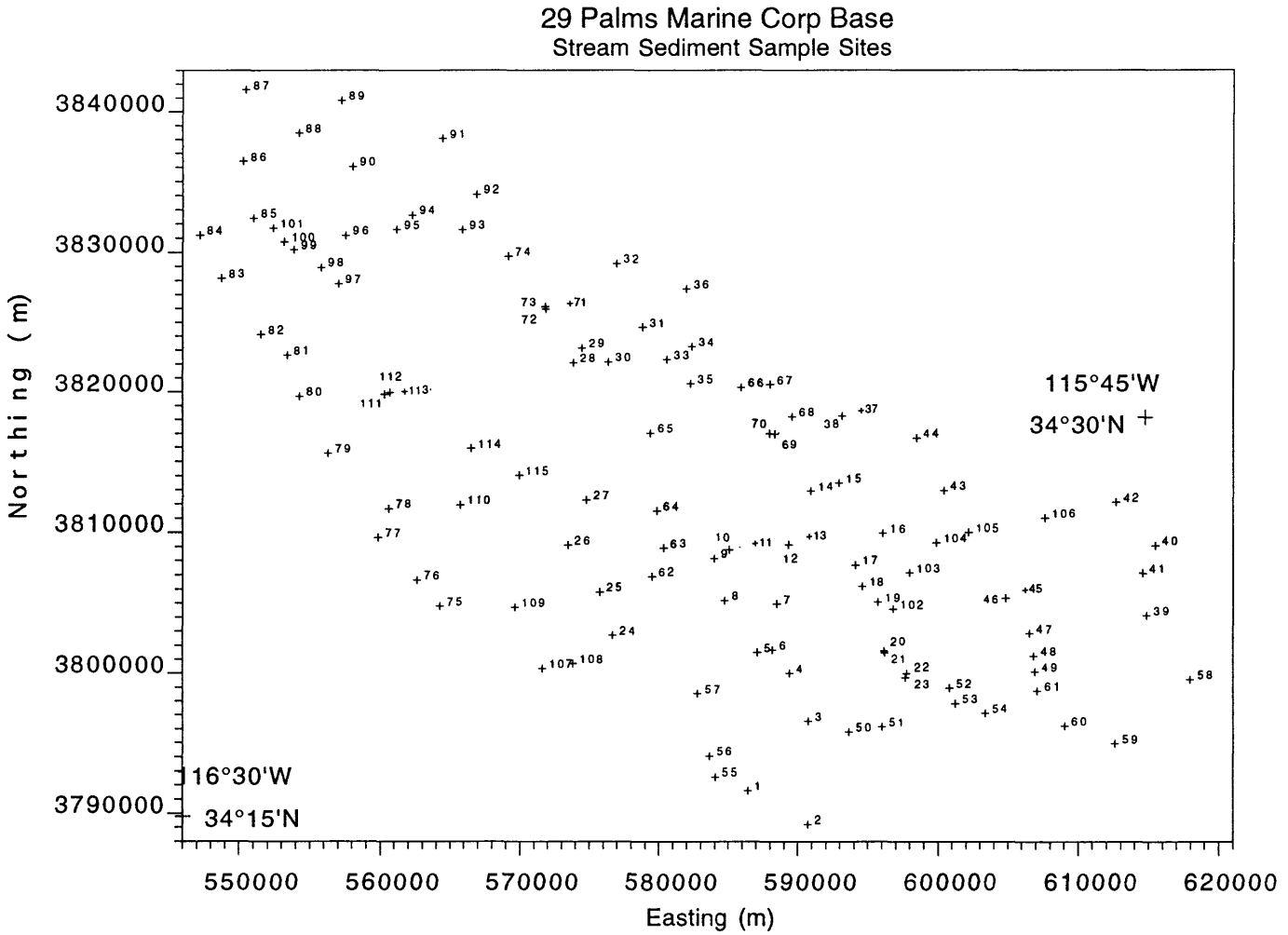

FIGURE 3. Location of stream-sediment sample sites on Twentynine Palms Marine Corp Base. Scale 1 cm = 5000 m. Sample site numbers are the same as in Appendix 1 except that the "tp-" prefix has been dropped to minimize overlap of site numbers.

Stream-sediment samples were collected at 115 sites and the minus-80 mesh fraction was analyzed by induction coupled plasma atomic emission spectroscopy (ICP-AES) and by graphite furnace atomic absorption spectrophotometry (AA). The stream-sediment samples consist of alluvium collected from active stream channels within mountain ranges and from alluvial fans along range fronts. Basin fill was not sampled. Average sample density in the mountain ranges is about one sample site per 5 mi^2. The area of the drainage basins upstream from the sample sites range from about 1 mi^2 to 20 mi^2. In areas where access was difficult fewer samples were collected from larger drainage basins. During the time frame of this study (8 days), it was impossible to obtain samples in a few places where access was extremely difficult. Even with this limitation, samples were obtained from more than 90% of the mountainous portions of the Base. Figure 3 shows the sample number and location of each stream sediment sample site. The sample-site numbers on Figure 3 correspond to the sample numbers (without the "tp" prefix) in Appendix 1.

Chemical analyses of stream-sediment samples yield information on the composition of the rock material eroded from the drainage basin upstream from each sample site. Such information is useful in identifying those basins which contain concentrations of elements that may be related to mineral deposits. By evaluating the map distribution of drainage basins with high concentrations of certain elements it is possible to identify large tracts with above average mineral potential.

Analytical Methods

Two different ICP-AES methods were used to analyze each sample and gold was analyzed by AA. Table 1 lists the detection limits for each element for each method. The first ICP method, described by Briggs (1990), is used to determine the concentration of the following 40 elements Al, Ca, Fe, K, Mg, Na, P, Ti, Mn, Ag, As, Au, Ba, Be, Bi, Cd, Ce, Co, Cr, Cu, Eu, Ga, Ho, La, Li, Mo, Nb, Nd, Ni, Pb, Sc, Sn, Sr, Ta, Th, U, V, Y, Yb, and Zn after a four acid (HCl, HNO_3, $HClO_4$, HF) total digestion of the sample. It is extremely sensitive for many of these elements (see Table 1) but has poor detection limits for Au and some important pathfinder elements. The second ICP method, described by Motooka (1990), is used to determine Ag, As, Au, Bi, Cd, Cu, Mo Pb, Sb, and Zn after partial dissolution of the sample by hydrochloric acid and hydrogen peroxide. This method is extremely sensitive for most of the 10 pathfinder elements (Table 1) with the

TABLE 1. Detection limits for chemical analyses of stream sediments (from Arbogast, ed., 1990).

Elements	Lower determination limit	Upper determination limit
ICP-AES total digestion, method of Briggs (1990).		
Percent		
Aluminum (Al)	0.005	50
Calcium (Ca)	0.005	50
Iron (Fe)	0.02	25
Potassium (K)	0.01	50
Magnesium (Mg)	0.005	5
Sodium (Na)	0.006	50
Phosphorus (P)	0.005	50
Titanium (Ti)	0.005	25
Parts per million		
Silver (Ag)	2	10000
Arsenic (As)	10	50000
Gold (Au)	8	50000
Barium (Ba)	1	35000
Beryllium (Be)	1	5000
Bismuth (Bi)	10	50000
Cadmium (Cd)	2	25000
Cerium (Ce)	5	50000
Cobalt (Co)	2	25000
Chromium (Cr)	2	50000
Copper (Cu)	2	15000
Europium (Eu)	2	5000
Gallium (Ga)	4	50000
Holmium (Ho)	4	5000
Lanthanum (La)	2	50000
Lithium (Li)	2	50000
Manganese (Mn)	4	50000
Molybdenum (Mo)	2	50000
Niobium (Nb)	4	50000
Niodymium (Nd)	9	50000
Nickel (Ni)	3	50000
Lead (Pb)	4	50000
Scandium (Sc)	2	50000
Tin (Sn)	5	50000
Strontium (Sr)	2	15000
Tantalum (Ta)	40	50000
Thorium (Th)	6	50000
Uranium (U)	100	100000
Vanadium (V)	2	30000
Yttrium (Y)	2	25000
Ytterbium (Yb)	1	5000
Zinc (Zn)	2	15000

Table 1. Continued.

Elements	Lower determination limit	Upper determination limit
ICP-AES partial digestion, method of Motooka, 1990. Parts per million		
Silver (Ag)	0.067	450
Arsenic (As)	0.67	6000
Gold (Au)	0.15	1500
Bismuth (Bi)	0.67	6000
Cadmium (Cd)	0.05	500
Copper (Cu)	0.05	500
Molybdenum (Mo)	0.09	900
Lead (Pb)	0.67	6000
Antimony (Sb)	0.67	6000
Zinc (Zn)	0.05	500
AA, Flame and Graphite Furnace Atomic Absorption, method of O'Leary and Meier (1990) Parts per million		
Gold (Au)	0.002	2.000

exception of Au, which has a detection limit of 100 ppb. Gold was determined by graphite furnace atomic absorption spectrophotometry using the method of O'Leary and Meier (1990) which has a detection limit of 2 ppb.

Description of the Data Tables

The data tables in Appendix 1 begin with the field identification number (PRIME_ID) used for each sample site. This is followed by the laboratory identification number (SECND_ID). The identification numbers are followed by the latitude and longitude in degrees, minutes, seconds units(LAT_DMS, LON_DMS) and in decimal degrees (LAT_DEC_DEG, LON_DEC_DEG). Universal Transverse Mercator (UTM) coordinates (Zone 11) are also provided in meters [UTM (X) and UTM(Y)]. Columns in which the element headings show the letters "SLQ" or "PPM_SLQ" after the element symbol are total digestion ICP-AES analyses; "P_PPMLQ" indicates partial digestion ICP-AES; and "PPMLT" indicates atomic absorption analyses. An "L" following a value in the tables indicates that the element is below the lower reporting limit shown for that element. An "N" following a value in the tables indicates that a given element was looked for but not detected at the lower limit of determination shown for that element. If an element was observed but was greater than the upper reporting value, a "G" was entered in the table following the upper limit of determination. Because of the formatting used in the computer program that produced the tables, some of the elements listed carry one or more non significant zeros to the right of the significant digits. The analysts did not determine these elements to the accuracy suggested by the extra zeros.

Basic Statistics and Single Element Geochemical Maps

Basic statistics for each element were calculated using the computer program Statview II (Abacus Concepts, 1987) and are presented in Appendix 2. For each element the following parameters were calculated: mean, standard deviation, standard error, variance, coefficient of variation, count, minimum, maximum, range, sum, sum of squares, number missing, values at the 10th, 25th, 50th, 75th, and 90th percentiles, number of values >90th percentile, number of values < 10th percentile, mode, geometric mean, Harmonic mean, kurtosis and skewness. Box plots for each element (Figure 4) graphically illustrate the percentile distribution of the data for each element and each factor. The top of the box represents the 75th percentile, the bottom the 25th percentile, and the line in the middle the 50th percentile. The lines extending above and below the box

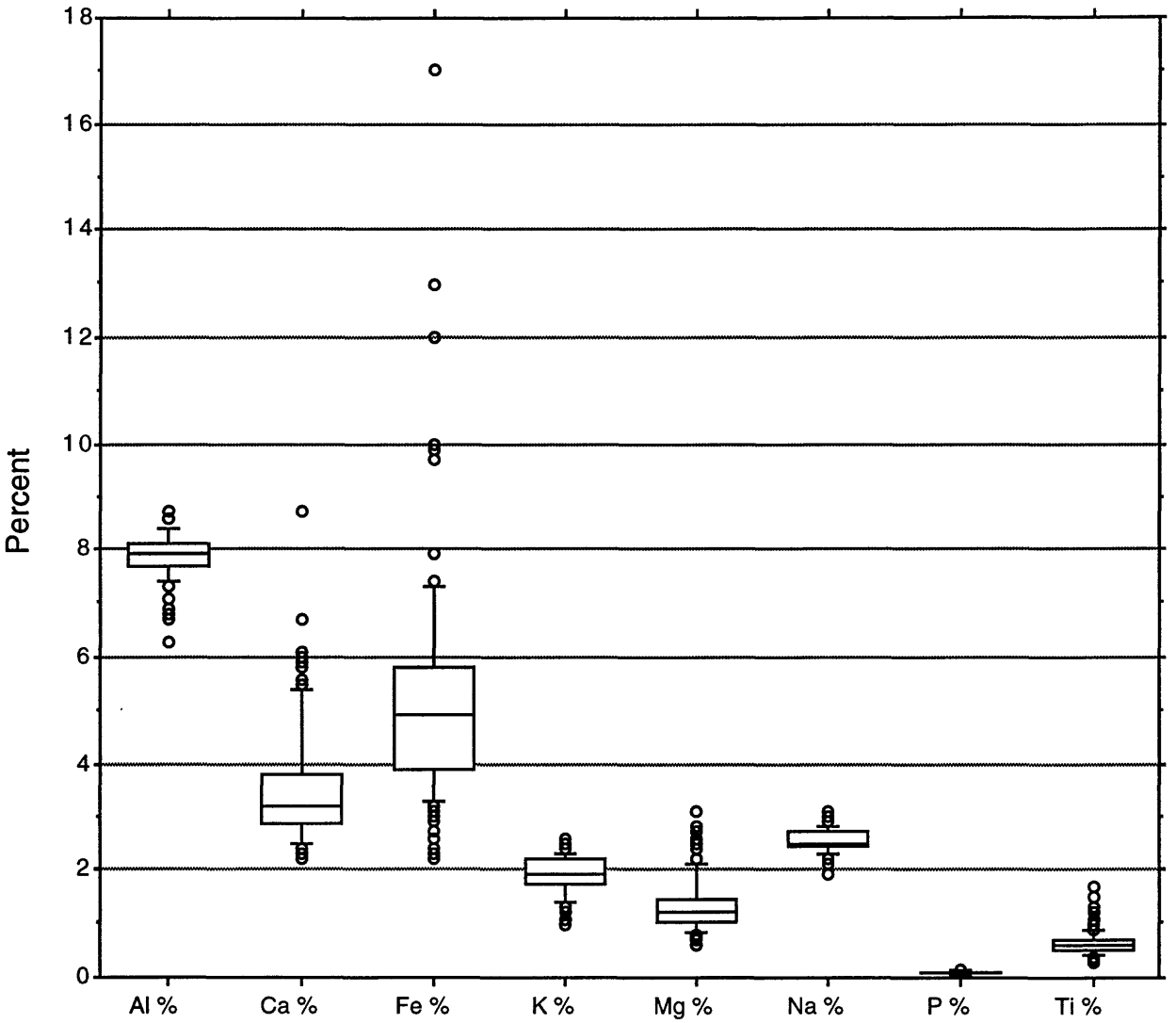

FIGURE 4. Box plots showing percentiles for each element. See text for further description.

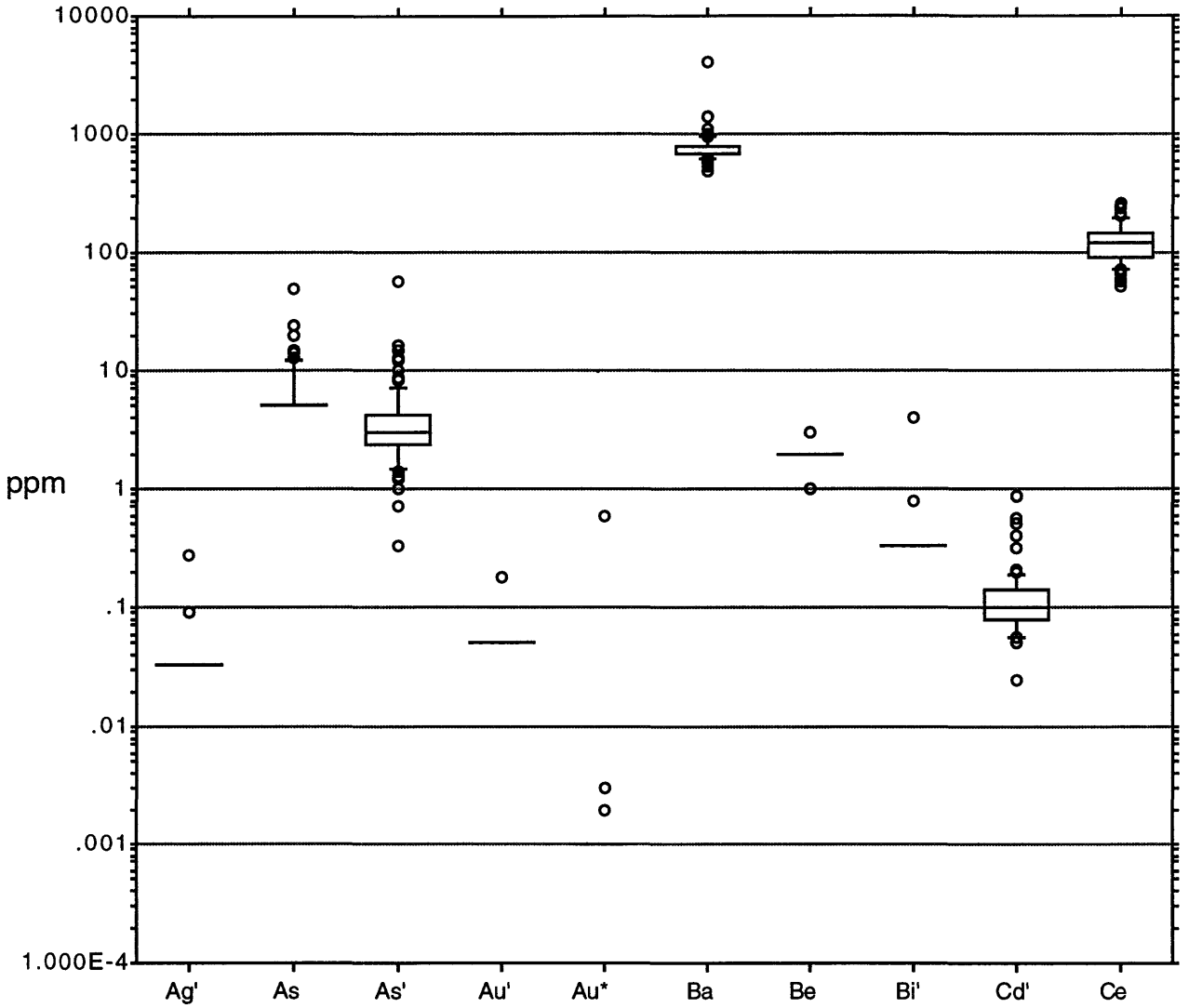

FIGURE 4. Box plots showing percentiles for each element (continued). See text for further description.

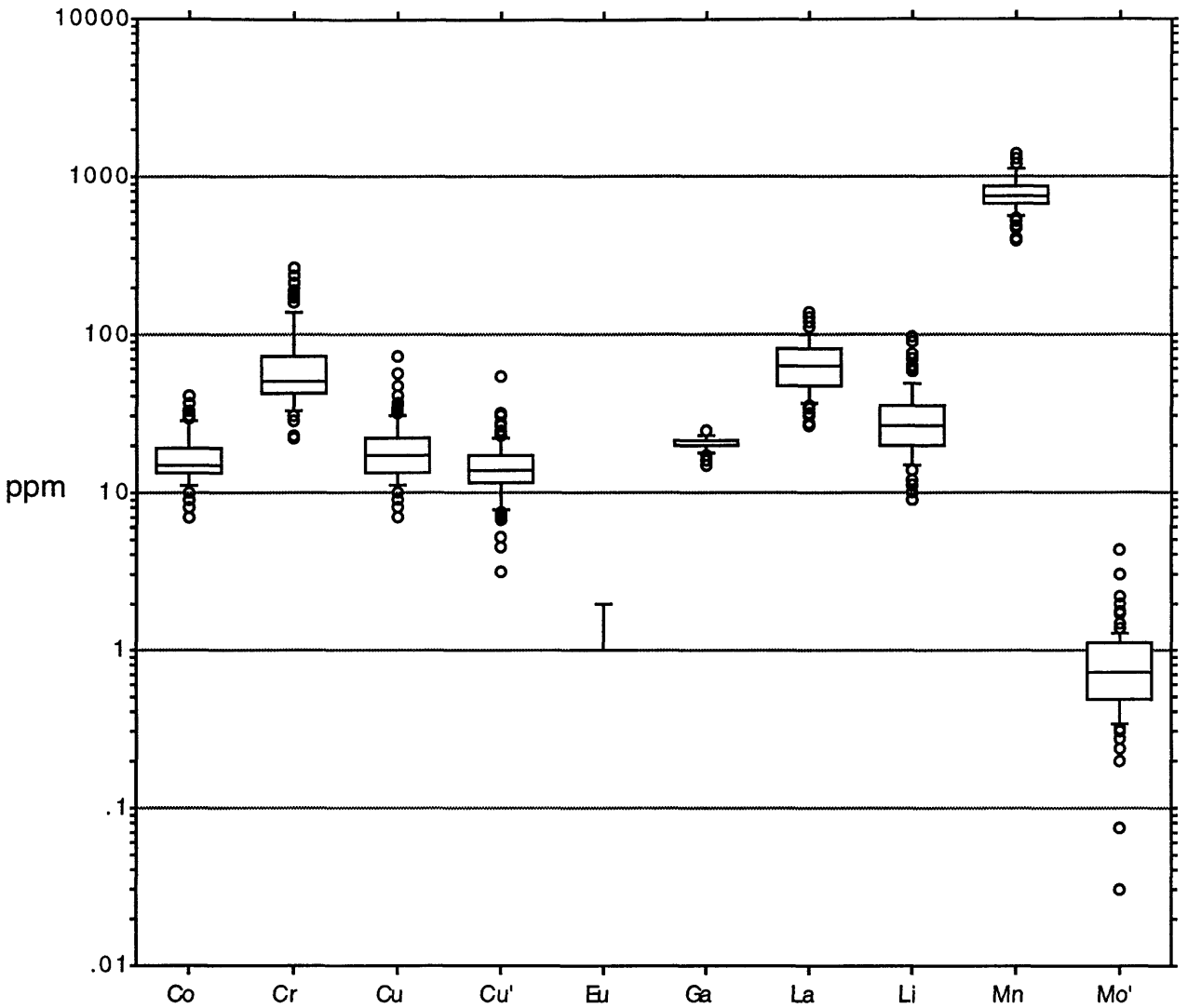

FIGURE 4. Box plots showing percentiles for each element (continued). See text for further description.

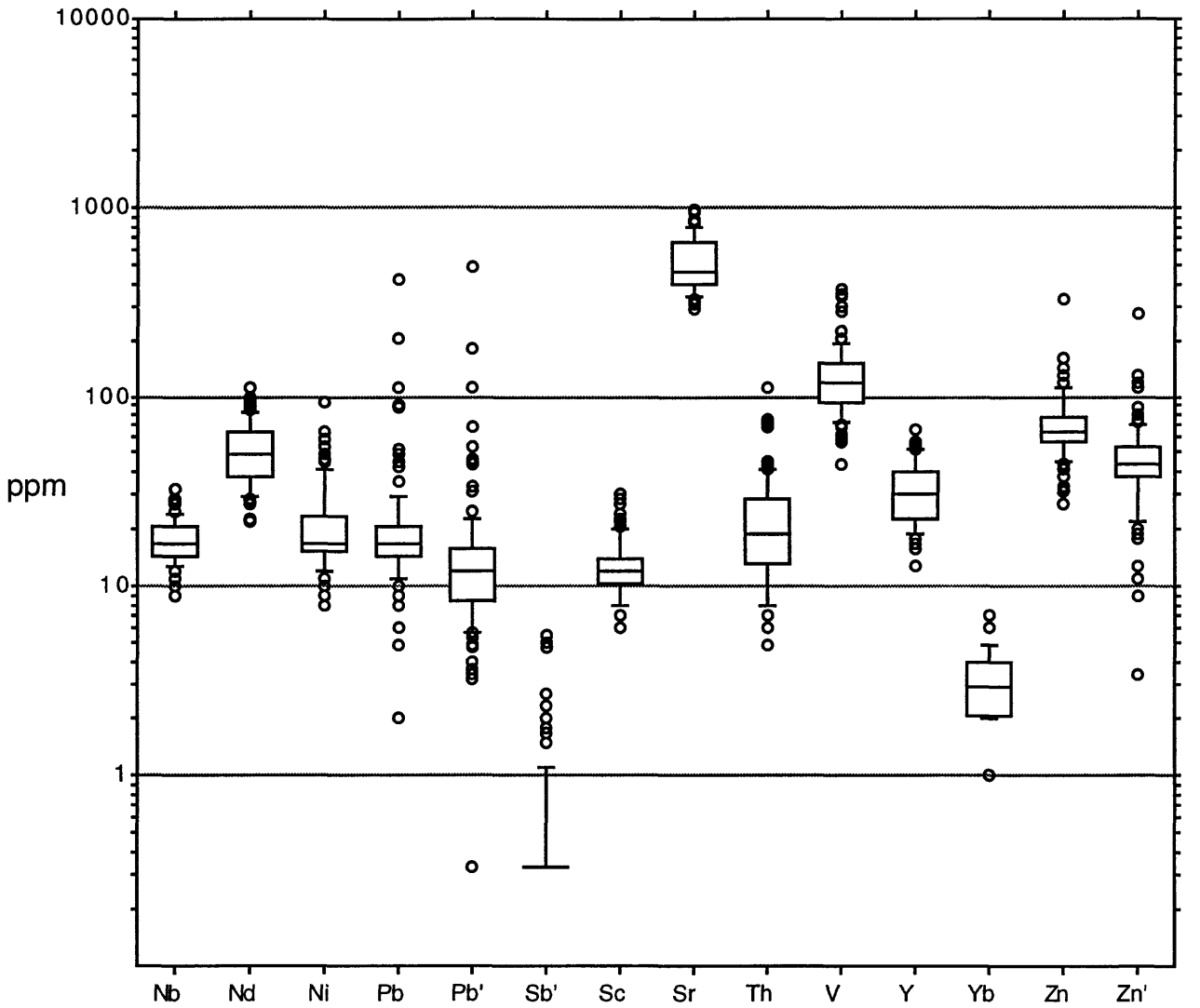

FIGURE 4. Box plots showing percentiles for each element (continued). See text for further description.

are referred to as whiskers. The top whisker represents the 90th percentile and the bottom whisker the 10th percentile. The small circles above or below the whiskers represent values above or below the 90th and10th percentiles.

Linear Proportional Symbol Maps were constructed using the computer program MacGRIDZO (RockWare, 1990) for each element (Ag, Al, As, Au, Ba, Be, Bi, Ca, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Th, Ti, V, and Zn) and are presented in Appendix 4. The maps are page size and cover the same area as portrayed on the sample-site map (Figure 3). On these maps the size of the symbols vary linearly as a function of the element concentration between the minimum and maximum symbol size declared by the user. For this report the minimum symbol size is about 0.5 mm and the maximum symbol size is about 5 mm. The symbol size for each value between the minimum and maximum were scaled according to the following equation:

$$\text{symbol size} = ((Z_{value} - Z_{min}) / Z_{range}) \times SIZE_{range}) + MIN_{size}$$

where Z_{value} is the element concentration, Z_{min} is the minimum element concentration, Z_{range} is the element concentration range, $SIZE_{range}$ is the symbol size range declared by the user, and MIN_{size} is the minimum symbol size declared by the user. The method of analysis for each element is indicated as follows: elements without an apostrophy or an asterick (e.g. Cu) were analyzed by total digestion ICP-AES, elements followed by an apostrophy (e.g. Ag') were analyzed by partial digestion ICP-AES, and gold analyzed by graphite furnace AA is indicated with a asterick (e.g. Au*).

The geochemical data portrayed on the proportional symbol maps show several areas on the Base that contain elevated concentrations of elements typically associated with metallic mineralization. Most of these areas are in places where mineralization was recognized and prospected by miners earlier in the century. For example, sample tp-43 (App. 1, Fig. 3) is from a drainage on Lead Mountain that contains the War Eagle mine and has elevated concentrations of As, Ba, Pb, Zn, Cd, Mo, and Sb. Samples from other drainages on Lead Mtn have elevated, but lower, concentrations of the same suite of elements. Samples from drainages that contain mines on Sunshine peak (Mowry Mine, tp-88; Tip Top and Imperial Lode mines tp-90) contain elevated concentrations of Ag, Au, Cu, Pb, and Zn. The drainage on the south side of Sunshine peak (tp-96) contains no known propects but has elevated Au (.18 ppm), Pb, and Zn, suggesting that mineralization

extends into this drainage. Sample tp-86 is from a drainage on the east side of Sunshine peak that has elevated concentrations of Sb.

In a few places, evidence of mineralization was detected where previous evidence of mining is absent. For example, the highest concentration of Bi, 4 ppm, (tp-104, Fig. 3) was from a drainage with no known prospects. Similarly samples tp- 72, 73, 93, 94, 95, and 113 drain a mountainous area composed largely of dacitic volcanic rocks ~10 km southeast of Sunshine Peak and have elevated concentrations of As and/or Sb. Only one small prospect pit is known in this area which is represented by stream-sediement sample tp-95.

In the area extending WNW from Sunshine Peak to southwest of Lead Mountain, many drainages have slightly elevated concentrations of one or more of the elements As, Ba, Cu, Mn, Sb, and Zn. Most of the Miocene volcanic and intrusive rocks also occur along, or north of, this trend. Outside the Base, the Silver Bell mine, Stedman district, and America mine are all on, or near, this trend suggesting that it was an important locus for Miocene igneous and hydrothermal activity. Most of the base- and precious-metal mineralization on the base is probably related to this event. The most prospective ground on the base other than the Sunshine Peak and Lead Mtn areas is in areas containing Miocene igneous rocks.

Interelement Correlations and Factor Analysis

For the purposes of calculating correlation coefficients and factor analysis, samples with element concentrations below the detection limit for a given element were replaced with a value about one half the lower determination limit. Interelement correlation coefficients were calculated using Statview II (Abacus Concepts, 1987) are presented in Appendix 3.

R-mode factor analysis was performed on the data set using Statview II (Abacus Concepts, 1987), to further identify underlying element associations in the data, especially elements associated with mineralization. For the purposes of factor analysis, where an element was analyzed by two methods, the analytical results from the more sensitive partial digestion ICP-AES method were used. Factor analysis shows that most of the variation in the data can be accounted for by an eight factor model. Factor loadings for each element in each factor are shown in Table 2. The proportion of the common variance accounted for by each factor is also shown. Most of the factors appear to represent an aspect of the physical makeup of the sediments and rocks in the field area. Factors 1 and 2 contain element associations that are probably attributable to terrains composed of different rock types. Factor 1 with high loadings for Mg,

Table 2. Element associations determined by factor model.

Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Mg 1.010	P .979	As .934	Ga .775	Zn .841	Fe .681	Sb .747	Be .882
Sc .971	Y .981	Pb .928	Ti .506	Cu .805	Al -.662		
Ni .957	Yb .939	Ba .925	Sr .490	Cd .768	V .623		
Cr .909	Nd .933	Mo .620		Ga .391	Na -.585		
Co .892	Ce .918	Sb .305			Th .484		
Ca .814	La .889				P -.476		
Mn .697	Nb .798						
K -.609	Sr -.634						
Ti .544	Al -.498						
Na -.447							
Proportionate Variance Contribution							
0.29	0.276	0.123	0.061	0.092	0.087	0.038	0.033

Sc, Ni, Cr, Co, Ca, Mn, and Ti, and negative loadings for K and Na represents areas containing Miocene andesitic and basaltic volcanic rocks that lack felsic volcanics or Mesozoic granitic rocks. Factor 2 with high loadings for P, Y, Yb, Nd, Ce, La, Nb, and negative loadings for -Sr and -Al represents areas containing Mesozoic granitic rocks and/or alluvium derived largely from granitic rocks. Factor 3 with high loadings for As, Pb, Ba, and Mo represents the Ag-basemetal mineralization at Lead Mountain. Factor 4 with high loadings for Ga, Ti, and Sr is difficult to interpret; high loadings are in areas with Miocene volcanics, Mesozoic granitic rocks, and alluvium. It may be an analytical affect or possibly due to contamination (e.g. ordnance, flares?). Factor 5 with high loadings for Zn, Cu, Cd, and possibly Ga represents the Au, Ag, basemetal mineralization at Sunshine peak. Factor 6 with high loadings for Fe, -Al, V, -Na, Th, and -P is also difficult to interpret. It may represent iron skarn mineralization or could be due to contamination by iron and steel from vehicles and ordnance. Factor 7 with high loading for Sb is highest on the margin of Sunshine peak and in areas with Miocene volcanics. It may be indicative of epithermal precious and or basemetal mineralization in volcanics. Factor 8 with high loadings for Be may be indicative of pegmatites or rhyolites. Factors 3, 5, and 7 contain element associations that are suggestive of base- and(or) precious-metal mineralization associated with Miocene volcanic and intrusive centers. Samples collected from drainages with high loadings for these factors have an increased probability of containing base- or precious-metal mineralization that may, or may not, be of economic value. Proportional symbol plots for each factor are provided in Appendix 5.

Conclusions

Several areas within Twentynine Palms Marine Corp Base contain elevated concentrations of elements commonly associated with base- and precious-metal mineralization. Most of the mineralized areas are hosted in, or occur in the vicinity of, intermediate to felsic Miocene volcanic and intrusive rocks. Mineral potential is greatest in areas containing Miocene igneous rocks with elevated concentrations of one or more of the elements Ag, As, Au, Ba, Bi, Cd, Cu, Mo, Mn, Pb, Sb, and Zn. Most of these areas were identified and prospected by miners earlier in the century. A few sites contain elevated concentrations of metallic elements in areas where mining never took place. Given the low relief and thick alluvial cover over much of the area it is possible that mineralized

areas are present that were not detected by the stream-sediment survey.

The fact that the highest concentrations of pathfinder elements are in or near areas of known mineralization or Miocene igneous rocks suggests that there is remarkably little contamination by the military operations on the Base. This is reasonable when you consider that most of the contamination on the Base is due to iron, steel, and aluminum ordnance. The brass cartridges (composed of Cu and Zn plus or minus other metals) used extensively in the past, are being replaced more and more by aluminum and plastic cartridges. Samples with elevated concentrations of Cu and Zn are mainly in areas of known mines and prospects on Sunshine Peak that contain elevated concentrations of pathfinder elements not present in brass cartridges (Au, Ag, Cd).

This survey has increased understanding of the types of mineralization and associated suites of elements present in Twentynine Palms Marine Corp Base. When combined with data from surrounding regions, this information will improve our ability to assess the mineral resource potential of southern California.

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APPENDIX 1

DATA TABLES

PRIME_ID	SECND_ID	LAT_DMS	LON_DMS	LON_DEC_DEG	LAT_DEC_DEG	UTM (X)	UTM (Y)	AL_____SLQ	CA_____SLQ	FE_____SLQ	K_____SLQ	MG_____SLQ
tp001	D530038	341551	1160341	-116.061389	34.264167	586413	3791650	7.70000	2.90000	3.50000	2.10000	0.72000
tp002	D530039	341431	1160053	-116.014722	34.241944	590733	3789226	7.80000	2.90000	4.00000	2.10000	0.84000
tp003	D530040	341828	1160050	-116.013889	34.307778	590740	3796527	7.50000	3.10000	5.30000	2.30000	1.30000
tp004	D530041	342022	1160141	-116.028056	34.339444	589402	3800026	7.30000	2.40000	10.00000	2.20000	1.20000
tp005	D530042	342110	1160312	-116.053333	34.352778	587063	3801482	7.70000	3.10000	5.50000	2.10000	1.10000
tp006	D530043	342116	1160229	-116.041389	34.354444	588160	3801677	7.60000	3.30000	6.40000	2.30000	1.00000
tp007	D530044	342303	1160216	-116.037778	34.384167	588460	3804976	7.60000	2.70000	5.60000	2.30000	1.20000
tp008	D530045	342312	1160441	-116.078056	34.386667	584755	3805219	7.60000	2.30000	5.70000	1.90000	1.10000
tp009	D530046	342448	1160511	-116.086389	34.413333	583962	3808169	7.70000	3.10000	4.00000	2.20000	1.30000
tp010	D530047	342507	1160427	-116.074167	34.418611	585080	3808764	8.00000	2.80000	4.60000	2.30000	1.40000
tp011	D530048	342520	1160327	-116.057500	34.422222	586608	3809179	7.90000	2.90000	4.90000	2.10000	1.40000
tp012	D530049	342519	1160140	-116.027778	34.421944	589340	3809174	7.60000	2.70000	5.70000	2.30000	1.10000
tp013	D530050	342530	1160053	-116.014722	34.425000	590536	3809524	8.00000	2.70000	4.00000	1.90000	1.30000
tp014	D530051	342720	1160037	-116.010278	34.455556	590912	3812917	8.00000	3.20000	5.80000	1.80000	1.30000
tp015	D530052	342737	1155918	-115.988333	34.460278	592922	3813460	7.40000	3.60000	7.30000	1.80000	1.30000
tp016	D530053	342543	1155715	-115.954167	34.428611	596096	3809981	6.90000	3.30000	12.00000	1.70000	0.95000
tp017	D530054	342430	1155834	-115.976111	34.408333	594103	3807712	7.80000	2.50000	5.40000	2.60000	1.10000
tp018	D530055	342340	1155815	-115.970833	34.394444	594604	3806176	7.50000	2.40000	6.50000	2.50000	1.10000
tp019	D530056	342305	1155732	-115.958889	34.384722	595713	3805110	7.70000	2.40000	5.10000	2.30000	1.00000
tp020	D530057	342111	1155715	-115.954167	34.353056	596183	3801602	7.70000	2.50000	5.20000	2.30000	1.20000
tp021	D530058	342106	1155714	-115.953889	34.351667	596210	3801448	7.10000	2.50000	10.00000	2.20000	1.10000
tp022	D530059	342017	1155613	-115.936944	34.338056	597785	3799956	6.70000	2.50000	13.00000	1.90000	0.91000
tp023	D530060	342008	1155617	-115.938056	34.335556	597685	3799677	7.80000	2.90000	4.80000	2.10000	1.20000
tp024	D530061	342153	1160958	-116.166111	34.364722	576680	3802716	7.70000	3.10000	5.60000	2.20000	1.10000
tp025	D530062	342334	1161035	-116.176389	34.392778	575709	3805819	7.60000	3.20000	5.40000	2.10000	0.98000
tp026	D530063	342521	1161203	-116.200833	34.422500	573436	3809097	7.80000	3.20000	3.30000	2.20000	0.81000
tp027	D530064	342704	1161109	-116.185833	34.451111	574789	3812280	8.10000	2.70000	4.00000	2.10000	1.50000
tp028	D530065	343224	1161144	-116.195556	34.540000	573818	3822130	8.30000	6.10000	5.60000	1.30000	2.70000
tp029	D530066	343258	1161119	-116.188611	34.549444	574446	3823182	8.00000	5.60000	6.60000	1.40000	2.40000
tp030	D530067	343224	1161005	-116.168056	34.540000	576342	3822150	8.10000	4.40000	4.90000	1.60000	1.90000
tp031	D530068	343345	1160827	-116.140833	34.562500	578818	3824666	8.00000	5.90000	6.00000	1.40000	2.50000
tp032	D530069	343614	1160938	-116.160556	34.603889	576971	3829241	8.40000	4.90000	3.70000	1.80000	1.60000
tp033	D530070	343229	1160720	-116.122222	34.541389	580546	3822340	8.00000	6.70000	5.90000	1.30000	2.60000
tp034	D530071	343258	1160609	-116.102500	34.549444	582348	3823249	8.20000	5.40000	5.20000	1.70000	2.20000
tp035	D530072	343131	1160613	-116.103611	34.525278	582269	3820568	8.40000	8.70000	5.80000	1.10000	2.10000
tp036	D530073	343513	1160621	-116.105833	34.586944	582005	3827405	8.00000	5.00000	5.70000	1.70000	2.40000
tp037	D530074	343021	1155836	-115.976667	34.505833	593942	3818523	8.10000	3.80000	4.70000	2.10000	0.77000
tp038	D530075	343013	1155907	-115.985278	34.503611	593155	3818268	7.90000	4.00000	6.80000	1.80000	1.10000
tp039	D530076	342226	1154503	-115.750833	34.373889	614856	3804124	7.60000	3.00000	5.20000	2.40000	0.94000
tp040	D530077	342506	1154437	-115.743611	34.418333	615459	3809061	8.00000	3.10000	3.60000	2.40000	1.30000
tp041	D530078	342403	1154513	-115.753611	34.400833	614564	3807109	7.90000	2.90000	3.40000	2.00000	0.94000
tp042	D530079	342647	1154625	-115.773611	34.446389	612664	3812138	8.00000	3.10000	3.50000	2.40000	1.10000
tp043	D530080	342718	1155426	-115.907222	34.455000	600379	3812953	7.90000	3.00000	4.00000	2.40000	0.92000
tp044	D530081	342920	1155539	-115.927500	34.488889	598477	3816690	8.40000	3.70000	3.20000	2.30000	0.78000
tp045	D530082	342321	1155053	-115.848056	34.389167	605897	3805712	7.90000	2.60000	4.10000	2.40000	1.10000
tp046	D530083	342309	1155135	-115.859722	34.385833	604829	3805331	7.80000	2.60000	4.20000	2.30000	1.40000
tp047	D530084	342148	1155029	-115.841389	34.363333	606542	3802855	8.10000	3.50000	3.30000	2.40000	1.10000
tp048	D530085	342055	1155018	-115.838333	34.348611	606842	3801225	7.90000	3.60000	3.30000	2.30000	1.10000
tp049	D530086	342018	1155016	-115.837778	34.338333	606907	3800086	7.70000	3.00000	4.10000	2.20000	1.50000
tp050	D530087	341803	1155857	-115.982500	34.300833	593636	3795785	8.00000	2.50000	3.80000	2.30000	1.30000
tp051	D530088	341814	1155724	-115.956667	34.303889	596009	3796148	7.80000	2.90000	4.30000	2.00000	1.30000
tp052	D530089	341943	1155416	-115.904444	34.328611	600786	3798940	7.50000	3.30000	6.00000	2.00000	1.30000
tp053	D530090	341906	1155400	-115.900000	34.318333	601207	3797805	7.60000	2.80000	5.50000	2.20000	1.20000
tp054	D530091	341844	1155236	-115.876667	34.312222	603361	3797150	7.50000	3.50000	5.80000	2.20000	1.40000
tp055	D530092	341623	1160512	-116.086667	34.273056	584076	3792614	7.90000	3.00000	4.00000	2.00000	0.88000
tp056	D530093	341711	1160529	-116.091389	34.286389	583628	3794088	7.70000	3.00000	5.70000	1.90000	0.87000
tp057	D530094	341936	1160600	-116.100000	34.326667	582797	3798548	8.10000	2.90000	2.60000	2.00000	0.77000
tp058	D530095	341956	1154303	-115.717500	34.332222	617979	3799542	8.10000	3.10000	3.00000	2.30000	0.90000
tp059	D530096	341728	1154636	-115.776667	34.291111	612591	3794916	8.10000	2.60000	2.20000	2.30000	0.75000

PRIME_ID	SECND_ID	LAT_DMS	LON_DMS	LON_DEC_DEG	LAT_DEC_DEG	UTM (X)	UTM (Y)	AL_____SLQ	CA_____SLQ	FE_____SLQ	K_____SLQ	MG_____SLQ
tp060	D530097	341811	1154855	-115.815278	34.303056	609022	3796198	8.10000	2.70000	3.20000	2.30000	0.88000
tp061	D530098	341935	1155009	-115.835833	34.326389	607101	3798764	7.70000	4.50000	5.00000	2.10000	1.90000
tp062	D530099	342408	1160806	-116.135000	34.402222	579505	3806898	7.70000	2.60000	5.20000	1.60000	1.30000
tp063	D530100	342513	1160733	-116.125833	34.420278	580331	3808907	7.40000	3.20000	6.30000	1.70000	1.50000
tp064	D530101	342638	1160751	-116.130833	34.443889	579848	3811522	7.50000	4.50000	5.80000	1.70000	1.60000
tp065	D530102	342937	1160806	-116.135000	34.493611	579419	3817032	7.70000	6.10000	5.90000	1.20000	3.10000
tp066	D530103	343123	1160350	-116.063889	34.523056	585918	3820355	7.30000	4.80000	9.70000	1.20000	2.60000
tp067	D530104	343128	1160228	-116.041111	34.524444	588007	3820528	8.00000	4.00000	5.00000	1.50000	1.10000
tp068	D530105	343013	1160128	-116.024444	34.503611	589559	3818233	8.70000	4.30000	4.50000	1.50000	1.40000
tp069	D530106	342932	1160216	-116.037778	34.492222	588347	3816958	8.30000	3.70000	5.70000	1.50000	1.30000
tp070	D530107	342933	1160231	-116.041944	34.492500	587964	3816986	8.20000	3.60000	3.70000	1.60000	1.20000
tp071	D530108	343437	1161203	-116.200833	34.576944	573301	3826223	8.30000	5.60000	4.10000	1.50000	1.60000
tp072	D530109	343429	1161259	-116.216389	34.574722	571876	3825965	8.20000	5.60000	5.40000	1.40000	2.00000
tp073	D530110	343434	1161301	-116.216944	34.576111	571824	3826119	7.10000	6.00000	7.90000	1.20000	2.40000
tp074	D530111	343632	1161445	-116.245833	34.608889	569147	3829734	8.30000	4.10000	3.10000	1.90000	1.00000
tp075	D530112	342303	1161804	-116.301111	34.384167	564251	3804778	7.70000	2.90000	6.30000	1.80000	0.87000
tp076	D530113	342404	1161908	-116.318889	34.401111	562604	3806646	8.30000	2.60000	2.40000	1.90000	0.70000
tp077	D530114	342543	1162055	-116.348611	34.428611	559852	3809677	7.90000	2.60000	3.60000	1.80000	0.69000
tp078	D530115	342649	1162025	-116.340278	34.446944	560605	3811715	7.70000	2.20000	2.30000	2.10000	0.61000
tp079	D530116	342856	1162313	-116.386944	34.482222	556294	3815600	7.30000	2.50000	5.60000	1.90000	0.61000
tp080	D530117	343109	1162432	-116.408889	34.519167	554255	3819684	7.90000	3.00000	4.40000	1.70000	0.92000
tp081	D530118	343246	1162507	-116.418611	34.546111	553346	3822667	8.30000	3.30000	5.80000	1.70000	1.20000
tp082	D530119	343334	1162619	-116.438611	34.559444	551502	3824135	8.40000	3.80000	6.50000	1.70000	1.40000
tp083	D530120	343546	1162806	-116.468333	34.596111	548754	3828186	8.40000	3.40000	3.80000	2.00000	1.40000
tp084	D530121	343724	1162907	-116.485278	34.623333	547185	3831197	7.90000	2.90000	4.60000	2.10000	1.10000
tp085	D530122	343804	1162637	-116.443611	34.634444	550998	3832449	8.20000	3.30000	3.30000	1.90000	0.82000
tp086	D530123	344013	1162704	-116.451111	34.670278	550289	3836419	8.40000	2.90000	3.70000	2.30000	0.98000
tp087	D530124	344301	1162656	-116.448889	34.716944	550464	3841595	8.30000	2.70000	3.50000	2.50000	1.00000
tp088	D530125	344119	1162430	-116.408333	34.688611	554196	3838474	8.10000	3.20000	4.40000	2.10000	1.00000
tp089	D530126	344234	1162230	-116.375000	34.709444	557235	3840803	7.90000	3.60000	5.40000	2.10000	1.10000
tp090	D530127	344000	1162200	-116.366667	34.666667	558028	3836064	8.20000	2.70000	3.60000	2.30000	1.30000
tp091	D530128	344104	1161747	-116.296389	34.684444	564453	3838078	7.50000	3.60000	9.90000	1.70000	1.40000
tp092	D530129	343855	1161613	-116.270278	34.648611	566874	3834122	8.60000	3.60000	2.70000	2.20000	1.00000
tp093	D530130	343735	1161653	-116.281389	34.626389	565873	3831650	7.60000	4.50000	7.40000	1.70000	2.00000
tp094	D530131	343810	1161915	-116.320833	34.636111	562250	3832703	8.30000	5.00000	4.40000	1.90000	1.60000
tp095	D530132	343736	1161958	-116.332778	34.626667	561162	3831648	8.00000	3.90000	4.60000	2.20000	1.50000
tp096	D530133	343723	1162221	-116.372500	34.623056	557524	3831224	8.20000	3.60000	3.10000	2.00000	1.10000
tp097	D530134	343532	1162241	-116.378056	34.592222	557035	3827802	7.80000	3.80000	4.60000	2.20000	0.95000
tp098	D530135	343610	1162329	-116.391389	34.602778	555806	3828966	8.40000	4.20000	3.90000	1.60000	1.50000
tp099	D530136	343650	1162445	-116.412500	34.613889	553863	3830186	8.40000	3.10000	3.90000	1.70000	1.30000
tp100	D530137	343708	1162513	-116.420278	34.618889	553146	3830736	8.70000	3.50000	2.90000	1.40000	1.50000
tp101	D530138	343740	1162544	-116.428889	34.627778	552351	3831718	8.30000	3.70000	3.30000	1.90000	1.20000
tp102	D530139	342248	1155650	-115.947222	34.380000	596791	3804597	7.60000	4.00000	6.80000	1.70000	1.70000
tp103	D530140	342411	1155602	-115.933889	34.403056	597990	3807166	6.30000	3.00000	17.00000	1.40000	1.30000
tp104	D530141	342519	1155446	-115.912778	34.421944	599908	3809282	8.10000	3.70000	5.00000	1.90000	1.70000
tp105	D530142	342542	1155316	-115.887778	34.428333	602197	3810015	7.50000	3.40000	7.30000	1.80000	1.20000
tp106	D530143	342612	1154942	-115.828333	34.436667	607649	3811001	7.80000	3.10000	3.90000	1.90000	1.30000
tp107	D530144	342037	1161317	-116.221389	34.343611	571615	3800334	8.10000	2.80000	3.40000	1.90000	0.98000
tp108	D530145	342048	1161151	-116.197500	34.346667	573809	3800690	7.90000	2.80000	4.60000	1.80000	1.00000
tp109	D530146	342259	1161433	-116.242500	34.383056	569640	3804694	7.30000	3.40000	6.80000	1.80000	1.00000
tp110	D530147	342655	1161704	-116.284444	34.448611	565732	3811935	8.00000	2.30000	4.90000	1.70000	1.30000
tp111	D530148	343112	1162034	-116.342778	34.520000	560322	3819814	7.60000	3.10000	7.20000	1.80000	1.20000
tp112	D530149	343117	1162019	-116.338611	34.521389	560704	3819971	6.80000	3.20000	13.00000	1.60000	0.95000
tp113	D530150	343115	1161948	-116.330000	34.520833	561495	3819914	8.10000	4.10000	4.90000	1.80000	1.50000
tp114	D530151	342905	1161633	-116.275833	34.484722	566495	3815944	8.60000	5.50000	5.20000	1.20000	2.50000
tp115	D530152	342802	1161420	-116.238889	34.467222	569902	3814029	8.30000	5.80000	6.20000	1.00000	2.80000

PRIME_ID	NA_____SLQ	P_____SLQ	TI_____SLQ	MN_PPM_SLQ	AG_PPM_SLQ	AS_PPM_SLQ	AU_PPM_SLQ	BA_PPM_SLQ	BE_PPM_SLQ	BI_PPM_SLQ	CD_PPM_SLQ	CE_PPM_SLQ
tp001	2.80000	0.06000	0.39000	480.00000	2.0000L	10.0000L	8.0000L	670.00000	2.00000	10.0000L	2.0000L	110.00000
tp002	2.70000	0.09000	0.48000	550.00000	2.0000L	10.0000L	8.0000L	660.00000	2.00000	10.0000L	2.0000L	160.00000
tp003	2.20000	0.10000	0.52000	640.00000	2.0000L	10.0000L	8.0000L	630.00000	2.00000	10.0000L	2.0000L	150.00000
tp004	2.20000	0.14000	0.83000	820.00000	2.0000L	10.0000L	8.0000L	690.00000	2.00000	10.0000L	2.0000L	210.00000
tp005	2.60000	0.11000	0.65000	740.00000	2.0000L	10.0000L	8.0000L	640.00000	2.00000	10.0000L	2.0000L	170.00000
tp006	2.60000	0.11000	0.61000	710.00000	2.0000L	10.0000L	8.0000L	710.00000	2.00000	10.0000L	2.0000L	180.00000
tp007	2.50000	0.14000	0.63000	650.00000	2.0000L	10.0000L	8.0000L	650.00000	2.00000	10.0000L	2.0000L	160.00000
tp008	3.00000	0.10000	0.44000	650.00000	2.0000L	10.0000L	8.0000L	580.00000	2.00000	10.0000L	2.0000L	160.00000
tp009	2.40000	0.10000	0.45000	650.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	120.00000
tp010	2.40000	0.12000	0.50000	790.00000	2.0000L	10.0000L	8.0000L	690.00000	2.00000	10.0000L	2.0000L	120.00000
tp011	2.50000	0.10000	0.57000	740.00000	2.0000L	10.0000L	8.0000L	720.00000	2.00000	10.0000L	2.0000L	110.00000
tp012	2.40000	0.12000	0.66000	730.00000	2.0000L	10.0000L	8.0000L	660.00000	2.00000	10.0000L	2.0000L	170.00000
tp013	2.70000	0.10000	0.53000	610.00000	2.0000L	10.0000L	8.0000L	660.00000	2.00000	10.0000L	2.0000L	110.00000
tp014	2.60000	0.11000	0.72000	760.00000	2.0000L	10.0000L	8.0000L	740.00000	2.00000	10.0000L	2.0000L	100.00000
tp015	2.40000	0.08000	0.91000	870.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	150.00000
tp016	2.30000	0.09000	1.20000	1200.00000	2.0000L	10.0000L	8.0000L	710.00000	2.00000	10.0000L	2.0000L	160.00000
tp017	2.50000	0.14000	0.66000	790.00000	2.0000L	10.0000L	8.0000L	690.00000	2.00000	10.0000L	2.0000L	150.00000
tp018	2.50000	0.14000	0.73000	800.00000	2.0000L	10.0000L	8.0000L	670.00000	2.00000	10.0000L	2.0000L	170.00000
tp019	2.80000	0.14000	0.61000	610.00000	2.0000L	10.0000L	8.0000L	630.00000	2.00000	10.0000L	2.0000L	190.00000
tp020	2.50000	0.11000	0.63000	710.00000	2.0000L	10.0000L	8.0000L	780.00000	2.00000	10.0000L	2.0000L	220.00000
tp021	2.30000	0.12000	0.73000	760.00000	2.0000L	10.0000L	8.0000L	660.00000	2.00000	10.0000L	2.0000L	210.00000
tp022	2.30000	0.09000	0.70000	680.00000	2.0000L	10.0000L	8.0000L	570.00000	2.00000	10.0000L	2.0000L	200.00000
tp023	2.70000	0.11000	0.57000	620.00000	2.0000L	10.0000L	8.0000L	650.00000	2.00000	10.0000L	2.0000L	130.00000
tp024	2.50000	0.13000	0.69000	920.00000	2.0000L	10.0000L	8.0000L	690.00000	2.00000	10.0000L	2.0000L	240.00000
tp025	2.60000	0.15000	0.69000	800.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	250.00000
tp026	2.90000	0.08000	0.50000	520.00000	2.0000L	10.0000L	8.0000L	700.00000	2.00000	10.0000L	2.0000L	100.00000
tp027	2.50000	0.12000	0.55000	720.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	110.00000
tp028	2.20000	0.12000	0.75000	990.00000	2.0000L	10.0000L	8.0000L	650.00000	1.00000	10.0000L	2.0000L	60.00000
tp029	2.30000	0.10000	1.00000	1200.00000	2.0000L	10.0000L	8.0000L	660.00000	1.00000	10.0000L	2.0000L	78.00000
tp030	2.50000	0.09000	0.69000	870.00000	2.0000L	10.0000L	8.0000L	670.00000	2.00000	10.0000L	2.0000L	88.00000
tp031	2.30000	0.08000	0.91000	1100.00000	2.0000L	10.0000	8.0000L	630.00000	1.00000	10.0000L	2.0000L	68.00000
tp032	2.50000	0.07000	0.45000	970.00000	2.0000L	14.0000	8.0000L	1100.00000	2.00000	10.0000L	2.0000L	55.00000
tp033	2.20000	0.10000	0.76000	1100.00000	2.0000L	10.0000L	8.0000L	550.00000	1.00000	10.0000L	2.0000L	72.00000
tp034	2.30000	0.09000	0.69000	950.00000	2.0000L	10.0000L	8.0000L	620.00000	1.00000	10.0000L	2.0000L	67.00000
tp035	2.20000	0.08000	0.63000	1200.00000	2.0000L	10.0000L	8.0000L	480.00000	1.00000	10.0000L	2.0000L	51.00000
tp036	2.30000	0.09000	0.77000	1100.00000	2.0000L	15.0000	8.0000L	650.00000	2.00000	10.0000L	2.0000L	120.00000
tp037	2.70000	0.08000	0.61000	750.00000	2.0000L	10.0000	8.0000L	1000.00000	2.00000	10.0000L	2.0000L	98.00000
tp038	2.60000	0.07000	0.75000	820.00000	2.0000L	10.0000L	8.0000L	770.00000	2.00000	10.0000L	2.0000L	100.00000
tp039	2.60000	0.11000	0.41000	630.00000	2.0000L	10.0000L	8.0000L	1100.00000	2.00000	10.0000L	2.0000L	170.00000
tp040	2.40000	0.13000	0.46000	670.00000	2.0000L	10.0000L	8.0000L	780.00000	2.00000	10.0000L	2.0000L	130.00000
tp041	2.80000	0.09000	0.40000	520.00000	2.0000L	10.0000L	8.0000L	800.00000	2.00000	10.0000L	2.0000L	110.00000
tp042	2.70000	0.10000	0.43000	600.00000	2.0000L	10.0000L	8.0000L	790.00000	2.00000	10.0000L	2.0000L	110.00000
tp043	2.60000	0.09000	0.51000	1000.00000	2.0000L	48.0000	8.0000L	4000.00000	2.00000	10.0000L	2.0000L	92.00000
tp044	2.80000	0.08000	0.46000	970.00000	2.0000L	15.0000	8.0000L	1400.00000	2.00000	10.0000L	2.0000L	70.00000
tp045	2.50000	0.11000	0.42000	680.00000	2.0000L	10.0000	8.0000L	850.00000	2.00000	10.0000L	2.0000L	120.00000
tp046	2.90000	0.11000	0.50000	660.00000	2.0000L	10.0000L	8.0000L	620.00000	3.00000	10.0000L	2.0000L	160.00000
tp047	2.50000	0.12000	0.37000	700.00000	2.0000L	10.0000L	8.0000L	750.00000	3.00000	10.0000L	2.0000L	89.00000
tp048	2.60000	0.10000	0.35000	630.00000	2.0000L	10.0000L	8.0000L	710.00000	3.00000	10.0000L	2.0000L	89.00000
tp049	2.60000	0.11000	0.57000	700.00000	2.0000L	10.0000L	8.0000L	640.00000	2.00000	10.0000L	2.0000L	150.00000
tp050	2.30000	0.11000	0.48000	670.00000	2.0000L	10.0000L	8.0000L	670.00000	2.00000	10.0000L	2.0000L	120.00000
tp051	2.70000	0.12000	0.56000	630.00000	2.0000L	10.0000L	8.0000L	610.00000	2.00000	10.0000L	2.0000L	140.00000
tp052	2.60000	0.11000	0.65000	720.00000	2.0000L	10.0000L	8.0000L	620.00000	3.00000	10.0000L	2.0000L	220.00000
tp053	2.40000	0.09000	0.59000	640.00000	2.0000L	10.0000L	8.0000L	670.00000	2.00000	10.0000L	2.0000L	160.00000
tp054	2.40000	0.12000	0.72000	750.00000	2.0000L	10.0000L	8.0000L	670.00000	2.00000	10.0000L	2.0000L	190.00000
tp055	2.70000	0.09000	0.45000	540.00000	2.0000L	10.0000L	8.0000L	650.00000	2.00000	10.0000L	2.0000L	140.00000
tp056	2.70000	0.09000	0.59000	700.00000	2.0000L	10.0000L	8.0000L	640.00000	2.00000	10.0000L	2.0000L	200.00000
tp057	2.90000	0.08000	0.39000	470.00000	2.0000L	10.0000L	8.0000L	690.00000	2.00000	10.0000L	2.0000L	120.00000
tp058	2.80000	0.08000	0.33000	580.00000	2.0000L	10.0000L	8.0000L	790.00000	2.00000	10.0000L	2.0000L	100.00000
tp059	2.80000	0.06000	0.26000	620.00000	2.0000L	10.0000L	8.0000L	620.00000	3.00000	10.0000L	2.0000L	84.00000

PRIME_ID	NA_____SLQ	P_____SLQ	TI_____SLQ	MN_PPM_SLQ	AG_PPM_SLQ	AS_PPM_SLQ	AU_PPM_SLQ	BA_PPM_SLQ	BE_PPM_SLQ	BI_PPM_SLQ	CD_PPM_SLQ	CE_PPM_SLQ
tp060	2.70000	0.08000	0.35000	690.00000	2.0000L	10.0000L	8.0000L	680.00000	3.00000	10.0000L	2.0000L	140.00000
tp061	2.40000	0.15000	0.77000	820.00000	2.0000L	10.0000L	8.0000L	700.00000	2.00000	10.0000L	2.0000L	160.00000
tp062	3.10000	0.12000	0.61000	680.00000	2.0000L	10.0000L	8.0000L	560.00000	2.00000	10.0000L	2.0000L	150.00000
tp063	2.70000	0.13000	0.76000	920.00000	2.0000L	10.0000L	8.0000L	600.00000	2.00000	10.0000L	2.0000L	170.00000
tp064	2.40000	0.12000	0.88000	890.00000	2.0000L	10.0000L	8.0000L	750.00000	2.00000	10.0000L	2.0000L	150.00000
tp065	2.10000	0.12000	0.73000	1100.00000	2.0000L	10.0000L	8.0000L	630.00000	2.00000	10.0000L	2.0000L	77.00000
tp066	2.10000	0.11000	1.30000	1400.00000	2.0000L	10.0000L	8.0000L	570.00000	2.00000	10.0000L	2.0000L	100.00000
tp067	2.90000	0.11000	0.78000	830.00000	2.0000L	10.0000L	8.0000L	700.00000	2.00000	10.0000L	2.0000L	120.00000
tp068	2.70000	0.09000	0.64000	780.00000	2.0000L	10.0000L	8.0000L	820.00000	2.00000	10.0000L	2.0000L	72.00000
tp069	2.80000	0.09000	0.77000	790.00000	2.0000L	10.0000L	8.0000L	780.00000	2.00000	10.0000L	2.0000L	95.00000
tp070	2.90000	0.11000	0.57000	630.00000	2.0000L	11.0000	8.0000L	730.00000	2.00000	10.0000L	2.0000L	120.00000
tp071	2.50000	0.06000	0.57000	800.00000	2.0000L	11.0000	8.0000L	740.00000	2.00000	10.0000L	2.0000L	70.00000
tp072	2.30000	0.09000	0.76000	1200.00000	2.0000L	14.0000	8.0000L	810.00000	2.00000	10.0000L	2.0000L	75.00000
tp073	2.10000	0.06000	1.50000	1300.00000	2.0000L	13.0000	8.0000L	730.00000	2.00000	10.0000L	2.0000L	81.00000
tp074	2.30000	0.07000	0.49000	710.00000	2.0000L	10.0000L	8.0000L	950.00000	2.00000	10.0000L	2.0000L	77.00000
tp075	2.70000	0.12000	0.62000	780.00000	2.0000L	10.0000L	8.0000L	650.00000	2.00000	10.0000L	2.0000L	260.00000
tp076	3.00000	0.07000	0.31000	400.00000	2.0000L	10.0000L	8.0000L	650.00000	3.00000	10.0000L	2.0000L	75.00000
tp077	2.90000	0.08000	0.46000	540.00000	2.0000L	10.0000L	8.0000L	620.00000	2.00000	10.0000L	2.0000L	140.00000
tp078	2.80000	0.07000	0.36000	390.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	100.00000
tp079	2.50000	0.09000	0.60000	550.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	140.00000
tp080	2.40000	0.10000	0.49000	560.00000	2.0000L	10.0000L	8.0000L	700.00000	2.00000	10.0000L	2.0000L	120.00000
tp081	2.70000	0.09000	0.61000	710.00000	2.0000L	10.0000L	8.0000L	700.00000	2.00000	10.0000L	2.0000L	120.00000
tp082	3.00000	0.10000	0.98000	800.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	130.00000
tp083	2.60000	0.09000	0.59000	640.00000	2.0000L	10.0000L	8.0000L	760.00000	2.00000	10.0000L	2.0000L	87.00000
tp084	2.60000	0.10000	0.55000	640.00000	2.0000L	10.0000L	8.0000L	730.00000	2.00000	10.0000L	2.0000L	110.00000
tp085	2.60000	0.07000	0.64000	600.00000	2.0000L	10.0000L	8.0000L	980.00000	2.00000	10.0000L	2.0000L	90.00000
tp086	2.90000	0.11000	0.40000	920.00000	2.0000L	20.0000	8.0000L	780.00000	2.00000	10.0000L	2.0000L	120.00000
tp087	2.60000	0.12000	0.37000	670.00000	2.0000L	10.0000L	8.0000L	810.00000	2.00000	10.0000L	2.0000L	110.00000
tp088	2.60000	0.07000	0.61000	910.00000	2.0000L	10.0000L	8.0000L	880.00000	2.00000	10.0000L	2.0000L	100.00000
tp089	2.50000	0.08000	0.63000	760.00000	2.0000L	11.0000	8.0000L	820.00000	2.00000	10.0000L	2.0000L	84.00000
tp090	2.50000	0.08000	0.48000	1000.00000	2.0000L	11.0000	8.0000L	1400.00000	2.00000	10.0000L	2.0000L	77.00000
tp091	2.40000	0.07000	1.70000	1400.00000	2.0000L	13.0000	8.0000L	750.00000	2.00000	10.0000L	2.0000L	140.00000
tp092	2.70000	0.06000	0.46000	640.00000	2.0000L	10.0000L	8.0000L	960.00000	2.00000	10.0000L	2.0000L	66.00000
tp093	2.20000	0.08000	1.20000	1300.00000	2.0000L	12.0000	8.0000L	760.00000	2.00000	10.0000L	2.0000L	110.00000
tp094	2.40000	0.09000	0.70000	1300.00000	2.0000L	24.0000	8.0000L	960.00000	2.00000	10.0000L	2.0000L	78.00000
tp095	2.30000	0.10000	0.70000	1400.00000	2.0000L	15.0000	8.0000L	1000.00000	2.00000	10.0000L	2.0000L	84.00000
tp096	2.60000	0.09000	0.43000	680.00000	2.0000L	10.0000L	8.0000L	870.00000	2.00000	10.0000L	2.0000L	75.00000
tp097	2.30000	0.08000	0.54000	590.00000	2.0000L	10.0000L	8.0000L	860.00000	2.00000	10.0000L	2.0000L	120.00000
tp098	2.30000	0.08000	0.60000	640.00000	2.0000L	10.0000L	8.0000L	950.00000	2.00000	10.0000L	2.0000L	71.00000
tp099	2.30000	0.07000	0.51000	670.00000	2.0000L	10.0000L	8.0000L	910.00000	2.00000	10.0000L	2.0000L	77.00000
tp100	2.50000	0.08000	0.53000	570.00000	2.0000L	10.0000L	8.0000L	850.00000	2.00000	10.0000L	2.0000L	55.00000
tp101	2.50000	0.09000	0.47000	790.00000	2.0000L	10.0000L	8.0000L	980.00000	2.00000	10.0000L	2.0000L	82.00000
tp102	2.60000	0.15000	1.00000	880.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	210.00000
tp103	2.10000	0.15000	1.10000	1100.00000	2.0000L	10.0000L	8.0000L	530.00000	2.00000	10.0000L	2.0000L	200.00000
tp104	2.70000	0.13000	0.65000	800.00000	2.0000L	10.0000L	8.0000L	750.00000	2.00000	10.0000L	2.0000L	140.00000
tp105	2.50000	0.09000	0.68000	830.00000	2.0000L	10.0000L	8.0000L	690.00000	2.00000	10.0000L	2.0000L	140.00000
tp106	2.60000	0.11000	0.44000	750.00000	2.0000L	10.0000L	8.0000L	790.00000	2.00000	10.0000L	2.0000L	110.00000
tp107	2.70000	0.08000	0.43000	560.00000	2.0000L	10.0000L	8.0000L	650.00000	2.00000	10.0000L	2.0000L	120.00000
tp108	2.60000	0.10000	0.56000	700.00000	2.0000L	10.0000L	8.0000L	660.00000	2.00000	10.0000L	2.0000L	180.00000
tp109	2.50000	0.11000	0.71000	820.00000	2.0000L	10.0000L	8.0000L	610.00000	2.00000	10.0000L	2.0000L	220.00000
tp110	2.80000	0.15000	0.51000	670.00000	2.0000L	10.0000L	8.0000L	620.00000	2.00000	10.0000L	2.0000L	150.00000
tp111	2.30000	0.11000	0.70000	800.00000	2.0000L	10.0000L	8.0000L	680.00000	2.00000	10.0000L	2.0000L	140.00000
tp112	1.90000	0.08000	0.63000	880.00000	2.0000L	10.0000L	8.0000L	670.00000	2.00000	10.0000L	2.0000L	130.00000
tp113	2.40000	0.10000	0.65000	750.00000	2.0000L	15.0000	8.0000L	790.00000	2.00000	10.0000L	2.0000L	120.00000
tp114	2.50000	0.11000	0.75000	1000.00000	2.0000L	10.0000L	8.0000L	730.00000	2.00000	10.0000L	2.0000L	66.00000
tp115	2.30000	0.09000	0.76000	1100.00000	2.0000L	10.0000L	8.0000L	650.00000	2.00000	10.0000L	2.0000L	77.00000

PRIME_ID	CO_PPM_SLQ	CR_PPM_SLQ	CU_PPM_SLQ	EU_PPM_SLQ	GA_PPM_SLQ	HO_PPM_SLQ	LA_PPM_SLQ	LI_PPM_SLQ	MO_PPM_SLQ	NB_PPM_SLQ	ND_PPM_SLQ	NI_PPM_SLQ
tp001	9.00000	33.00000	7.00000	2.0000L	18.00000	4.0000L	58.00000	10.00000	2.0000L	15.00000	46.00000	10.00000
tp002	10.00000	39.00000	11.00000	2.0000L	19.00000	4.0000L	90.00000	10.00000	2.0000L	17.00000	68.00000	12.00000
tp003	15.00000	41.00000	17.00000	2.0000L	19.00000	4.0000L	78.00000	22.00000	2.0000L	19.00000	64.00000	15.00000
tp004	22.00000	49.00000	23.00000	2.0000L	19.00000	4.0000L	110.00000	21.00000	2.0000L	20.00000	77.00000	16.00000
tp005	14.00000	55.00000	20.00000	2.0000	20.00000	4.0000L	96.00000	17.00000	2.0000L	21.00000	77.00000	16.00000
tp006	14.00000	50.00000	18.00000	2.0000L	19.00000	4.0000L	99.00000	16.00000	2.0000L	20.00000	77.00000	14.00000
tp007	18.00000	38.00000	14.00000	2.0000L	19.00000	4.0000L	83.00000	21.00000	2.0000L	22.00000	71.00000	14.00000
tp008	15.00000	36.00000	11.00000	2.0000L	19.00000	4.0000L	89.00000	17.00000	2.0000L	14.00000	65.00000	14.00000
tp009	14.00000	47.00000	22.00000	2.0000L	19.00000	4.0000L	63.00000	27.00000	2.0000L	14.00000	48.00000	19.00000
tp010	16.00000	52.00000	23.00000	2.0000L	20.00000	4.0000L	62.00000	29.00000	2.0000L	16.00000	51.00000	20.00000
tp011	17.00000	56.00000	18.00000	2.0000L	20.00000	4.0000L	56.00000	28.00000	2.0000L	16.00000	48.00000	22.00000
tp012	14.00000	43.00000	15.00000	2.0000L	19.00000	4.0000L	89.00000	21.00000	2.0000L	22.00000	71.00000	16.00000
tp013	15.00000	46.00000	13.00000	2.0000L	20.00000	4.0000L	61.00000	25.00000	2.0000L	15.00000	51.00000	18.00000
tp014	19.00000	59.00000	14.00000	2.0000L	22.00000	4.0000L	52.00000	30.00000	2.0000L	17.00000	43.00000	22.00000
tp015	20.00000	90.00000	17.00000	2.0000L	20.00000	4.0000L	84.00000	24.00000	2.0000L	23.00000	61.00000	31.00000
tp016	26.00000	83.00000	15.00000	2.0000L	23.00000	4.0000L	86.00000	22.00000	2.0000L	27.00000	65.00000	23.00000
tp017	14.00000	30.00000	18.00000	2.0000L	20.00000	4.0000L	82.00000	20.00000	2.0000L	24.00000	68.00000	12.00000
tp018	15.00000	33.00000	18.00000	2.0000L	19.00000	4.0000L	92.00000	19.00000	2.0000L	28.00000	71.00000	12.00000
tp019	13.00000	33.00000	13.00000	2.0000L	20.00000	4.0000L	110.00000	18.00000	2.0000L	23.00000	82.00000	11.00000
tp020	15.00000	38.00000	21.00000	2.0000	19.00000	4.0000L	110.00000	22.00000	2.0000L	23.00000	82.00000	15.00000
tp021	23.00000	47.00000	17.00000	2.0000	19.00000	4.0000L	110.00000	20.00000	2.0000L	27.00000	88.00000	15.00000
tp022	16.00000	42.00000	12.00000	2.0000	19.00000	4.0000L	110.00000	15.00000	2.0000L	25.00000	84.00000	13.00000
tp023	15.00000	39.00000	13.00000	2.0000L	20.00000	4.0000L	70.00000	20.00000	2.0000L	19.00000	60.00000	15.00000
tp024	14.00000	54.00000	13.00000	2.0000	21.00000	4.0000L	130.00000	17.00000	2.0000L	23.00000	100.00000	19.00000
tp025	13.00000	54.00000	11.00000	2.0000	20.00000	4.0000L	140.00000	14.00000	2.0000L	22.00000	110.00000	16.00000
tp026	11.00000	48.00000	8.00000	2.0000L	18.00000	4.0000L	53.00000	19.00000	2.0000L	17.00000	46.00000	13.00000
tp027	16.00000	59.00000	18.00000	2.0000L	21.00000	4.0000L	59.00000	35.00000	2.0000L	18.00000	49.00000	23.00000
tp028	33.00000	170.00000	32.00000	2.0000L	20.00000	4.0000L	31.00000	90.00000	2.0000L	14.00000	28.00000	60.00000
tp029	33.00000	160.00000	29.00000	2.0000L	21.00000	4.0000L	41.00000	71.00000	2.0000L	16.00000	31.00000	54.00000
tp030	24.00000	74.00000	26.00000	2.0000L	20.00000	4.0000L	42.00000	62.00000	2.0000L	14.00000	38.00000	36.00000
tp031	30.00000	180.00000	34.00000	2.0000L	20.00000	4.0000L	34.00000	43.00000	2.0000L	13.00000	29.00000	49.00000
tp032	22.00000	69.00000	26.00000	2.0000L	19.00000	4.0000L	27.00000	58.00000	2.0000L	10.00000	23.00000	29.00000
tp033	33.00000	210.00000	37.00000	2.0000L	20.00000	4.0000L	36.00000	47.00000	2.0000L	12.00000	31.00000	59.00000
tp034	28.00000	140.00000	33.00000	2.0000L	20.00000	4.0000L	34.00000	61.00000	2.0000L	12.00000	31.00000	47.00000
tp035	41.00000	140.00000	57.00000	2.0000L	18.00000	4.0000L	26.00000	49.00000	2.0000L	9.00000	22.00000	60.00000
tp036	28.00000	120.00000	35.00000	2.0000L	20.00000	4.0000L	78.00000	60.00000	2.0000L	14.00000	45.00000	42.00000
tp037	13.00000	42.00000	12.00000	2.0000L	21.00000	4.0000L	54.00000	35.00000	2.0000L	14.00000	39.00000	13.00000
tp038	18.00000	62.00000	15.00000	2.0000L	21.00000	4.0000L	52.00000	39.00000	2.0000L	16.00000	41.00000	19.00000
tp039	13.00000	42.00000	11.00000	2.0000L	19.00000	4.0000L	92.00000	22.00000	2.0000L	14.00000	72.00000	14.00000
tp040	14.00000	53.00000	15.00000	2.0000L	20.00000	4.0000L	71.00000	32.00000	2.0000L	14.00000	56.00000	19.00000
tp041	14.00000	40.00000	11.00000	2.0000L	19.00000	4.0000L	60.00000	24.00000	2.0000L	15.00000	44.00000	17.00000
tp042	13.00000	48.00000	12.00000	2.0000L	19.00000	4.0000L	62.00000	27.00000	2.0000L	14.00000	50.00000	18.00000
tp043	13.00000	46.00000	15.00000	2.0000L	20.00000	4.0000L	50.00000	30.00000	2.0000L	14.00000	39.00000	16.00000
tp044	11.00000	35.00000	15.00000	2.0000L	21.00000	4.0000L	37.00000	30.00000	2.0000L	12.00000	29.00000	12.00000
tp045	13.00000	44.00000	17.00000	2.0000L	20.00000	4.0000L	63.00000	26.00000	2.0000L	14.00000	48.00000	15.00000
tp046	13.00000	53.00000	15.00000	2.0000L	20.00000	4.0000L	87.00000	24.00000	2.0000L	21.00000	67.00000	22.00000
tp047	11.00000	35.00000	15.00000	2.0000L	21.00000	4.0000L	48.00000	37.00000	2.0000L	13.00000	38.00000	14.00000
tp048	12.00000	36.00000	20.00000	2.0000L	20.00000	4.0000L	50.00000	39.00000	2.0000L	13.00000	38.00000	15.00000
tp049	15.00000	58.00000	18.00000	2.0000L	19.00000	4.0000L	76.00000	25.00000	2.0000L	24.00000	66.00000	24.00000
tp050	14.00000	49.00000	20.00000	2.0000L	20.00000	4.0000L	65.00000	27.00000	2.0000L	17.00000	50.00000	19.00000
tp051	16.00000	43.00000	17.00000	2.0000L	18.00000	4.0000L	74.00000	23.00000	2.0000L	20.00000	58.00000	16.00000
tp052	16.00000	46.00000	18.00000	2.0000	19.00000	4.0000L	120.00000	19.00000	2.0000L	25.00000	87.00000	17.00000
tp053	14.00000	41.00000	18.00000	2.0000L	19.00000	4.0000L	80.00000	24.00000	2.0000L	24.00000	69.00000	19.00000
tp054	15.00000	52.00000	16.00000	2.0000	19.00000	4.0000L	100.00000	20.00000	2.0000L	27.00000	81.00000	20.00000
tp055	11.00000	45.00000	10.00000	2.0000L	18.00000	4.0000L	75.00000	11.00000	2.0000L	16.00000	57.00000	14.00000
tp056	11.00000	50.00000	10.00000	2.0000L	18.00000	4.0000L	110.00000	10.00000	2.0000L	20.00000	84.00000	13.00000
tp057	9.00000	38.00000	8.00000	2.0000L	18.00000	4.0000L	66.00000	12.00000	2.0000L	14.00000	50.00000	11.00000
tp058	8.00000	28.00000	10.00000	2.0000L	19.00000	4.0000L	58.00000	29.00000	2.0000L	14.00000	42.00000	11.00000
tp059	7.00000	23.00000	10.00000	2.0000L	20.00000	4.0000L	47.00000	40.00000	2.0000L	15.00000	36.00000	10.00000

PRIME_ID	CO_PPM_SLQ	CR_PPM_SLQ	CU_PPM_SLQ	EU_PPM_SLQ	GA_PPM_SLQ	HO_PPM_SLQ	LA_PPM_SLQ	LI_PPM_SLQ	MO_PPM_SLQ	NB_PPM_SLQ	ND_PPM_SLQ	NI_PPM_SLQ
tp060	10.00000	30.00000	12.00000	2.0000L	19.00000	4.0000L	80.00000	34.00000	2.0000L	17.00000	60.00000	12.00000
tp061	20.00000	86.00000	22.00000	2.0000	19.00000	4.0000L	82.00000	24.00000	2.0000L	23.00000	69.00000	35.00000
tp062	14.00000	48.00000	13.00000	2.0000L	18.00000	4.0000L	85.00000	20.00000	2.0000L	19.00000	65.00000	17.00000
tp063	22.00000	55.00000	21.00000	2.0000	18.00000	4.0000L	86.00000	27.00000	2.0000L	22.00000	70.00000	19.00000
tp064	19.00000	120.00000	15.00000	2.0000L	19.00000	4.0000L	80.00000	41.00000	2.0000L	24.00000	63.00000	31.00000
tp065	37.00000	240.00000	35.00000	2.0000L	18.00000	4.0000L	37.00000	95.00000	2.0000L	14.00000	30.00000	94.00000
tp066	37.00000	260.00000	29.00000	2.0000L	21.00000	4.0000L	49.00000	69.00000	2.0000L	20.00000	41.00000	65.00000
tp067	15.00000	66.00000	11.00000	2.0000L	20.00000	4.0000L	65.00000	24.00000	2.0000L	21.00000	53.00000	17.00000
tp068	18.00000	69.00000	15.00000	2.0000L	21.00000	4.0000L	36.00000	41.00000	2.0000L	15.00000	30.00000	24.00000
tp069	18.00000	65.00000	12.00000	2.0000L	22.00000	4.0000L	50.00000	35.00000	2.0000L	16.00000	41.00000	19.00000
tp070	12.00000	44.00000	13.00000	2.0000L	20.00000	4.0000L	61.00000	31.00000	2.0000L	16.00000	48.00000	15.00000
tp071	19.00000	120.00000	22.00000	2.0000L	19.00000	4.0000L	36.00000	39.00000	2.0000L	12.00000	27.00000	32.00000
tp072	27.00000	140.00000	26.00000	2.0000L	19.00000	4.0000L	36.00000	59.00000	2.0000L	14.00000	29.00000	42.00000
tp073	33.00000	210.00000	31.00000	2.0000L	20.00000	4.0000L	35.00000	31.00000	2.0000L	17.00000	31.00000	47.00000
tp074	12.00000	48.00000	14.00000	2.0000L	20.00000	4.0000L	44.00000	37.00000	2.0000L	13.00000	29.00000	17.00000
tp075	15.00000	52.00000	10.00000	2.0000	19.00000	4.0000L	140.00000	12.00000	2.0000L	22.00000	100.00000	15.00000
tp076	10.00000	22.00000	8.00000	2.0000L	18.00000	4.0000L	39.00000	12.00000	2.0000L	14.00000	33.00000	10.00000
tp077	9.00000	31.00000	8.00000	2.0000L	17.00000	4.0000L	79.00000	9.00000	2.0000L	21.00000	58.00000	10.00000
tp078	8.00000	22.00000	9.00000	2.0000L	16.00000	4.0000L	57.00000	9.00000	2.0000L	16.00000	41.00000	9.00000
tp079	11.00000	30.00000	11.00000	2.0000L	15.00000	4.0000L	73.00000	11.00000	2.0000L	24.00000	64.00000	8.00000
tp080	13.00000	33.00000	15.00000	2.0000L	17.00000	4.0000L	66.00000	15.00000	2.0000L	17.00000	51.00000	12.00000
tp081	17.00000	53.00000	16.00000	2.0000L	20.00000	4.0000L	59.00000	17.00000	2.0000L	18.00000	50.00000	16.00000
tp082	19.00000	87.00000	12.00000	2.0000L	23.00000	4.0000L	67.00000	19.00000	2.0000L	22.00000	54.00000	22.00000
tp083	13.00000	53.00000	19.00000	2.0000L	21.00000	4.0000L	46.00000	31.00000	2.0000L	16.00000	35.00000	22.00000
tp084	12.00000	51.00000	20.00000	2.0000L	21.00000	4.0000L	62.00000	27.00000	2.0000L	17.00000	47.00000	17.00000
tp085	11.00000	44.00000	13.00000	2.0000L	22.00000	4.0000L	45.00000	28.00000	2.0000L	17.00000	38.00000	15.00000
tp086	15.00000	36.00000	24.00000	2.0000L	23.00000	4.0000L	62.00000	29.00000	2.0000L	14.00000	45.00000	17.00000
tp087	11.00000	36.00000	18.00000	2.0000L	23.00000	4.0000L	63.00000	34.00000	2.0000L	11.00000	43.00000	14.00000
tp088	13.00000	56.00000	41.00000	2.0000L	23.00000	4.0000L	51.00000	22.00000	2.0000L	18.00000	42.00000	16.00000
tp089	16.00000	73.00000	33.00000	2.0000L	21.00000	4.0000L	45.00000	33.00000	2.0000L	15.00000	33.00000	22.00000
tp090	15.00000	58.00000	72.00000	2.0000L	22.00000	4.0000L	37.00000	29.00000	2.0000L	14.00000	30.00000	24.00000
tp091	29.00000	140.00000	24.00000	2.0000L	25.00000	4.0000L	67.00000	28.00000	2.0000L	33.00000	59.00000	34.00000
tp092	12.00000	60.00000	15.00000	2.0000L	20.00000	4.0000L	34.00000	31.00000	2.0000L	13.00000	28.00000	18.00000
tp093	27.00000	180.00000	31.00000	2.0000L	23.00000	4.0000L	51.00000	38.00000	2.0000L	19.00000	44.00000	40.00000
tp094	20.00000	120.00000	16.00000	2.0000L	23.00000	4.0000L	38.00000	47.00000	2.0000L	15.00000	33.00000	25.00000
tp095	20.00000	100.00000	19.00000	2.0000L	23.00000	4.0000L	42.00000	40.00000	2.0000L	15.00000	33.00000	25.00000
tp096	11.00000	40.00000	18.00000	2.0000L	21.00000	4.0000L	41.00000	29.00000	2.0000L	13.00000	32.00000	17.00000
tp097	14.00000	49.00000	15.00000	2.0000L	19.00000	4.0000L	61.00000	27.00000	2.0000L	17.00000	51.00000	14.00000
tp098	16.00000	84.00000	17.00000	2.0000L	22.00000	4.0000L	34.00000	38.00000	2.0000L	14.00000	31.00000	25.00000
tp099	13.00000	49.00000	18.00000	2.0000L	22.00000	4.0000L	38.00000	28.00000	2.0000L	13.00000	30.00000	18.00000
tp100	13.00000	43.00000	11.00000	2.0000L	23.00000	4.0000L	27.00000	34.00000	2.0000L	13.00000	23.00000	23.00000
tp101	12.00000	40.00000	47.00000	2.0000L	23.00000	4.0000L	43.00000	24.00000	2.0000L	14.00000	35.00000	18.00000
tp102	21.00000	47.00000	24.00000	2.0000	21.00000	4.0000L	100.00000	17.00000	2.0000L	28.00000	95.00000	18.00000
tp103	26.00000	62.00000	25.00000	2.0000	23.00000	4.0000L	96.00000	18.00000	2.0000L	29.00000	89.00000	17.00000
tp104	19.00000	50.00000	25.00000	2.0000L	21.00000	4.0000L	78.00000	25.00000	2.0000L	18.00000	58.00000	21.00000
tp105	17.00000	68.00000	16.00000	2.0000L	21.00000	4.0000L	73.00000	25.00000	2.0000L	21.00000	58.00000	20.00000
tp106	14.00000	42.00000	18.00000	2.0000L	19.00000	4.0000L	55.00000	25.00000	2.0000L	15.00000	45.00000	15.00000
tp107	11.00000	39.00000	12.00000	2.0000L	21.00000	4.0000L	66.00000	15.00000	2.0000L	16.00000	56.00000	14.00000
tp108	12.00000	47.00000	14.00000	2.0000L	20.00000	4.0000L	99.00000	16.00000	2.0000L	20.00000	75.00000	16.00000
tp109	14.00000	51.00000	16.00000	2.0000	20.00000	4.0000L	120.00000	19.00000	2.0000L	25.00000	94.00000	15.00000
tp110	18.00000	77.00000	21.00000	2.0000L	20.00000	4.0000L	76.00000	24.00000	2.0000L	18.00000	60.00000	28.00000
tp111	17.00000	58.00000	20.00000	2.0000L	20.00000	4.0000L	66.00000	24.00000	2.0000L	24.00000	62.00000	19.00000
tp112	26.00000	80.00000	20.00000	2.0000L	21.00000	4.0000L	71.00000	19.00000	2.0000L	18.00000	56.00000	17.00000
tp113	18.00000	90.00000	16.00000	2.0000L	20.00000	4.0000L	61.00000	41.00000	2.0000L	17.00000	50.00000	26.00000
tp114	26.00000	190.00000	25.00000	2.0000L	22.00000	4.0000L	32.00000	74.00000	2.0000L	13.00000	27.00000	47.00000
tp115	31.00000	240.00000	23.00000	2.0000L	21.00000	4.0000L	37.00000	75.00000	2.0000L	14.00000	32.00000	46.00000

PRIME_ID	PB_PPM_SLQ	SC_PPM_SLQ	SN_PPM_SLQ	SR_PPM_SLQ	TA_PPM_SLQ	TH_PPM_SLQ	U__PPM_SLQ	V__PPM_SLQ	Y__PPM_SLQ	YB_PPM_SLQ	ZN_PPM_SLQ	AG_P_PPMLQ
tp001	18.0000	8.00000	5.0000L	430.00000	40.0000L	25.00000	100.0000L	84.00000	28.00000	2.00000	34.00000	.0670N
tp002	17.0000	10.00000	5.0000L	420.00000	40.0000L	34.00000	100.0000L	100.00000	34.00000	3.00000	38.00000	.0670N
tp003	16.0000	12.00000	5.0000L	350.00000	40.0000L	35.00000	100.0000L	100.00000	40.00000	4.00000	61.00000	.0670N
tp004	17.0000	13.00000	5.0000L	330.00000	40.0000L	32.00000	100.0000L	160.00000	44.00000	4.00000	74.00000	.0670N
tp005	15.0000	12.00000	5.0000L	420.00000	40.0000L	29.00000	100.0000L	150.00000	42.00000	4.00000	57.00000	.0670N
tp006	19.0000	12.00000	5.0000L	390.00000	40.0000L	34.00000	100.0000L	140.00000	41.00000	4.00000	58.00000	.0670N
tp007	18.0000	15.00000	5.0000L	350.00000	40.0000L	31.00000	100.0000L	110.00000	52.00000	5.00000	56.00000	.0670N
tp008	11.0000	12.00000	5.0000L	290.00000	40.0000L	23.00000	100.0000L	120.00000	34.00000	3.00000	45.00000	.0670N
tp009	19.0000	12.00000	5.0000L	370.00000	40.0000L	15.00000	100.0000L	89.00000	29.00000	3.00000	71.00000	.0670N
tp010	25.0000	13.00000	5.0000L	370.00000	40.0000L	16.00000	100.0000L	110.00000	33.00000	3.00000	69.00000	.0670N
tp011	13.0000	12.00000	5.0000L	490.00000	40.0000L	19.00000	100.0000L	120.00000	29.00000	3.00000	68.00000	.0670N
tp012	19.0000	14.00000	5.0000L	370.00000	40.0000L	27.00000	100.0000L	120.00000	46.00000	5.00000	57.00000	.0670N
tp013	15.0000	12.00000	5.0000L	480.00000	40.0000L	23.00000	100.0000L	100.00000	33.00000	3.00000	61.00000	.0670N
tp014	16.0000	12.00000	5.0000L	730.00000	40.0000L	15.00000	100.0000L	160.00000	28.00000	2.00000	88.00000	.0670N
tp015	23.0000	13.00000	5.0000L	590.00000	40.0000L	25.00000	100.0000L	180.00000	33.00000	3.00000	82.00000	.0670N
tp016	25.0000	11.00000	5.0000L	610.00000	40.0000L	16.00000	100.0000L	300.00000	39.00000	4.00000	110.00000	.0670N
tp017	19.0000	14.00000	5.0000L	320.00000	40.0000L	25.00000	100.0000L	110.00000	52.00000	6.00000	58.00000	.0670N
tp018	18.0000	14.00000	5.0000L	310.00000	40.0000L	42.00000	100.0000L	120.00000	55.00000	6.00000	57.00000	.0670N
tp019	21.0000	13.00000	5.0000L	330.00000	40.0000L	42.00000	100.0000L	100.00000	56.00000	5.00000	57.00000	.0670N
tp020	17.0000	14.00000	5.0000L	340.00000	40.0000L	43.00000	100.0000L	110.00000	53.00000	5.00000	56.00000	.0670N
tp021	16.0000	14.00000	5.0000L	330.00000	40.0000L	45.00000	100.0000L	170.00000	58.00000	6.00000	63.00000	.0670N
tp022	14.0000	12.00000	5.0000L	310.00000	40.0000L	110.00000	100.0000L	220.00000	52.00000	5.00000	57.00000	.0670N
tp023	18.0000	14.00000	5.0000L	370.00000	40.0000L	21.00000	100.0000L	110.00000	42.00000	4.00000	53.00000	.0670N
tp024	13.0000	13.00000	5.0000L	390.00000	40.0000L	38.00000	100.0000L	130.00000	46.00000	4.00000	68.00000	.0670N
tp025	12.0000	12.00000	5.0000L	390.00000	40.0000L	33.00000	100.0000L	130.00000	52.00000	5.00000	59.00000	.0670N
tp026	10.0000	9.00000	5.0000L	470.00000	40.0000L	14.00000	100.0000L	89.00000	33.00000	3.00000	34.00000	.0670N
tp027	20.0000	13.00000	5.0000L	410.00000	40.0000L	17.00000	100.0000L	100.00000	34.00000	3.00000	71.00000	.0670N
tp028	5.0000	20.00000	5.0000L	640.00000	40.0000L	6.00000	100.0000L	140.00000	20.00000	2.00000	75.00000	.0670N
tp029	5.0000	22.00000	5.0000L	670.00000	40.0000L	9.00000	100.0000L	200.00000	21.00000	2.00000	86.00000	.0670N
tp030	13.0000	15.00000	5.0000L	630.00000	40.0000L	10.00000	100.0000L	130.00000	27.00000	2.00000	69.00000	.0670N
tp031	12.0000	29.00000	5.0000L	650.00000	40.0000L	8.00000	100.0000L	200.00000	22.00000	2.00000	78.00000	.0670N
tp032	28.0000	13.00000	5.0000L	960.00000	40.0000L	6.00000	100.0000L	93.00000	17.00000	2.00000	75.00000	.0670N
tp033	6.0000	27.00000	5.0000L	530.00000	40.0000L	28.00000	100.0000L	180.00000	24.00000	2.00000	72.00000	.0670N
tp034	9.0000	20.00000	5.0000L	550.00000	40.0000L	9.00000	100.0000L	140.00000	23.00000	3.00000	70.00000	.0670N
tp035	4.0000L	23.00000	5.0000L	490.00000	40.0000L	6.00000	100.0000L	130.00000	19.00000	2.00000	69.00000	.0670N
tp036	13.0000	21.00000	5.0000L	520.00000	40.0000L	9.00000	100.0000L	170.00000	26.00000	3.00000	77.00000	.0670N
tp037	52.0000	8.00000	5.0000L	790.00000	40.0000L	12.00000	100.0000L	120.00000	20.00000	2.00000	100.00000	.0670N
tp038	30.0000	11.00000	5.0000L	850.00000	40.0000L	10.00000	100.0000L	190.00000	25.00000	3.00000	100.00000	.0670N
tp039	19.0000	10.00000	5.0000L	430.00000	40.0000L	37.00000	100.0000L	100.00000	35.00000	3.00000	53.00000	.0670N
tp040	20.0000	12.00000	5.0000L	460.00000	40.0000L	23.00000	100.0000L	84.00000	34.00000	3.00000	61.00000	.0670N
tp041	21.00000	9.00000	5.0000L	470.00000	40.0000L	22.00000	100.0000L	72.00000	28.00000	3.00000	48.00000	.0670N
tp042	20.00000	11.00000	5.0000L	490.00000	40.0000L	25.00000	100.0000L	82.00000	29.00000	2.00000	51.00000	.0670N
tp043	420.00000	9.00000	5.0000L	610.00000	40.0000L	11.00000	100.0000L	120.00000	22.00000	2.00000	160.00000	.0670N
tp044	89.00000	8.00000	5.0000L	760.00000	40.0000L	6.00000	100.0000L	80.00000	17.00000	1.00000	91.00000	.0670N
tp045	26.00000	10.00000	5.0000L	420.00000	40.0000L	23.00000	100.0000L	85.00000	29.00000	3.00000	65.00000	.0670N
tp046	16.00000	13.00000	5.0000L	310.00000	40.0000L	35.00000	100.0000L	89.00000	46.00000	5.00000	52.00000	.0670N
tp047	30.00000	10.00000	5.0000L	430.00000	40.0000L	15.00000	100.0000L	70.00000	27.00000	3.00000	93.00000	.0670N
tp048	27.00000	11.00000	5.0000L	400.00000	40.0000L	13.00000	100.0000L	69.00000	25.00000	2.00000	89.00000	.0670N
tp049	15.00000	15.00000	5.0000L	340.00000	40.0000L	42.00000	100.0000L	94.00000	50.00000	5.00000	59.00000	.0670N
tp050	26.00000	12.00000	5.0000L	360.00000	40.0000L	22.00000	100.0000L	86.00000	31.00000	3.00000	72.00000	.0670N
tp051	22.00000	14.00000	5.0000L	360.00000	40.0000L	16.00000	100.0000L	110.00000	39.00000	4.00000	63.00000	.0670N
tp052	16.00000	15.00000	5.0000L	340.00000	40.0000L	44.00000	100.0000L	130.00000	53.00000	5.00000	53.00000	.0670N
tp053	21.00000	12.00000	5.0000L	350.00000	40.0000L	74.00000	100.0000L	110.00000	49.00000	5.00000	58.00000	.0670N
tp054	16.00000	16.00000	5.0000L	380.00000	40.0000L	33.00000	100.0000L	130.00000	54.00000	5.00000	56.00000	.0670N
tp055	18.00000	10.00000	5.0000L	420.00000	40.0000L	29.00000	100.0000L	100.00000	32.00000	3.00000	38.00000	.0670N
tp056	17.00000	10.00000	5.0000L	420.00000	40.0000L	41.00000	100.0000L	140.00000	39.00000	3.00000	42.00000	.0670N
tp057	19.00000	9.00000	5.0000L	460.00000	40.0000L	13.00000	100.0000L	68.00000	29.00000	3.00000	33.00000	.0670N
tp058	25.00000	9.00000	5.0000L	430.00000	40.0000L	18.00000	100.0000L	58.00000	24.00000	2.00000	73.00000	.0670N
tp059	30.00000	7.00000	5.0000L	330.00000	40.0000L	20.00000	100.0000L	44.00000	20.00000	2.00000	65.00000	.0670N

PRIME_ID	PB_PPM_SLQ	SC_PPM_SLQ	SN_PPM_SLQ	SR_PPM_SLQ	TA_PPM_SLQ	TH_PPM_SLQ	U__PPM_SLQ	V__PPM_SLQ	Y__PPM_SLQ	YB_PPM_SLQ	ZN_PPM_SLQ	AG_P_PPMLQ
tp060	27.00000	9.00000	5.0000L	380.00000	40.0000L	27.00000	100.0000L	63.00000	25.00000	2.00000	72.00000	.0670N
tp061	13.00000	19.00000	5.0000L	370.00000	40.0000L	16.00000	100.0000L	130.00000	51.00000	5.00000	57.00000	.0670N
tp062	17.00000	14.00000	5.0000L	340.00000	40.0000L	20.00000	100.0000L	140.00000	39.00000	4.00000	49.00000	.0670N
tp063	18.00000	16.00000	5.0000L	360.00000	40.0000L	29.00000	100.0000L	180.00000	46.00000	5.00000	52.00000	.0670N
tp064	16.00000	14.00000	5.0000L	720.00000	40.0000L	19.00000	100.0000L	160.00000	38.00000	4.00000	64.00000	.0670N
tp065	11.00000	20.00000	5.0000L	650.00000	40.0000L	10.00000	100.0000L	150.00000	20.00000	2.00000	76.00000	.0670N
tp066	12.00000	22.00000	5.0000L	610.00000	40.0000L	16.00000	100.0000L	300.00000	26.00000	3.00000	120.00000	.0670N
tp067	18.00000	12.00000	5.0000L	790.00000	40.0000L	13.00000	100.0000L	150.00000	38.00000	4.00000	65.00000	.0670N
tp068	16.00000	11.00000	5.0000L	960.00000	40.0000L	7.00000	100.0000L	120.00000	19.00000	1.00000	80.00000	.0670N
tp069	19.00000	12.00000	5.0000L	860.00000	40.0000L	18.00000	100.0000L	160.00000	23.00000	3.00000	100.00000	.0670N
tp070	17.00000	11.00000	5.0000L	750.00000	40.0000L	17.00000	100.0000L	110.00000	31.00000	3.00000	56.00000	.0670N
tp071	20.00000	18.00000	5.0000L	730.00000	40.0000L	8.00000	100.0000L	130.00000	18.00000	2.00000	69.00000	.0670N
tp072	20.00000	20.00000	5.0000L	700.00000	40.0000L	9.00000	100.0000L	160.00000	19.00000	2.00000	110.00000	.0670N
tp073	14.00000	31.00000	5.0000L	610.00000	40.0000L	8.00000	100.0000L	340.00000	21.00000	2.00000	110.00000	.0670N
tp074	25.00000	9.00000	5.0000L	860.00000	40.0000L	9.00000	100.0000L	78.00000	16.00000	2.00000	79.00000	.0670N
tp075	17.00000	10.00000	5.0000L	400.00000	40.0000L	39.00000	100.0000L	140.00000	44.00000	4.00000	54.00000	.0670N
tp076	18.00000	8.00000	5.0000L	440.00000	40.0000L	14.00000	100.0000L	58.00000	25.00000	3.00000	34.00000	.0670N
tp077	18.00000	9.00000	5.0000L	400.00000	40.0000L	29.00000	100.0000L	88.00000	39.00000	4.00000	32.00000	.0670N
tp078	15.00000	7.00000	5.0000L	380.00000	40.0000L	17.00000	100.0000L	60.00000	30.00000	3.00000	27.00000	.0670N
tp079	15.00000	8.00000	5.0000L	380.00000	40.0000L	17.00000	100.0000L	140.00000	45.00000	5.00000	33.00000	.0670N
tp080	18.00000	9.00000	5.0000L	460.00000	40.0000L	26.00000	100.0000L	120.00000	32.00000	3.00000	44.00000	.0670N
tp081	13.00000	11.00000	5.0000L	600.00000	40.0000L	16.00000	100.0000L	150.00000	34.00000	3.00000	51.00000	.0670N
tp082	12.00000	13.00000	5.0000L	690.00000	40.0000L	18.00000	100.0000L	170.00000	33.00000	3.00000	68.00000	.0670N
tp083	15.00000	11.00000	5.0000L	640.00000	40.0000L	12.00000	100.0000L	91.00000	22.00000	2.00000	73.00000	.0670N
tp084	14.00000	10.00000	5.0000L	480.00000	40.0000L	34.00000	100.0000L	110.00000	30.00000	3.00000	59.00000	.0670N
tp085	19.00000	6.00000	5.0000L	750.00000	40.0000L	15.00000	100.0000L	77.00000	22.00000	2.00000	64.00000	.0670N
tp086	45.00000	8.00000	5.0000L	470.00000	40.0000L	22.00000	100.0000L	78.00000	25.00000	2.00000	86.00000	.0670N
tp087	36.00000	8.00000	5.0000L	440.00000	40.0000L	20.00000	100.0000L	74.00000	21.00000	2.00000	93.00000	.0670N
tp088	88.00000	10.00000	5.0000L	580.00000	40.0000L	13.00000	100.0000L	110.00000	26.00000	2.00000	160.00000	.0670N
tp089	43.00000	9.00000	5.0000L	620.00000	40.0000L	22.00000	100.0000L	140.00000	18.00000	1.00000	110.00000	.0670N
tp090	200.00000	10.00000	5.0000L	540.00000	40.0000L	10.00000	100.0000L	80.00000	21.00000	2.00000	330.00000	.2700
tp091	20.00000	15.00000	5.0000L	650.00000	40.0000L	16.00000	100.0000L	300.00000	32.00000	3.00000	130.00000	.0670N
tp092	23.00000	9.00000	5.0000L	830.00000	40.0000L	7.00000	100.0000L	73.00000	17.00000	2.00000	61.00000	.0670N
tp093	16.00000	24.00000	5.0000L	620.00000	40.0000L	24.00000	100.0000L	280.00000	25.00000	2.00000	110.00000	.0670N
tp094	18.00000	14.00000	5.0000L	930.00000	40.0000L	9.00000	100.0000L	120.00000	21.00000	2.00000	80.00000	.0670N
tp095	21.00000	14.00000	5.0000L	700.00000	40.0000L	10.00000	100.0000L	130.00000	22.00000	2.00000	89.00000	.0670N
tp096	50.00000	8.00000	5.0000L	650.00000	40.0000L	11.00000	100.0000L	69.00000	19.00000	2.00000	97.00000	.0920
tp097	16.00000	8.00000	5.0000L	680.00000	40.0000L	21.00000	100.0000L	120.00000	31.00000	3.00000	52.00000	.0670N
tp098	15.00000	10.00000	5.0000L	830.00000	40.0000L	8.00000	100.0000L	97.00000	19.00000	2.00000	70.00000	.0670N
tp099	36.00000	9.00000	5.0000L	660.00000	40.0000L	36.00000	100.0000L	97.00000	19.00000	2.00000	110.00000	.0670N
tp100	15.00000	8.00000	5.0000L	830.00000	40.0000L	6.00000	100.0000L	61.00000	13.00000	1.00000	70.00000	.0670N
tp101	110.00000	9.00000	5.0000L	570.00000	40.0000L	17.00000	100.0000L	83.00000	22.00000	2.00000	140.00000	.0670N
tp102	10.00000	22.00000	5.0000L	390.00000	40.0000L	35.00000	100.0000L	190.00000	67.00000	7.00000	59.00000	.0670N
tp103	8.00000	19.00000	5.0000L	320.00000	40.0000L	27.00000	100.0000L	370.00000	66.00000	7.00000	72.00000	.0670N
tp104	10.00000	17.00000	5.0000L	430.00000	40.0000L	14.00000	100.0000L	130.00000	39.00000	4.00000	66.00000	.0670N
tp105	22.00000	12.00000	5.0000L	500.00000	40.0000L	29.00000	100.0000L	170.00000	35.00000	3.00000	74.00000	.0670N
tp106	15.00000	11.00000	5.0000L	430.00000	40.0000L	19.00000	100.0000L	86.00000	32.00000	3.00000	56.00000	.0670N
tp107	14.00000	10.00000	5.0000L	420.00000	40.0000L	25.00000	100.0000L	81.00000	33.00000	3.00000	47.00000	.0670N
tp108	15.00000	11.00000	5.0000L	400.00000	40.0000L	27.00000	100.0000L	100.00000	39.00000	4.00000	56.00000	.0670N
tp109	11.00000	11.00000	5.0000L	360.00000	40.0000L	35.00000	100.0000L	160.00000	52.00000	5.00000	57.00000	.0670N
tp110	18.00000	13.00000	5.0000L	360.00000	40.0000L	75.00000	100.0000L	120.00000	40.00000	4.00000	56.00000	.0670N
tp111	17.00000	11.00000	5.0000L	420.00000	40.0000L	68.00000	100.0000L	190.00000	46.00000	5.00000	62.00000	.0670N
tp112	12.00000	9.00000	5.0000L	440.00000	40.0000L	72.00000	100.0000L	350.00000	32.00000	3.00000	57.00000	.0670N
tp113	14.00000	13.00000	5.0000L	680.00000	40.0000L	13.00000	100.0000L	130.00000	33.00000	3.00000	63.00000	.0670N
tp114	5.00000	18.00000	5.0000L	820.00000	40.0000L	5.00000	100.0000L	140.00000	21.00000	2.00000	71.00000	.0670N
tp115	6.00000	20.00000	5.0000L	760.00000	40.0000L	6.00000	100.0000L	160.00000	23.00000	2.00000	74.00000	.0670N

PRIME_ID	AS_P_PPMLQ	AU_P_PPMLQ	BI_P_PPMLQ	CD_P_PPMLQ	CU_P_PPMLQ	MO_P_PPMLQ	PB_P_PPMLQ	SB_P_PPMLQ	ZN_P_PPMLQ	AU___PPMLT
tp001	1.60000	.1000N	.6700N	.0500N	6.90000	0.39000	5.90000	.6700N	18.00000	.0020L
tp002	1.20000	.1000N	.6700N	.0500N	7.20000	0.43000	5.80000	.6700N	18.00000	.0020L
tp003	3.00000	.1000N	.6700N	.0860	15.00000	0.95000	12.00000	.6700N	45.00000	.0020L
tp004	2.30000	.1000N	.6700N	.2100	23.00000	1.40000	15.00000	.6700N	55.00000	.0020L
tp005	2.30000	.1000N	.6700N	.0710	17.00000	1.10000	8.20000	.6700N	33.00000	.0020L
tp006	1.70000	.1000N	.6700N	.1100	14.00000	1.00000	12.00000	.6700N	36.00000	.0020L
tp007	3.60000	.1000N	.6700N	.1100	13.00000	1.00000	12.00000	.6700N	46.00000	.0020L
tp008	1.60000	.1000N	.6700N	.0630	11.00000	0.79000	8.20000	.6700N	35.00000	.0020L
tp009	2.90000	.1000N	.6700N	.1600	20.00000	0.65000	13.00000	.6700N	55.00000	.0020L
tp010	4.10000	.1000N	.6700N	.1500	18.00000	1.00000	19.00000	.6700N	50.00000	.0020L
tp011	3.40000	.1000N	.6700N	.1000	15.00000	1.20000	11.00000	.6700N	42.00000	.0020L
tp012	4.90000	.1000N	.6700N	.0940	13.00000	1.20000	14.00000	.6700N	44.00000	.0020L
tp013	3.00000	.1000N	.6700N	.0930	12.00000	0.72000	9.40000	.6700N	43.00000	.0020L
tp014	4.60000	.1000N	.6700N	.0840	12.00000	1.50000	11.00000	.6700N	54.00000	.0020L
tp015	3.40000	.1000N	.6700N	.0710	13.00000	1.20000	15.00000	.8100	49.00000	.0020L
tp016	5.70000	.1000N	.6700N	.1100	13.00000	2.20000	32.00000	.9200	66.00000	.0020L
tp017	2.90000	.1000N	.6700N	.1300	15.00000	0.87000	13.00000	.6700N	47.00000	.0020L
tp018	2.20000	.1000N	.6700N	.1500	15.00000	1.20000	14.00000	.6700N	44.00000	.0020L
tp019	2.70000	.1000N	.6700N	.2000	14.00000	1.10000	18.00000	1.7000	52.00000	.0020L
tp020	2.80000	.1000N	.6700N	.0720	16.00000	1.20000	12.00000	.6700N	42.00000	.0020L
tp021	2.90000	.1000N	.6700N	.0840	15.00000	2.00000	12.00000	.6700N	55.00000	.0020L
tp022	2.70000	.1000N	.6700N	.0580	11.00000	1.80000	13.00000	.6700N	43.00000	.0020L
tp023	2.40000	.1000N	.6700N	.0890	12.00000	0.89000	10.00000	.6700N	41.00000	.0020L
tp024	1.90000	.1000N	.6700N	.0660	12.00000	0.55000	5.00000	.6700N	50.00000	.0020L
tp025	2.10000	.1000N	.6700N	.0570	11.00000	0.64000	5.90000	.6700N	41.00000	.0020L
tp026	2.10000	.1000N	.6700N	.0680	7.30000	0.32000	6.00000	.6700N	22.00000	.0020L
tp027	5.00000	.1000N	.6700N	.1600	16.00000	0.57000	14.00000	.6700N	53.00000	.0020L
tp028	4.70000	.1000N	.6700N	.0860	23.00000	0.30000	6.90000	.6700N	56.00000	.0020L
tp029	6.10000	.1000N	.6700N	.1100	21.00000	0.44000	8.20000	.6900	57.00000	.0020L
tp030	5.30000	.1000N	.6700N	.1000	21.00000	0.37000	9.90000	.6700N	53.00000	.0020L
tp031	10.00000	.1000N	.6700N	.1100	21.00000	0.48000	12.00000	1.0000	49.00000	.0020L
tp032	15.00000	.1000N	.6700N	.1500	20.00000	0.83000	21.00000	.8000	56.00000	.0020L
tp033	6.10000	.1000N	.6700N	.1100	27.00000	0.39000	7.40000	.6700N	48.00000	.0020L
tp034	3.90000	.1000N	.6700N	.1000	25.00000	0.47000	9.00000	.6700N	52.00000	.0020L
tp035	6.00000	.1000N	.6700N	.1100	31.00000	0.47000	6.40000	.6700N	48.00000	.0020L
tp036	12.00000	.1000N	.6700N	.1200	24.00000	0.64000	14.00000	.8500	53.00000	.0020L
tp037	8.50000	.1000N	.6700N	.2100	8.60000	0.96000	45.00000	2.3000	66.00000	.0020L
tp038	4.10000	.1000N	.6700N	.0990	12.00000	1.10000	19.00000	.8600	51.00000	.0020L
tp039	2.90000	.1000N	.6700N	.1000	10.00000	1.10000	13.00000	.6700N	33.00000	.0020L
tp040	4.30000	.1000N	.6700N	.1100	13.00000	1.70000	19.00000	.6700N	47.00000	.0020L
tp041	3.8000	.1000N	.6700N	.1100	9.20000	1.3000	12.0000	.6700N	33.0000	.0020L
tp042	3.0000	.1000N	.6700N	.0740	9.50000	1.3000	8.3000	.6700N	36.0000	.0020L
tp043	57.0000	.1000N	.6700N	.5600	17.00000	4.4000	480.0000	2.7000	130.0000	.0020L
tp044	13.0000	.1000N	.6700N	.1500	12.00000	1.1000	110.0000	2.7000	62.0000	.0020L
tp045	4.0000	.1000N	.6700N	.1000	15.00000	1.2000	16.0000	.6700N	49.0000	.0020L
tp046	2.3000	.1000N	.6700N	.0810	12.00000	1.2000	8.2000	.6700N	40.0000	.0020L
tp047	3.6000	.1000N	.6700N	.1600	14.00000	1.2000	21.0000	.6700N	79.0000	.0020L
tp048	4.3000	.1000N	.6700N	.1500	21.00000	1.4000	23.0000	.6700N	88.0000	.0020L
tp049	3.1000	.1000N	.6700N	.1400	17.00000	1.1000	13.0000	.6700N	54.0000	.0020L
tp050	2.8000	.1000N	.6700N	.1600	18.00000	.6500	14.0000	.6700N	56.0000	.0020L
tp051	3.4000	.1000N	.6700N	.1200	14.00000	.8800	17.0000	.6700N	49.0000	.0020L
tp052	1.8000	.1000N	.6700N	.1900	14.00000	.8000	11.0000	.6700N	39.0000	.0020L
tp053	2.6000	.1000N	.6700N	.1900	15.00000	.8300	13.0000	.6700N	44.0000	.0020L
tp054	1.9000	.1000N	.6700N	.0950	15.00000	.7900	11.0000	.6700N	41.0000	.0020L
tp055	2.4000	.1000N	.6700N	.0500N	7.50000	.3200	4.9000	.6700N	19.0000	.0020L
tp056	2.2000	.1000N	.6700N	.0500N	7.90000	.3500	3.7000	.6700N	18.0000	.0020L
tp057	1.8000	.1000N	.6700N	.0500N	6.90000	.3600	3.6000	.6700N	20.0000	.0020L
tp058	2.4000	.1000N	.6700N	.0770	8.40000	.3700	12.0000	.6700N	60.0000	.0020L
tp059	3.1000	.1000N	.6700N	.1700	9.00000	.4200	15.0000	.6700N	58.0000	.0020L

PRIME_ID	AS_P_PPMLQ	AU_P_PPMLQ	BI_P_PPMLQ	CD_P_PPMLQ	CU_P_PPMLQ	MO_P_PPMLQ	PB_P_PPMLQ	SB_P_PPMLQ	ZN_P_PPMLQ	AU___PPMLT
tp060	3.6000	.1000N	.6700N	.1500	9.30000	.5100	13.0000	.6700N	55.0000	.0020L
tp061	2.4000	.1000N	.6700N	.0950	20.00000	.6900	8.9000	.6700N	43.0000	.0020L
tp062	4.1000	.1000N	.6700N	.1000	12.00000	.9300	10.0000	.6700N	38.0000	.0020L
tp063	4.8000	.1000N	.6700N	.1100	17.00000	1.0000	13.0000	.6700N	39.0000	.0020L
tp064	3.5000	.1000N	.6700N	.1100	12.00000	.5700	12.0000	.6700N	43.0000	.0020L
tp065	5.2000	.1000N	.6700N	.0880	26.00000	.4100	9.6000	.6700N	61.0000	.0020L
tp066	4.0000	.1000N	.6700N	.1100	22.00000	.6600	15.0000	.6700N	67.0000	.0020L
tp067	3.6000	.1000N	.6700N	.0780	8.60000	.6000	10.0000	.6700N	34.0000	.0020L
tp068	3.0000	.1000N	.6700N	.0730	11.00000	.5500	8.7000	.6700N	49.0000	.0020L
tp069	3.9000	.1000N	.6700N	.0850	9.70000	.8800	12.0000	.6700N	53.0000	.0020L
tp070	5.4000	.1000N	.6700N	.0870	11.00000	.6600	8.7000	.6700N	31.0000	.0020L
tp071	8.1000	.1000N	.6700N	.0980	14.00000	.5800	13.0000	.8000	42.0000	.0020L
tp072	12.0000	.1000N	.6700N	.1500	18.00000	.4700	21.0000	1.8000	75.0000	.0020L
tp073	7.2000	.1000N	.6700N	.1100	20.00000	.7800	19.0000	1.7000	55.0000	.0020L
tp074	1.0000	.1000N	.6700N	.0500N	4.60000	.0740	7.2000	.6700N	20.0000	.0020L
tp075	1.8000	.1000N	.6700N	.0990	7.60000	.2400	3.4000	.6700N	3.4000	.0020L
tp076	2.3000	.1000N	.6700N	.0550	6.80000	.3700	3.2000	.6700N	22.0000	.0020L
tp077	2.1000	.1000N	.6700N	.1300	8.40000	.4000	6.9000	.6700N	9.1000	.0020L
tp078	1.4000	.1000N	.6700N	.0560	5.20000	.2000	4.8000	.6700N	13.0000	.0020L
tp079	.6700N	.1000N	.6700N	.0670	3.20000	.0600N	.6700N	.6700N	.0200N	.0020L
tp080	3.1000	.1000N	.6700N	.1000	11.00000	.4600	8.6000	.6700N	11.0000	.0020
tp081	1.3000	.1000N	.6700N	.0640	11.00000	0.52000	8.20000	.6700N	29.00000	.0020L
tp082	.7200	.1000N	.6700N	.0500N	8.40000	0.45000	5.70000	.6700N	26.00000	.0020L
tp083	1.5000	.1000N	.6700N	.0800	14.00000	0.59000	9.70000	.6700N	44.00000	.0020L
tp084	2.4000	.1000N	.6700N	.0680	14.00000	0.85000	7.50000	.6700N	38.00000	.0020L
tp085	3.2000	.1000N	.6700N	.1100	10.00000	0.97000	13.00000	.6700N	43.00000	.0020L
tp086	15.0000	.1000N	.6700N	.1700	20.00000	3.10000	47.00000	5.1000	72.00000	.0020L
tp087	2.9000	.1000N	.6700N	.1600	16.00000	1.00000	22.00000	.6700N	76.00000	.0020L
tp088	3.2000	.1000N	.6700N	.3100	32.00000	1.20000	68.00000	.7600	120.00000	.6000
tp089	6.7000	.1000N	.6700N	.1700	25.00000	1.80000	44.00000	1.0000	74.00000	.0020L
tp090	5.4000	.1000N	.6700N	.8500	54.00000	1.50000	180.00000	.6700N	270.00000	.0020L
tp091	4.2000	.1000N	.6700N	.0820	15.00000	0.94000	17.00000	1.1000	53.00000	.0020L
tp092	3.4000	.1000N	.6700N	.0810	10.00000	0.60000	16.00000	1.5000	37.00000	.0020L
tp093	6.1000	.1000N	.6700N	.1100	21.00000	0.73000	17.00000	2.0000	64.00000	.0020L
tp094	16.0000	.1000N	.6700N	.2000	15.00000	0.67000	18.00000	5.5000	58.00000	.0020L
tp095	13.0000	.1000N	.6700N	.1400	14.00000	0.83000	20.00000	4.8000	65.00000	.0020L
tp096	3.2000	.1800	.6700N	.1800	14.00000	0.67000	34.00000	.6700N	73.00000	.0020L
tp097	3.2000	.1000N	.6700N	.1400	10.00000	0.42000	9.10000	.9100	34.00000	.0020L
tp098	2.6000	.1000N	.6700N	.0920	12.00000	0.46000	12.00000	.6700N	41.00000	.0020L
tp099	3.0000	.1000N	.6700N	.2100	12.00000	0.80000	25.00000	.6700N	65.00000	.0020L
tp100	.6700N	.1000N	.6700N	.0650	7.50000	0.24000	7.40000	.6700N	38.00000	.0020L
tp101	2.4000	.1000N	.6700N	.4100	32.00000	0.94000	55.00000	.6700N	110.00000	.0020L
tp102	1.6000	.1000N	.6700N	.0910	21.00000	0.65000	8.60000	.6700N	39.00000	.0020L
tp103	2.5000	.1000N	.6700N	.1100	20.00000	1.30000	11.00000	.7700	44.00000	.0020L
tp104	2.6000	.1000N	4.0000	.0640	19.00000	1.30000	7.20000	.7200	40.00000	.0020L
tp105	3.6000	.1000N	.6700N	.0940	12.00000	1.30000	17.00000	.8100	44.00000	.0020L
tp106	2.3000	.1000N	.6700N	.0790	13.00000	1.30000	8.30000	.6700N	43.00000	.0020
tp107	1.4000	.1000N	.6700N	.0500	8.70000	0.27000	4.00000	.6700N	30.00000	.0020L
tp108	1.5000	.1000N	.6700N	.0630	10.00000	0.30000	5.40000	.6700N	36.00000	.0030
tp109	1.2000	.1000N	.6700N	.0610	11.00000	0.49000	8.50000	.6700N	33.00000	.0020L
tp110	1.7000	.1000N	.6700N	.5000	15.00000	1.30000	17.00000	.6700N	42.00000	.0020L
tp111	2.4000	.1000N	.6700N	.1200	15.00000	0.63000	12.00000	.6700N	43.00000	.0020L
tp112	2.2000	.1000N	.7700	.1200	14.00000	0.63000	14.00000	.6700N	36.00000	.0020L
tp113	6.4000	.1000N	.6700N	.0930	14.00000	0.49000	10.00000	.8400	50.00000	.0020L
tp114	3.0000	.1000N	.6700N	.0570	17.00000	0.31000	7.00000	.6700N	79.00000	.0020L
tp115	.9900	.1000N	.6700N	.0740	17.00000	0.34000	8.60000	.6700N	51.00000	.0020L

APPENDIX 2

BASIC STATISTICS

X_1 : AL_____SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
7.877	.408	.038	.167	5.183	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
6.3	8.7	2.4	905.9	7155.13	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
10	7.4	7.625	7.9	8.1	8.4
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
4	•	7.867	7.855	1.568	-.804

X_2 : CA_____SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.537	1.097	.102	1.204	31.023	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
2.2	8.7	6.5	406.7	1575.53	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
6	2.5	2.825	3.2	3.8	5.4
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	•	3.402	3.292	3.863	1.776

X_3 : FE_____SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.26	2.266	.211	5.134	43.078	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
2.2	17	14.8	604.9	3767.09	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
11	3.3	3.825	4.9	5.8	7.3
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
10	4	4.902	4.613	7.38	2.29

X_4 : K_____SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.925	.349	.033	.122	18.122	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1	2.6	1.6	221.4	440.12	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
8	1.4	1.7	1.9	2.2	2.3
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
9	2.3	1.891	1.853	-.412	-.471

X_5 : MG_____SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.319	.505	.047	.255	38.266	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
.61	3.1	2.49	151.69	229.129	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
11	.84	1	1.2	1.475	2.1
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	•	1.241	1.176	1.853	1.463

X_6 : NA_____SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.537	.23	.021	.053	9.065	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
1.9	3.1	1.2	291.7	745.93	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
11	2.3	2.4	2.5	2.7	2.8
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	2.5	2.526	2.516	-.285	-.009

X_7 : P_____SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.1	.022	.002	4.973E-4	22.359	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
.06	.15	.09	11.47	1.201	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
5	.07	.08	.1	.11	.13
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
10	.09	.097	.095	-.379	.39

X_8 : TI_____SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.63	.227	.021	.051	35.959	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
.26	1.7	1.44	72.45	51.494	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
10	.4	.48	.61	.707	.88
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	•	.597	.569	5.458	1.895

X_9 : MN_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
788.522	217.208	20.255	47179.375	27.546	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
390	1400	1010	90680	76881600	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
10	560	640	740	880	1100
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
10	•	761.705	737.155	.681	1.015

X_{10} : AS_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
15.368	8.662	1.987	75.023	56.36	19
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
10	48	38	292	5838	96
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
0	10	11	13	15	22.4
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
2	•	14.094	13.354	8.919	3.041

X_{11} : BA_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
762.087	337.378	31.461	113823.677	44.27	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
480	4000	3520	87640	79765200	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
10	620	650	690	780	950
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
11	680	732.63	716.815	72.347	7.91

X_{12} : BE_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.009	.338	.031	.114	16.806	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	3	2	231	477	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
6	2	2	2	2	2
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
7	2	1.977	1.938	5.838	.151

X_{13} : CE_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
125.322	46.701	4.355	2181.027	37.265	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
51	260	209	14412	2054774	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
11	72	87.25	120	150	200
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
9	120	117.119	109.429	-.034	.712

X_{14} : CO_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
17.104	6.906	.644	47.691	40.375	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
7	41	34	1967	39081	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
9	11	13	15	19	28
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
10	14	15.965	15.021	1.383	1.352

X_{15} : CR_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
69.13	49.715	4.636	2471.571	71.915	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
22	260	238	7950	831346	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
8	33	41.25	50	72	140
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
10	•	58.143	51.418	3.802	2.083

X_{16} : CU_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
18.983	9.684	.903	93.789	51.018	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
7	72	65	2183	52131	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
11	11	13	17	22	31
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
11	15	17.238	15.881	8.565	2.411

X_{17} : EU_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2	0	0	0	0	14
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
2	2	0	28	56	101
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
0	2	2	2	2	2
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
0	2	2	2	•	•

X_{18} : GA_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
20.043	1.63	.152	2.656	8.131	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
15	25	10	2305	46503	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
4	18	19	20	21	23
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
1	20	19.978	19.912	.606	.198

X_{19} : LA_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
66.322	25.799	2.406	665.606	38.9	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
26	140	114	7627	581715	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
10	36	45.25	62	82	100
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	110	61.515	56.945	.005	.677

X_{20} : LI_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
29.826	16.326	1.522	266.531	54.737	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
9	95	86	3430	132688	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
11	15	19.25	26	35	49
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	24	26.351	23.45	3.357	1.716

X_{21} : NB_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
17.783	4.656	.434	21.68	26.184	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
9	33	24	2045	38837	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
7	13	14	17	21	24
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
10	14	17.218	16.693	.053	.766

X_{22} : ND_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
52.591	19.682	1.835	387.384	37.425	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
22	110	88	6048	362234	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
11	30	36.5	50	65	82
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
10	•	49.077	45.768	-.21	.639

X_{23} : NI_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
22.27	13.775	1.284	189.742	61.854	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
8	94	86	2561	78663	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
9	12	15	17	23.75	42
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	15	19.578	17.802	6.722	2.371

X_{24} : PB_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
25.579	43.497	4.074	1892.016	170.051	114
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
5	420	415	2916	288386	1
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
10	11	14	17.5	21	30.6
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	18	18.6	16.007	59.88	7.309

X_{25} : SC_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
12.922	4.685	.437	21.95	36.257	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
6	31	25	1486	21704	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	8	10	12	14	20
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
9	12	12.229	11.651	2.42	1.499

X_{26} : SR_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
520.435	172.186	16.056	29648.055	33.085	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
290	960	670	59850	34527900	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
10	340	380	460	650	790
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
10	420	494.611	471.762	-.513	.748

X_{27} : TH_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
23.209	16.266	1.517	264.57	70.084	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
5	110	105	2669	92105	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
9	8	13	19	29	41
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	16	19.037	15.706	7.522	2.252

X_{28} : V__PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
130.522	60.91	5.68	3710.076	46.667	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
44	370	326	15010	2382080	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
11	73	89	120	150	190
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
10	•	119.716	110.914	4.114	1.872

X_{29} : Y__PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
32.774	11.945	1.114	142.685	36.447	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
13	67	54	3769	139791	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
7	19	22.25	31	39.75	52
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
8	•	30.735	28.849	-.232	.691

X_{30} : YB_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
3.174	1.286	.12	1.654	40.517	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
1	7	6	365	1347	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
4	2	2	3	4	5
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
5	•	2.927	2.686	.122	.767

X_{31} : ZN_PPM_SLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
71.861	34.269	3.196	1174.331	47.687	115
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
27	330	303	8264	727732	0
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
11	45	56	65	77.75	110
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
6	57	66.817	62.871	26.777	4.136

X_{32} : AG_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.181	.126	.089	.016	69.539	2
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.092	.27	.178	.362	.081	113
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
0	•	•	.181	•	•
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
0	•	.158	.137	-2	7.509E-20

X_{33} : AS_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
4.44	5.83	.548	33.983	131.298	113
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.72	57	56.28	501.71	6033.658	2
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
10	1.6	2.3	3	4.375	7.38
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
11	2.4	3.332	2.776	57.028	6.824

X_{34} : AU_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.18	•	•	•	•	1
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.18	.18	0	.18	.032	114
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
0	•	•	.18	•	•
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
0	.18	.18	.18	•	•

X_{35} : BI_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
2.385	2.284	1.615	5.216	95.763	2
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.77	4	3.23	4.77	16.593	113
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
0	•	•	2.385	•	•
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
0	•	1.755	1.291	-2	0

X_{36} : CD_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.129	.104	.01	.011	80.771	108
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum of Sqr.:**	**# Missing:**
.05	.85	.8	13.907	2.948	7
# < 10th %:	**10th %:**	**25th %:**	**50th %:**	**75th %:**	**90th %:**
11	.064	.081	.1	.15	.19
# > 90th %:	**Mode:**	**Geo. Mean:**	**Har. Mean:**	**Kurtosis:**	**Skewness:**
10	.11	.111	.101	23.78	4.422

X_{37} : CU_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
14.76	6.752	.63	45.586	45.744	115
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3.2	54	50.8	1697.4	30250.46	0
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
11	7.9	11	14	17	22
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	•	13.506	12.32	8.901	2.131

X_{38} : MO_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.86	.572	.054	.328	66.575	114
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
.074	4.4	4.326	98.014	121.293	1
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
11	.349	.47	.755	1.1	1.31
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	1.2	.722	.593	13.019	2.796

X_{39} : PB_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
20.141	48.049	4.5	2308.751	238.563	114
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3.2	480	476.8	2296.1	307135.17	1
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
11	5.89	8.3	12	16	23.2
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	12	12.456	10.197	73.121	8.184

X_{40} : SB_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
1.683	1.384	.266	1.914	82.214	27
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
.69	5.5	4.81	45.44	126.249	88
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
3	.762	.81	1	1.95	4.38
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
3	•	1.335	1.139	1.943	1.754

X_{41} : ZN_P_PPMLQ

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
49.355	28.618	2.68	818.964	57.983	114
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
3.4	270	266.6	5626.5	370240.37	1
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
10	22	38	44.5	55	72.1
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
11	43	43.679	36.365	29.956	4.359

X_{42} : AU___PPMLT

Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
.152	.299	.149	.089	196.925	4
Minimum:	Maximum:	Range:	Sum:	Sum of Sqr.:	# Missing:
.002	.6	.598	.607	.36	111
# < 10th %:	10th %:	25th %:	50th %:	75th %:	90th %:
0	•	.002	.002	.302	•
# > 90th %:	Mode:	Geo. Mean:	Har. Mean:	Kurtosis:	Skewness:
0	.002	.009	.003	-.667	1.155

APPENDIX 3

INTERELEMENT CORRELATION MATRIX

Interelement Correlation Matrix

Name	AL_____SLQ	CA_____SLQ	FE_____SLQ	K_____SLQ	MG_____SLQ	NA_____SLQ	P_____SLQ	TI_____SLQ	MN_PPM_SLQ	AS_PPM_SLQ	BA_PPM_SLQ
AL_____SLQ	1	0.276	-0.756	-0.068	0.127	0.328	-0.323	-0.407	-0.12	0.131	0.185
CA_____SLQ	0.276	1	0.088	-0.699	0.796	-0.465	-0.206	0.412	0.644	0.147	-0.046
FE_____SLQ	-0.756	0.088	1	-0.337	0.196	-0.523	0.254	0.68	0.481	-0.067	-0.192
K_____SLQ	-0.068	-0.699	-0.337	1	-0.653	0.3	0.178	-0.527	-0.483	0.063	0.218
MG_____SLQ	0.127	0.796	0.196	-0.653	1	-0.534	0.12	0.508	0.668	0.055	-0.144
NA_____SLQ	0.328	-0.465	-0.523	0.3	-0.534	1	-0.044	-0.459	-0.567	-0.046	0.038
P_____SLQ	-0.323	-0.206	0.254	0.178	0.12	-0.044	1	0.095	0.025	-0.178	-0.177
TI_____SLQ	-0.407	0.412	0.68	-0.527	0.508	-0.459	0.095	1	0.736	0.082	-0.129
MN_PPM_SLQ	-0.12	0.644	0.481	-0.483	0.668	-0.567	0.025	0.736	1	0.393	0.111
AS_PPM_SLQ	0.131	0.147	-0.067	0.063	0.055	-0.046	-0.178	0.082	0.393	1	0.799
BA_PPM_SLQ	0.185	-0.046	-0.192	0.218	-0.144	0.038	-0.177	-0.129	0.111	0.799	1
BE_PPM_SLQ	-0.062	-0.498	-0.181	0.4	-0.442	0.346	-0.023	-0.296	-0.348	-0.034	0.023
CE_PPM_SLQ	-0.659	-0.506	0.412	0.311	-0.344	0.089	0.586	0.123	-0.171	-0.227	-0.224
CO_PPM_SLQ	-0.151	0.775	0.543	-0.702	0.857	-0.642	0.085	0.698	0.807	0.084	-0.154
CR_PPM_SLQ	0.023	0.809	0.306	-0.714	0.888	-0.552	-0.08	0.633	0.758	0.125	-0.101
CU_PPM_SLQ	0.101	0.538	0.15	-0.303	0.579	-0.48	-0.031	0.277	0.579	0.122	0.038
EU_PPM_SLQ	-0.444	-0.117	0.366	0.042	-0.059	-0.083	0.424	0.189	0.044	-0.124	-0.126
GA_PPM_SLQ	0.218	0.133	0.197	-0.128	0.179	-0.18	-0.05	0.379	0.471	0.201	0.15
LA_PPM_SLQ	-0.628	-0.527	0.359	0.349	-0.383	0.137	0.563	0.056	-0.221	-0.231	-0.219
LI_PPM_SLQ	0.359	0.749	-0.009	-0.515	0.811	-0.437	-0.09	0.24	0.57	0.161	0.035
NB_PPM_SLQ	-0.703	-0.362	0.582	0.107	-0.181	-0.072	0.451	0.504	0.067	-0.193	-0.23
ND_PPM_SLQ	-0.665	-0.51	0.408	0.315	-0.352	0.099	0.602	0.121	-0.195	-0.25	-0.232
NI_PPM_SLQ	0.105	0.832	0.204	-0.673	0.926	-0.54	-0.01	0.503	0.684	0.073	-0.107
PB_PPM_SLQ	0.112	-0.127	-0.158	0.253	-0.176	0.073	-0.144	-0.15	0.095	0.719	0.923
SC_PPM_SLQ	-0.172	0.698	0.384	-0.553	0.853	-0.497	0.216	0.654	0.681	0.052	-0.22
SR_PPM_SLQ	0.552	0.548	-0.134	-0.475	0.308	-0.119	-0.475	0.227	0.36	0.291	0.268
TH_PPM_SLQ	-0.559	-0.453	0.4	0.229	-0.307	-0.062	0.294	-0.044	-0.244	-0.226	-0.199
V__PPM_SLQ	-0.621	0.31	0.888	-0.532	0.382	-0.54	0.083	0.857	0.66	0.06	-0.138
Y__PPM_SLQ	-0.684	-0.453	0.442	0.27	-0.236	0.039	0.68	0.168	-0.174	-0.277	-0.273
YB_PPM_SLQ	-0.659	-0.399	0.439	0.217	-0.187	-0.001	0.656	0.188	-0.144	-0.274	-0.274
ZN_PPM_SLQ	0.147	0.168	0.059	-0.034	0.188	-0.245	-0.196	0.228	0.484	0.38	0.443
AG_P_PPMLQ	0.09	-0.068	-0.089	0.103	-0.013	-0.008	-0.091	-0.081	0.078	0.068	0.18
AS_P_PPMLQ	0.122	0.183	-0.067	0.053	0.095	-0.07	-0.129	0.028	0.37	0.936	0.856
AU_P_PPMLQ	0.074	0.005	-0.09	0.02	-0.041	0.026	-0.041	-0.083	-0.047	-0.031	0.03
BI_P_PPMLQ	0.021	0.01	0.028	-0.017	0.062	0.035	0.117	0.008	0.01	-0.035	-0.006
CD_P_PPMLQ	0.106	-0.104	-0.104	0.199	-0.035	-0.053	0.013	-0.125	0.168	0.419	0.533
CU_P_PPMLQ	0.034	0.399	0.156	-0.151	0.531	-0.435	0.115	0.225	0.535	0.167	0.098
MO_P_PPMLQ	-0.216	-0.275	0.191	0.371	-0.192	0.021	0.192	0.002	0.123	0.536	0.577
PB_P_PPMLQ	0.07	-0.065	-0.087	0.203	-0.104	0.023	-0.108	-0.077	0.17	0.776	0.942
SB_P_PPMLQ	0.133	0.158	-0.023	0.074	0.031	-0.04	-0.141	0.123	0.463	0.684	0.35
ZN_P_PPMLQ	0.168	0.102	-0.041	0.113	0.18	-0.188	-0.064	0.029	0.372	0.367	0.444
AU___PPMLT	0.051	-0.029	-0.036	0.047	-0.06	0.026	-0.125	-0.009	0.052	-0.031	0.033

Interelement Correlation Matrix

Name	BE_PPM_SLQ	CE_PPM_SLQ	CO_PPM_SLQ	CR_PPM_SLQ	CU_PPM_SLQ	EU_PPM_SLQ	GA_PPM_SLQ	LA_PPM_SLQ	LI_PPM_SLQ	NB_PPM_SLQ	ND_PPM_SLQ
AL_____SLQ	-0.062	-0.659	-0.151	0.023	0.101	-0.444	0.218	-0.628	0.359	-0.703	-0.665
CA_____SLQ	-0.498	-0.506	0.775	0.809	0.538	-0.117	0.133	-0.527	0.749	-0.362	-0.51
FE_____SLQ	-0.181	0.412	0.543	0.306	0.15	0.366	0.197	0.359	-0.009	0.582	0.408
K_____SLQ	0.4	0.311	-0.702	-0.714	-0.303	0.042	-0.128	0.349	-0.515	0.107	0.315
MG_____SLQ	-0.442	-0.344	0.857	0.888	0.579	-0.059	0.179	-0.383	0.811	-0.181	-0.352
NA_____SLQ	0.346	0.089	-0.642	-0.552	-0.48	-0.083	-0.18	0.137	-0.437	-0.072	0.099
P_____SLQ	-0.023	0.586	0.085	-0.08	-0.031	0.424	-0.05	0.563	-0.09	0.451	0.602
TI_____SLQ	-0.296	0.123	0.698	0.633	0.277	0.189	0.379	0.056	0.24	0.504	0.121
MN_PPM_SLQ	-0.348	-0.171	0.807	0.758	0.579	0.044	0.471	-0.221	0.57	0.067	-0.195
AS_PPM_SLQ	-0.034	-0.227	0.084	0.125	0.122	-0.124	0.201	-0.231	0.161	-0.193	-0.25
BA_PPM_SLQ	0.023	-0.224	-0.154	-0.101	0.038	-0.126	0.15	-0.219	0.035	-0.23	-0.232
BE_PPM_SLQ	1	0.187	-0.512	-0.431	-0.384	0.069	-0.033	0.204	-0.296	0.135	0.177
CE_PPM_SLQ	0.187	1	-0.207	-0.355	-0.318	0.667	-0.226	0.989	-0.583	0.769	0.989
CO_PPM_SLQ	-0.512	-0.207	1	0.869	0.592	0.018	0.199	-0.258	0.678	0.006	-0.222
CR_PPM_SLQ	-0.431	-0.355	0.869	1	0.499	-0.122	0.214	-0.392	0.752	-0.142	-0.37
CU_PPM_SLQ	-0.384	-0.318	0.592	0.499	1	-0.054	0.271	-0.351	0.463	-0.199	-0.337
EU_PPM_SLQ	0.069	0.667	0.018	-0.122	-0.054	1	-0.076	0.633	-0.256	0.534	0.665
GA_PPM_SLQ	-0.033	-0.226	0.199	0.214	0.271	-0.076	1	-0.257	0.226	-0.025	-0.232
LA_PPM_SLQ	0.204	0.989	-0.258	-0.392	-0.351	0.633	-0.257	1	-0.593	0.721	0.979
LI_PPM_SLQ	-0.296	-0.583	0.678	0.752	0.463	-0.256	0.226	-0.593	1	-0.44	-0.598
NB_PPM_SLQ	0.135	0.769	0.006	-0.142	-0.199	0.534	-0.025	0.721	-0.44	1	0.788
ND_PPM_SLQ	0.177	0.989	-0.222	-0.37	-0.337	0.665	-0.232	0.979	-0.598	0.788	1
NI_PPM_SLQ	-0.474	-0.393	0.877	0.921	0.595	-0.12	0.133	-0.423	0.825	-0.217	-0.407
PB_PPM_SLQ	0.06	-0.162	-0.175	-0.143	0.214	-0.098	0.14	-0.154	-0.041	-0.163	-0.17
SC_PPM_SLQ	-0.449	-0.062	0.833	0.78	0.515	0.137	0.054	-0.11	0.5	0.086	-0.062
SR_PPM_SLQ	-0.214	-0.651	0.265	0.41	0.124	-0.339	0.44	-0.664	0.535	-0.43	-0.665
TH_PPM_SLQ	0.126	0.634	-0.176	-0.285	-0.213	0.379	-0.188	0.621	-0.457	0.517	0.636
V__PPM_SLQ	-0.255	0.188	0.682	0.544	0.243	0.225	0.276	0.129	0.136	0.448	0.186
Y__PPM_SLQ	0.129	0.883	-0.125	-0.327	-0.242	0.62	-0.269	0.849	-0.537	0.846	0.912
YB_PPM_SLQ	0.118	0.801	-0.078	-0.286	-0.208	0.573	-0.284	0.766	-0.469	0.819	0.833
ZN_PPM_SLQ	-0.048	-0.322	0.209	0.229	0.669	-0.145	0.536	-0.343	0.27	-0.158	-0.348
AG_P_PPMLQ	-0.003	-0.119	-0.048	-0.034	0.498	-0.042	0.123	-0.126	-0.006	-0.098	-0.129
AS_P_PPMLQ	-0.09	-0.257	0.129	0.126	0.129	-0.131	0.12	-0.251	0.23	-0.241	-0.271
AU_P_PPMLQ	-0.002	-0.101	-0.083	-0.055	-0.01	-0.035	0.055	-0.092	-0.005	-0.097	-0.098
BI_P_PPMLQ	-0.003	0.031	0.04	-0.034	0.059	-0.039	0.061	0.044	-0.035	0.005	0.028
CD_P_PPMLQ	0.052	-0.151	-0.044	-0.058	0.529	-0.117	0.224	-0.162	0.042	-0.13	-0.173
CU_P_PPMLQ	-0.295	-0.218	0.514	0.409	0.949	0.004	0.288	-0.253	0.42	-0.137	-0.235
MO_P_PPMLQ	0.113	0.129	-0.056	-0.201	0.084	0.061	0.232	0.123	-0.139	0.11	0.108
PB_P_PPMLQ	0.013	-0.156	-0.082	-0.067	0.194	-0.083	0.139	-0.152	0.014	-0.142	-0.164
SB_P_PPMLQ	-0.04	-0.203	0.097	0.138	0.055	-0.122	0.36	-0.213	0.142	-0.145	-0.229
ZN_P_PPMLQ	0.02	-0.299	0.132	0.142	0.669	-0.129	0.443	-0.311	0.291	-0.212	-0.316
AU___PPMLT	-0.002	-0.051	-0.056	-0.025	0.214	-0.035	0.17	-0.056	-0.046	0.004	-0.05

Interelement Correlation Matrix

Name	NI_PPM_SLQ	PB_PPM_SLQ	SC_PPM_SLQ	SR_PPM_SLQ	TH_PPM_SLQ	V__PPM_SLQ	Y__PPM_SLQ	YB_PPM_SLQ	ZN_PPM_SLQ	AG_P_PPMLQ	AS_P_PPMLQ
AL_____SLQ	0.105	0.112	-0.172	0.552	-0.559	-0.621	-0.684	-0.659	0.147	0.09	0.122
CA_____SLQ	0.832	-0.127	0.698	0.548	-0.453	0.31	-0.453	-0.399	0.168	-0.068	0.183
FE_____SLQ	0.204	-0.158	0.384	-0.134	0.4	0.888	0.442	0.439	0.059	-0.089	-0.067
K_____SLQ	-0.673	0.253	-0.553	-0.475	0.229	-0.532	0.27	0.217	-0.034	0.103	0.053
MG_____SLQ	0.926	-0.176	0.853	0.308	-0.307	0.382	-0.236	-0.187	0.188	-0.013	0.095
NA_____SLQ	-0.54	0.073	-0.497	-0.119	-0.062	-0.54	0.039	-0.001	-0.245	-0.008	-0.07
P_____SLQ	-0.01	-0.144	0.216	-0.475	0.294	0.083	0.68	0.656	-0.196	-0.091	-0.129
TI_____SLQ	0.503	-0.15	0.654	0.227	-0.044	0.857	0.168	0.188	0.228	-0.081	0.028
MN_PPM_SLQ	0.684	0.095	0.681	0.36	-0.244	0.66	-0.174	-0.144	0.484	0.078	0.37
AS_PPM_SLQ	0.073	0.719	0.052	0.291	-0.226	0.06	-0.277	-0.274	0.38	0.068	0.936
BA_PPM_SLQ	-0.107	0.923	-0.22	0.268	-0.199	-0.138	-0.273	-0.274	0.443	0.18	0.856
BE_PPM_SLQ	-0.474	0.06	-0.449	-0.214	0.126	-0.255	0.129	0.118	-0.048	-0.003	-0.09
CE_PPM_SLQ	-0.393	-0.162	-0.062	-0.651	0.634	0.188	0.883	0.801	-0.322	-0.119	-0.257
CO_PPM_SLQ	0.877	-0.175	0.833	0.265	-0.176	0.682	-0.125	-0.078	0.209	-0.048	0.129
CR_PPM_SLQ	0.921	-0.143	0.78	0.41	-0.285	0.544	-0.327	-0.286	0.229	-0.034	0.126
CU_PPM_SLQ	0.595	0.214	0.515	0.124	-0.213	0.243	-0.242	-0.208	0.669	0.498	0.129
EU_PPM_SLQ	-0.12	-0.098	0.137	-0.339	0.379	0.225	0.62	0.573	-0.145	-0.042	-0.131
GA_PPM_SLQ	0.133	0.14	0.054	0.44	-0.188	0.276	-0.269	-0.284	0.536	0.123	0.12
LA_PPM_SLQ	-0.423	-0.154	-0.11	-0.664	0.621	0.129	0.849	0.766	-0.343	-0.126	-0.251
LI_PPM_SLQ	0.825	-0.041	0.5	0.535	-0.457	0.136	-0.537	-0.469	0.27	-0.006	0.23
NB_PPM_SLQ	-0.217	-0.163	0.086	-0.43	0.517	0.448	0.846	0.819	-0.158	-0.098	-0.241
ND_PPM_SLQ	-0.407	-0.17	-0.062	-0.665	0.636	0.186	0.912	0.833	-0.348	-0.129	-0.271
NI_PPM_SLQ	1	-0.126	0.76	0.349	-0.305	0.394	-0.34	-0.291	0.225	0.003	0.129
PB_PPM_SLQ	-0.126	1	-0.221	0.094	-0.13	-0.133	-0.2	-0.206	0.606	0.381	0.779
SC_PPM_SLQ	0.76	-0.221	1	0.052	-0.131	0.564	0.072	0.107	0.085	-0.081	0.078
SR_PPM_SLQ	0.349	0.094	0.052	1	-0.565	0.081	-0.686	-0.637	0.32	0.028	0.261
TH_PPM_SLQ	-0.305	-0.13	-0.131	-0.565	1	0.172	0.621	0.564	-0.269	-0.091	-0.232
V__PPM_SLQ	0.394	-0.133	0.564	0.081	0.172	1	0.215	0.23	0.154	-0.099	0.036
Y__PPM_SLQ	-0.34	-0.2	0.072	-0.686	0.621	0.215	1	0.961	-0.363	-0.116	-0.279
YB_PPM_SLQ	-0.291	-0.206	0.107	-0.637	0.564	0.23	0.961	1	-0.347	-0.104	-0.265
ZN_PPM_SLQ	0.225	0.606	0.085	0.32	-0.269	0.154	-0.363	-0.347	1	0.706	0.355
AG_P_PPMLQ	0.003	0.381	-0.081	0.028	-0.091	-0.099	-0.116	-0.104	0.706	1	0.012
AS_P_PPMLQ	0.129	0.779	0.078	0.261	-0.232	0.036	-0.279	-0.265	0.355	0.012	1
AU_P_PPMLQ	-0.036	0.053	-0.099	0.071	-0.071	-0.095	-0.108	-0.086	0.069	0.234	-0.019
BI_P_PPMLQ	-0.013	-0.037	0.072	-0.054	-0.019	0.04	0.048	0.059	-0.021	-0.012	-0.033
CD_P_PPMLQ	-0.011	0.72	-0.095	0.004	0.018	-0.109	-0.137	-0.129	0.756	0.654	0.427
CU_P_PPMLQ	0.512	0.293	0.469	0.019	-0.158	0.199	-0.134	-0.12	0.701	0.529	0.186
MO_P_PPMLQ	-0.182	0.617	-0.132	-0.132	0.159	0.076	0.123	0.091	0.364	0.096	0.6
PB_P_PPMLQ	-0.059	0.982	-0.137	0.107	-0.126	-0.053	-0.181	-0.188	0.561	0.312	0.846
SB_P_PPMLQ	0.047	0.257	0.049	0.325	-0.202	0.078	-0.248	-0.263	0.228	-0.041	0.573
ZN_P_PPMLQ	0.183	0.628	0.055	0.165	-0.211	-0.019	-0.289	-0.283	0.929	0.72	0.375
AU___PPMLT	-0.043	0.136	-0.059	0.032	-0.059	-0.032	-0.053	-0.086	0.242	-0.011	-0.019

Interelement Correlation Matrix

Name	AU_P_PPMLQ	BI_P_PPMLQ	CD_P_PPMLQ	CU_P_PPMLQ	MO_P_PPMLQ	PB_P_PPMLQ	SB_P_PPMLQ	ZN_P_PPMLQ	AU___PPMLT
AL_____SLQ	0.074	0.021	0.106	0.034	-0.216	0.07	0.133	0.168	0.051
CA_____SLQ	0.005	0.01	-0.104	0.399	-0.275	-0.065	0.158	0.102	-0.029
FE_____SLQ	-0.09	0.028	-0.104	0.156	0.191	-0.087	-0.023	-0.041	-0.036
K_____SLQ	0.02	-0.017	0.199	-0.151	0.371	0.203	0.074	0.113	0.047
MG_____SLQ	-0.041	0.062	-0.035	0.531	-0.192	-0.104	0.031	0.18	-0.06
NA_____SLQ	0.026	0.035	-0.053	-0.435	0.021	0.023	-0.04	-0.188	0.026
P_____SLQ	-0.041	0.117	0.013	0.115	0.192	-0.108	-0.141	-0.064	-0.125
TI_____SLQ	-0.083	0.008	-0.125	0.225	0.002	-0.077	0.123	0.029	-0.009
MN_PPM_SLQ	-0.047	0.01	0.168	0.535	0.123	0.17	0.463	0.372	0.052
AS_PPM_SLQ	-0.031	-0.035	0.419	0.167	0.536	0.776	0.684	0.367	-0.031
BA_PPM_SLQ	0.03	-0.006	0.533	0.098	0.577	0.942	0.35	0.444	0.033
BE_PPM_SLQ	-0.002	-0.003	0.052	-0.295	0.113	0.013	-0.04	0.02	-0.002
CE_PPM_SLQ	-0.101	0.031	-0.151	-0.218	0.129	-0.156	-0.203	-0.299	-0.051
CO_PPM_SLQ	-0.083	0.04	-0.044	0.514	-0.056	-0.082	0.097	0.132	-0.056
CR_PPM_SLQ	-0.055	-0.034	-0.058	0.409	-0.201	-0.067	0.138	0.142	-0.025
CU_PPM_SLQ	-0.01	0.059	0.529	0.949	0.084	0.194	0.055	0.669	0.214
EU_PPM_SLQ	-0.035	-0.039	-0.117	0.004	0.061	-0.083	-0.122	-0.129	-0.035
GA_PPM_SLQ	0.055	0.061	0.224	0.288	0.232	0.139	0.36	0.443	0.17
LA_PPM_SLQ	-0.092	0.044	-0.162	-0.253	0.123	-0.152	-0.213	-0.311	-0.056
LI_PPM_SLQ	-0.005	-0.035	0.042	0.42	-0.139	0.014	0.142	0.291	-0.046
NB_PPM_SLQ	-0.097	0.005	-0.13	-0.137	0.11	-0.142	-0.145	-0.212	0.004
ND_PPM_SLQ	-0.098	0.028	-0.173	-0.235	0.108	-0.164	-0.229	-0.316	-0.05
NI_PPM_SLQ	-0.036	-0.013	-0.011	0.512	-0.182	-0.059	0.047	0.183	-0.043
PB_PPM_SLQ	0.053	-0.037	0.72	0.293	0.617	0.982	0.257	0.628	0.136
SC_PPM_SLQ	-0.099	0.072	-0.095	0.469	-0.132	-0.137	0.049	0.055	-0.059
SR_PPM_SLQ	0.071	-0.054	0.004	0.019	-0.132	0.107	0.325	0.165	0.032
TH_PPM_SLQ	-0.071	-0.019	0.018	-0.158	0.159	-0.126	-0.202	-0.211	-0.059
V__PPM_SLQ	-0.095	0.04	-0.109	0.199	0.076	-0.053	0.078	-0.019	-0.032
Y__PPM_SLQ	-0.108	0.048	-0.137	-0.134	0.123	-0.181	-0.248	-0.289	-0.053
YB_PPM_SLQ	-0.086	0.059	-0.129	-0.12	0.091	-0.188	-0.263	-0.283	-0.086
ZN_PPM_SLQ	0.069	-0.021	0.756	0.701	0.364	0.561	0.228	0.929	0.242
AG_P_PPMLQ	0.234	-0.012	0.654	0.529	0.096	0.312	-0.041	0.72	-0.011
AS_P_PPMLQ	-0.019	-0.033	0.427	0.186	0.6	0.846	0.573	0.375	-0.019
AU_P_PPMLQ	1	-0.01	0.052	-0.011	-0.03	0.028	-0.034	0.078	-0.009
BI_P_PPMLQ	-0.01	1	-0.053	0.057	0.068	-0.026	0.004	-0.034	-0.01
CD_P_PPMLQ	0.052	-0.053	1	0.61	0.451	0.666	0.195	0.813	0.17
CU_P_PPMLQ	-0.011	0.057	0.61	1	0.231	0.277	0.073	0.759	0.24
MO_P_PPMLQ	-0.03	0.068	0.451	0.231	1	0.656	0.339	0.431	0.057
PB_P_PPMLQ	0.028	-0.026	0.666	0.277	0.656	1	0.305	0.583	0.094
SB_P_PPMLQ	-0.034	0.004	0.195	0.073	0.339	0.305	1	0.207	0.012
ZN_P_PPMLQ	0.078	-0.034	0.813	0.759	0.431	0.583	0.207	1	0.231
AU___PPMLT	-0.009	-0.01	0.17	0.24	0.057	0.094	0.012	0.231	1

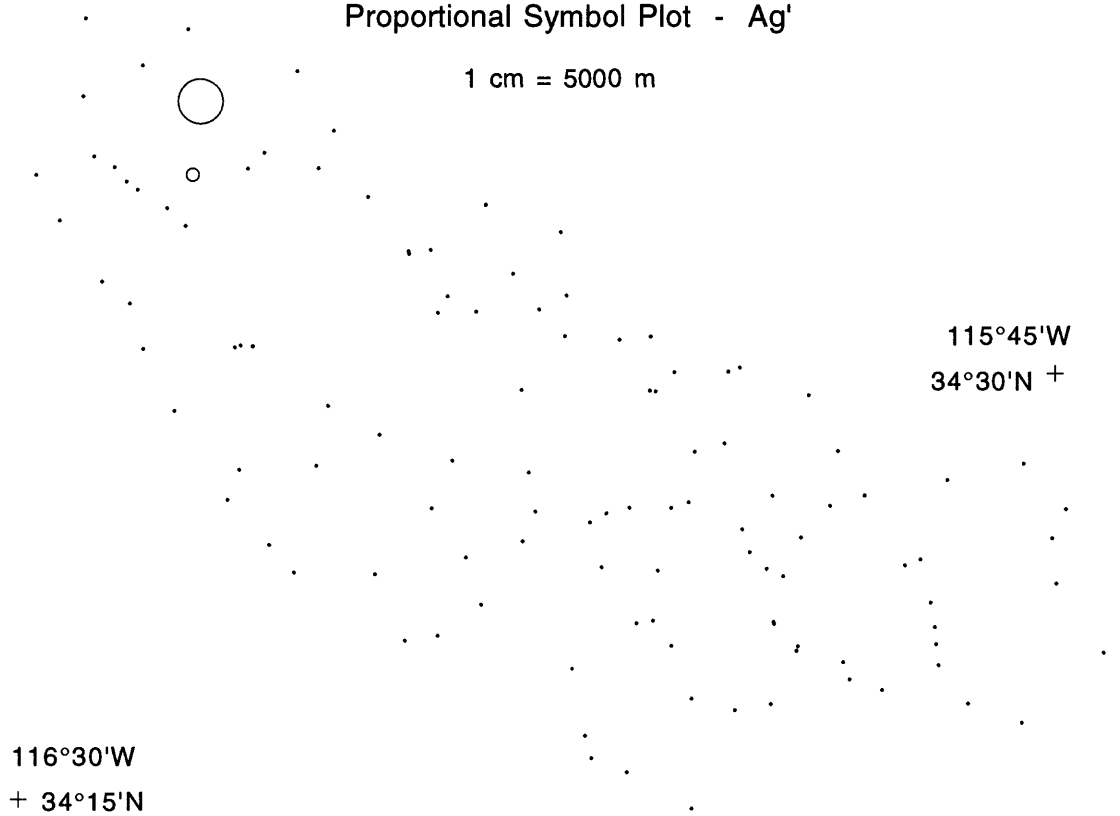
APPENDIX 4

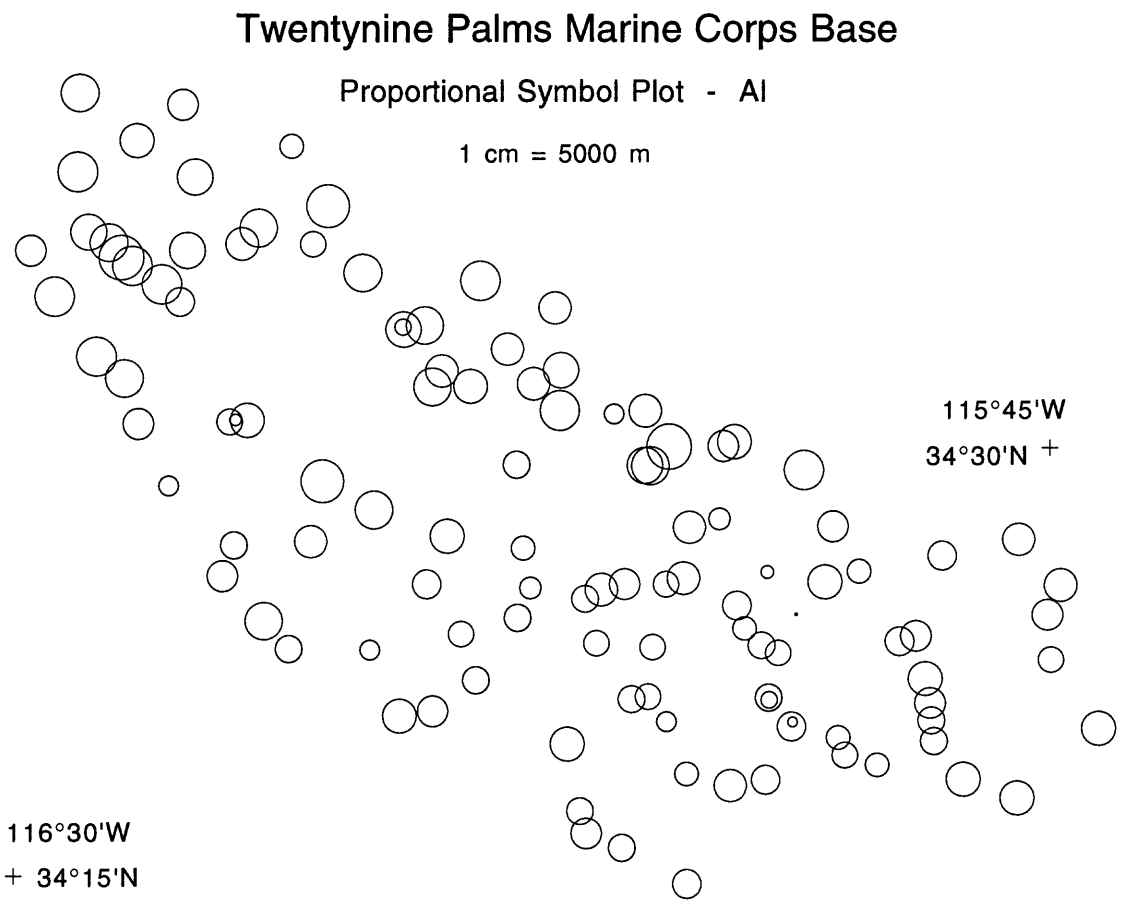
PROPORTIONAL SYMBOL PLOTS FOR EACH ELEMENT

Twentynine Palms Marine Corps Base

Proportional Symbol Plot - Ag'

1 cm = 5000 m

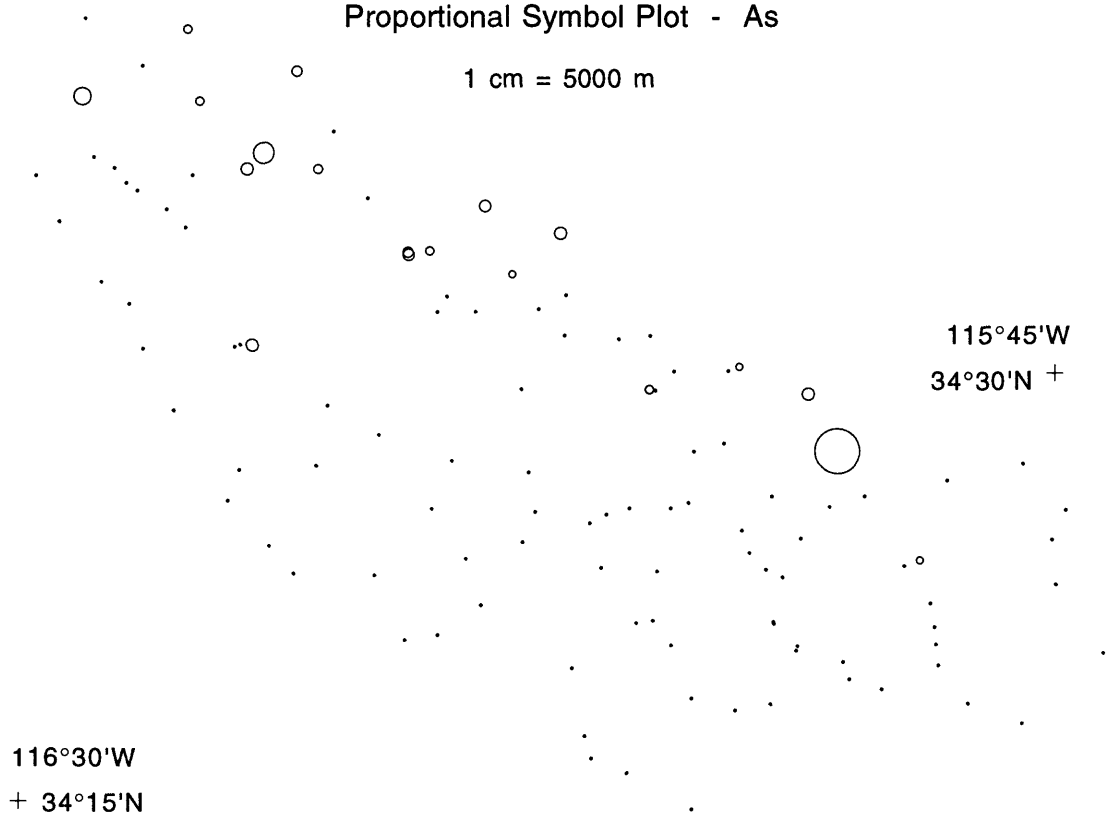


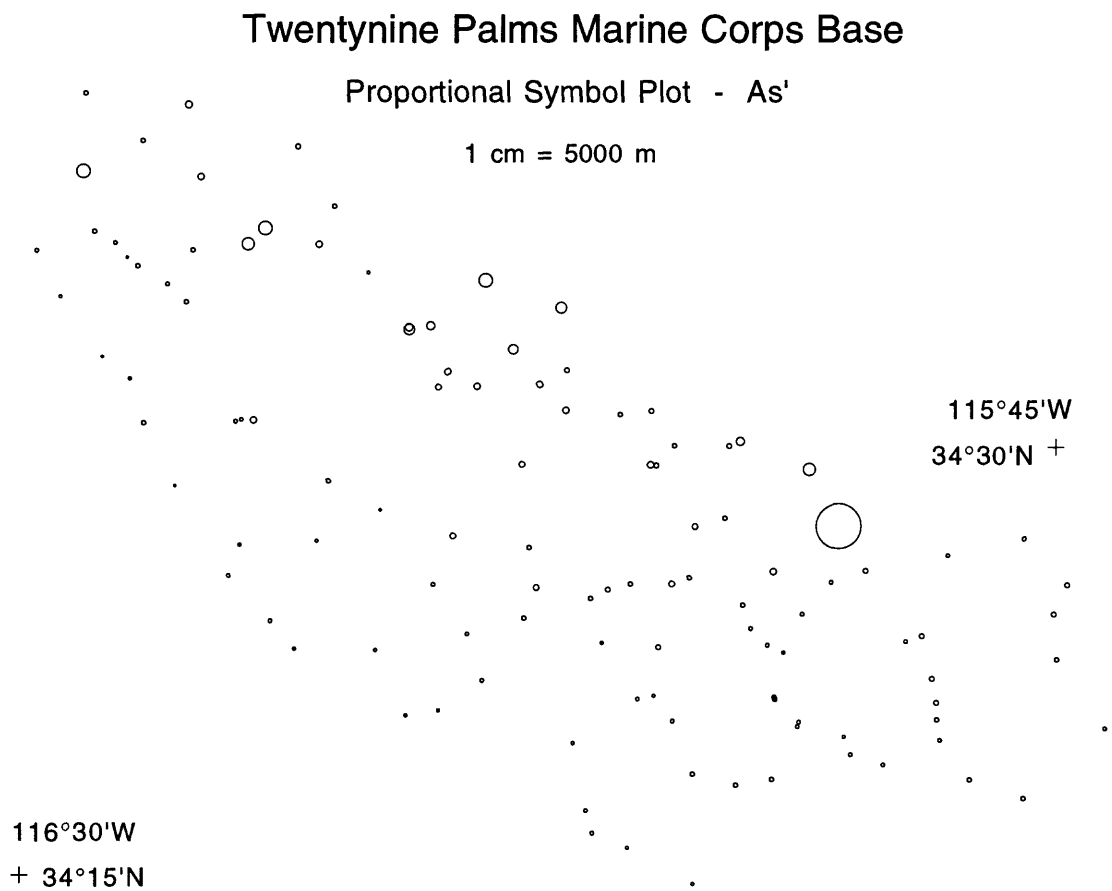

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Al
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

Twentynine Palms Marine Corps Base

Proportional Symbol Plot - As

1 cm = 5000 m

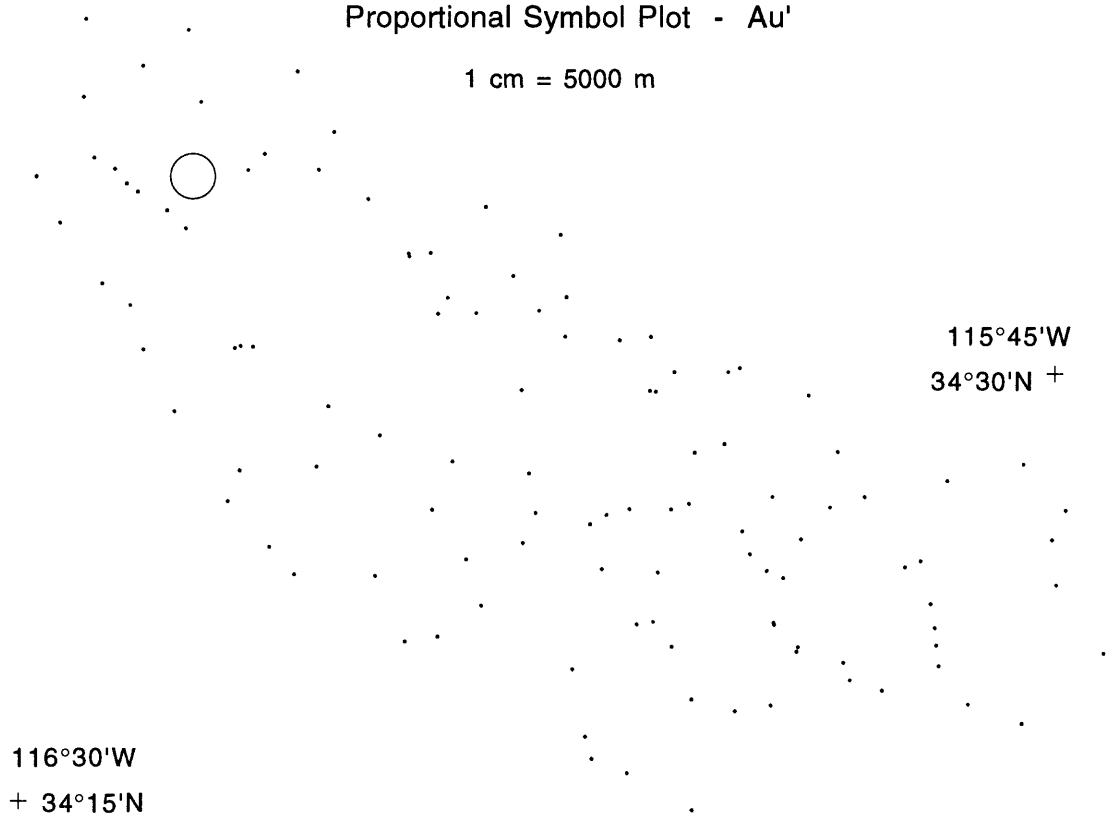



Twentynine Palms Marine Corps Base
Proportional Symbol Plot - As'
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

Twentynine Palms Marine Corps Base

Proportional Symbol Plot - Au'

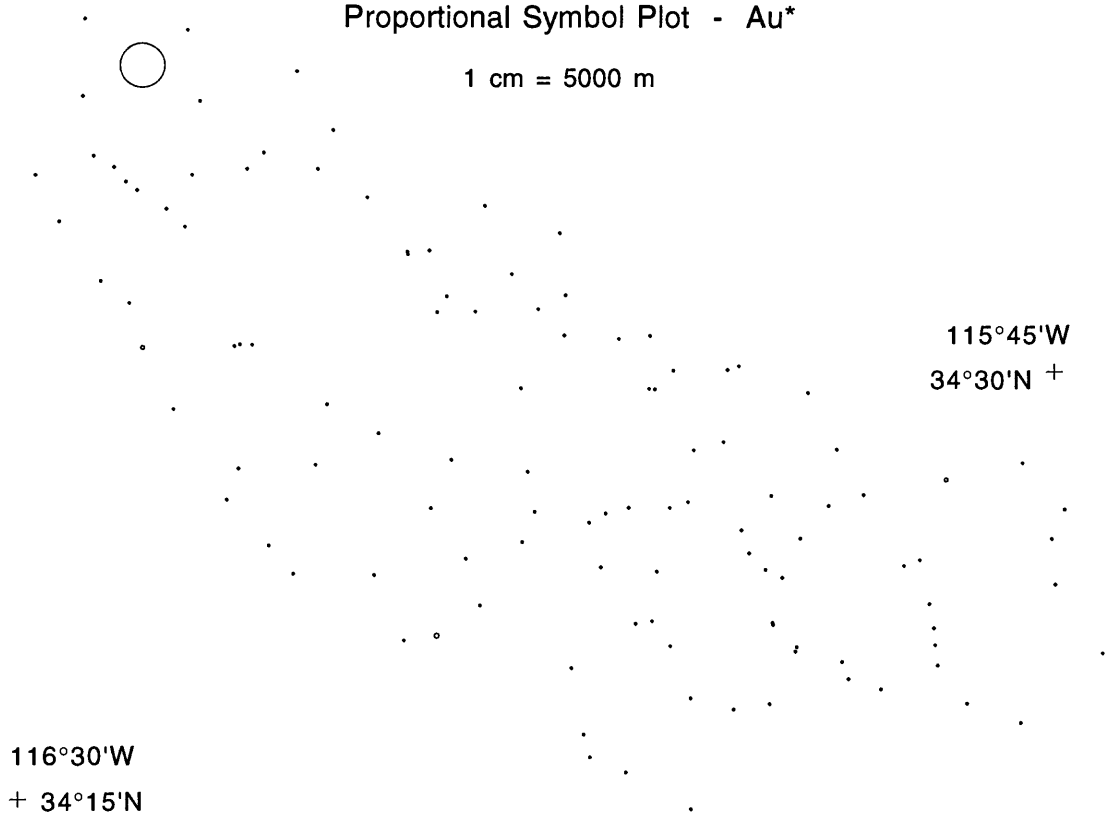
1 cm = 5000 m

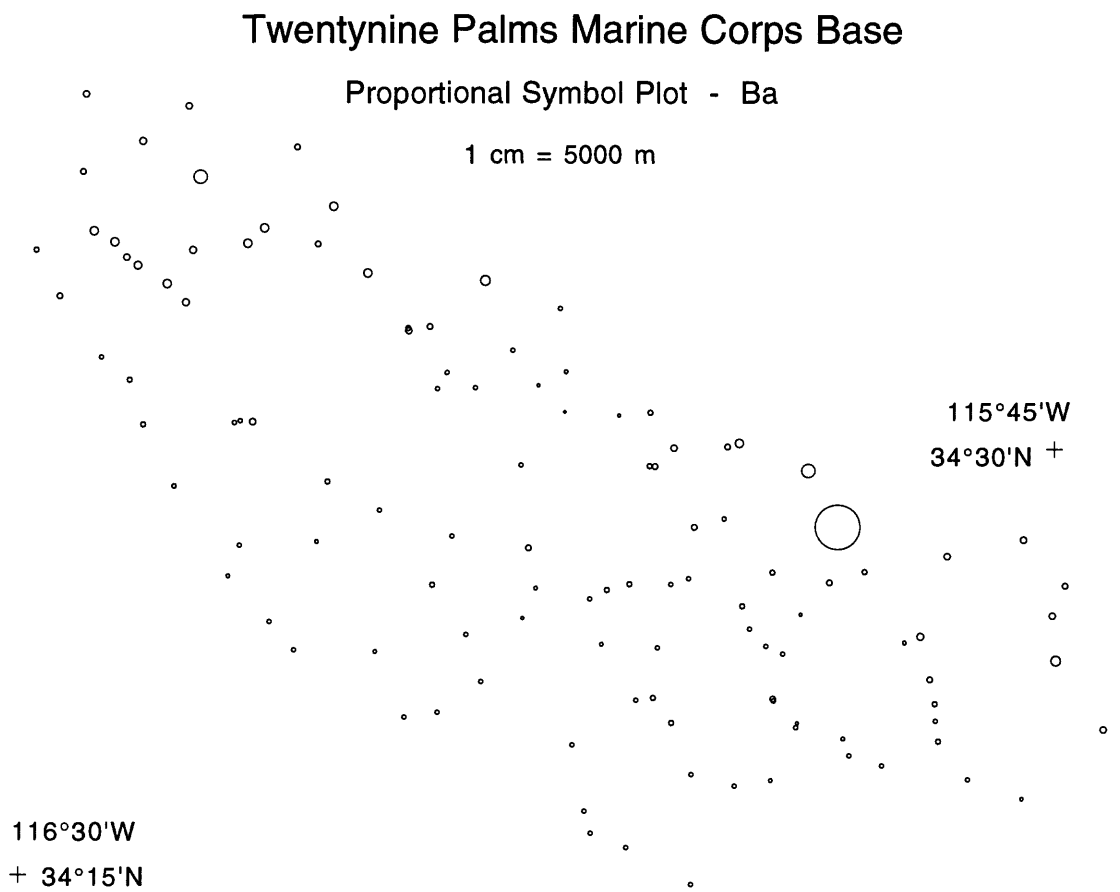


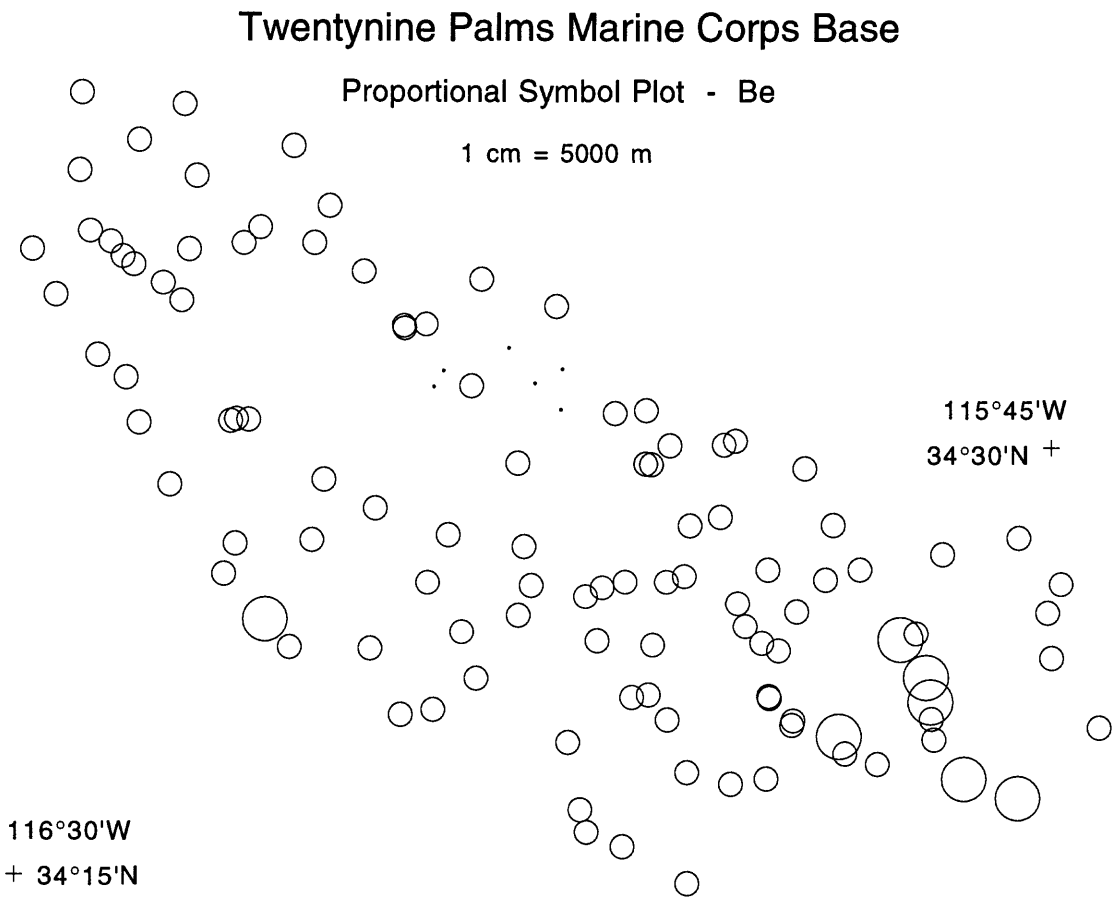
Twentynine Palms Marine Corps Base

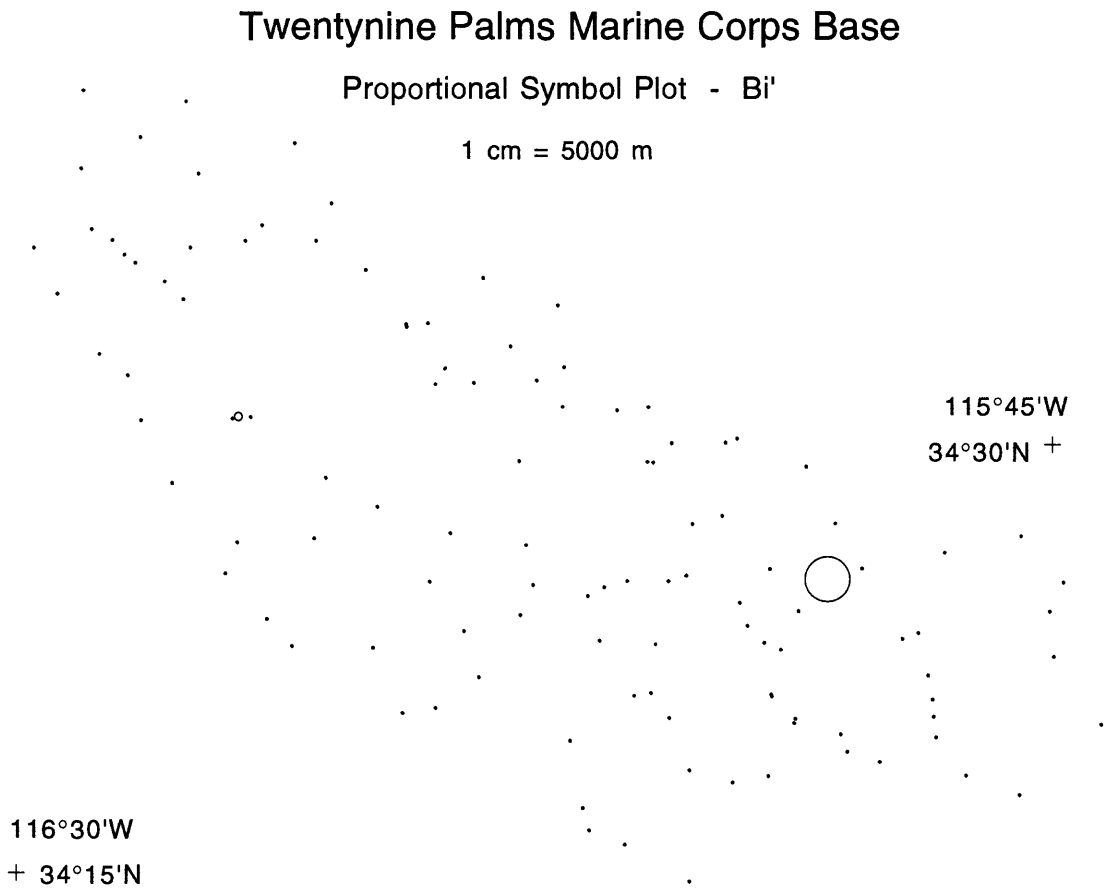
Proportional Symbol Plot - Au*

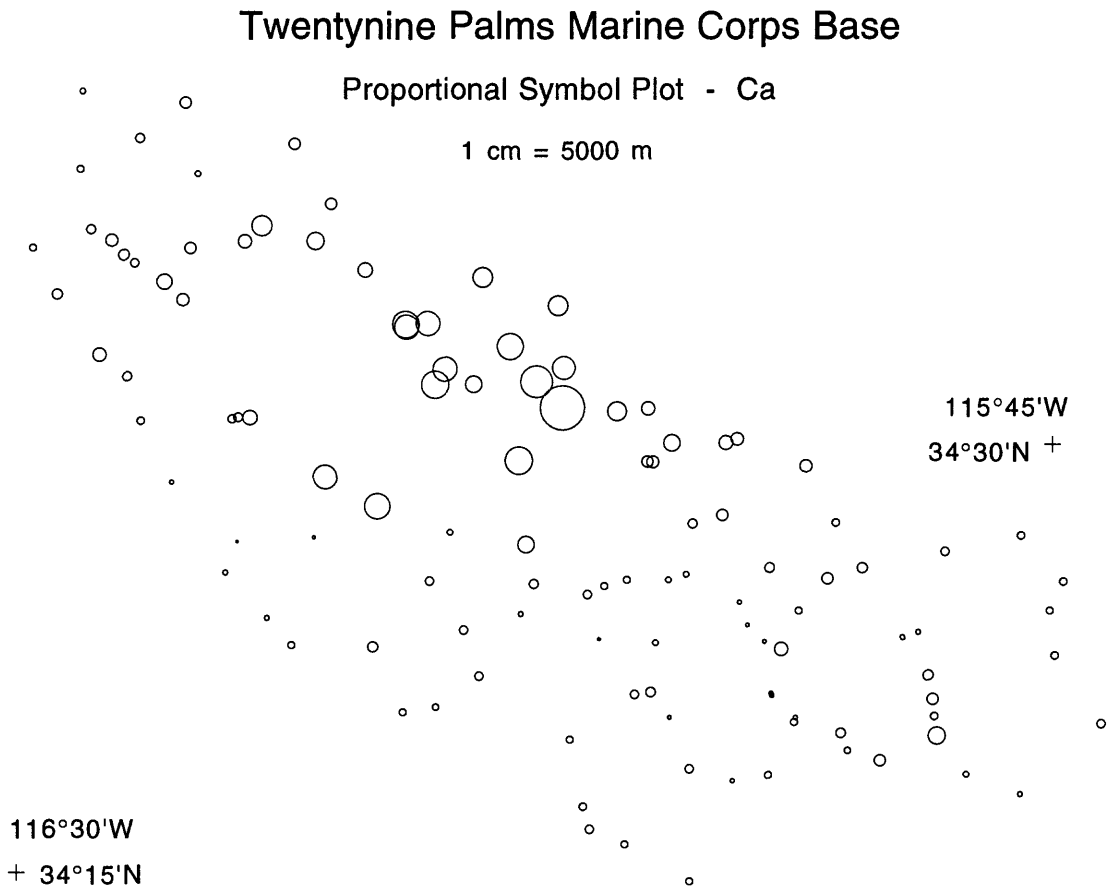
1 cm = 5000 m

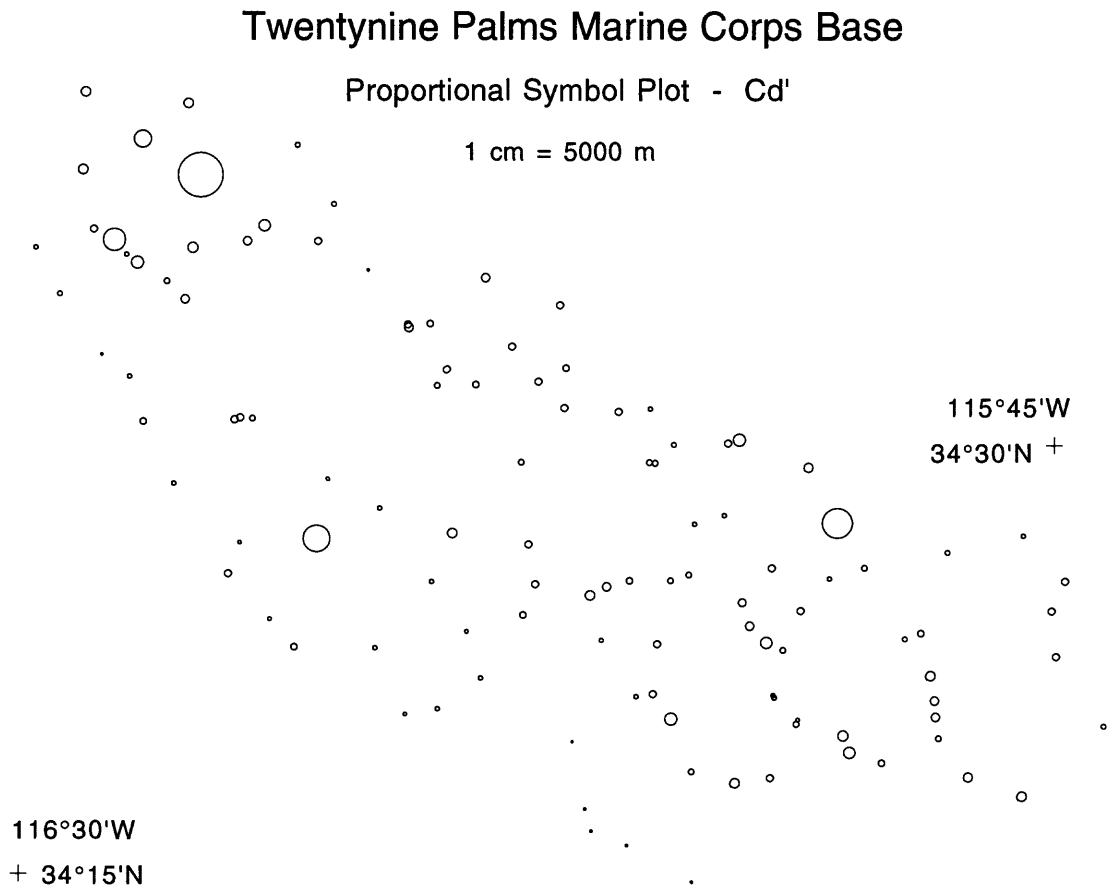


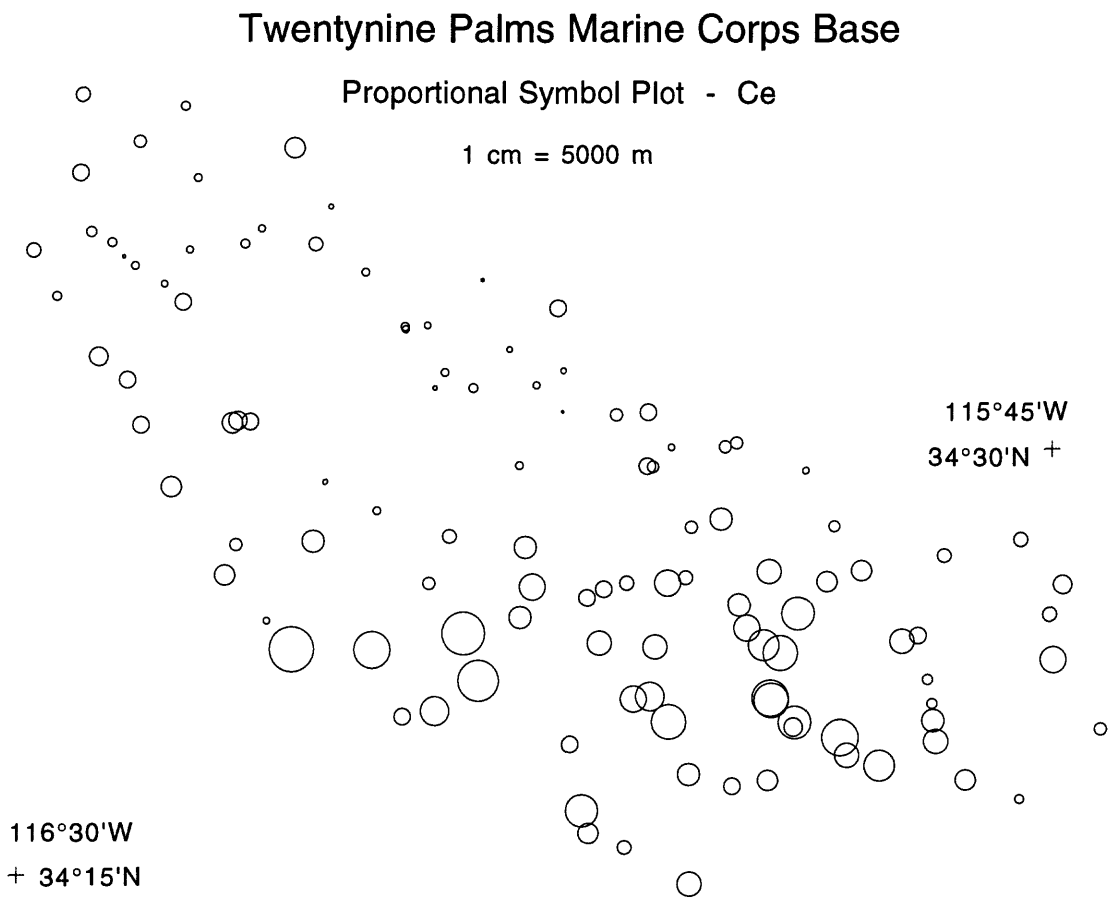

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Ba
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

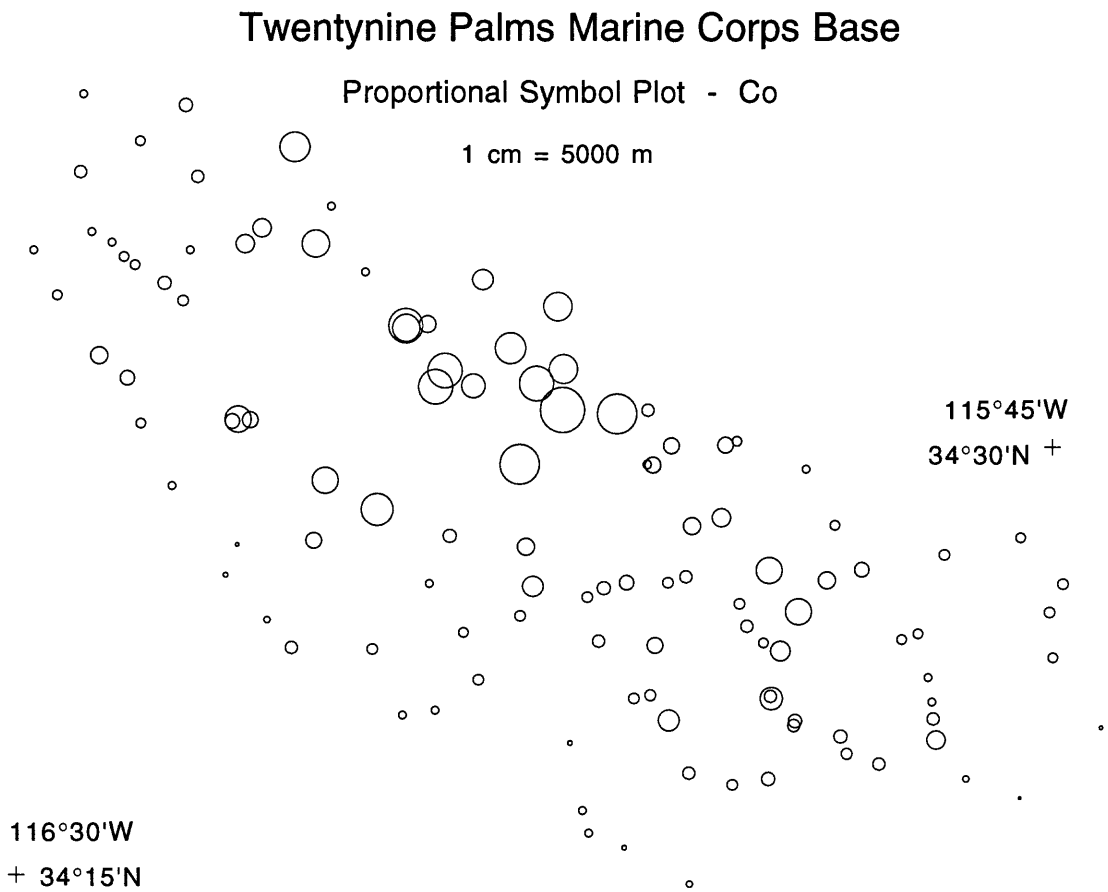

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Be
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

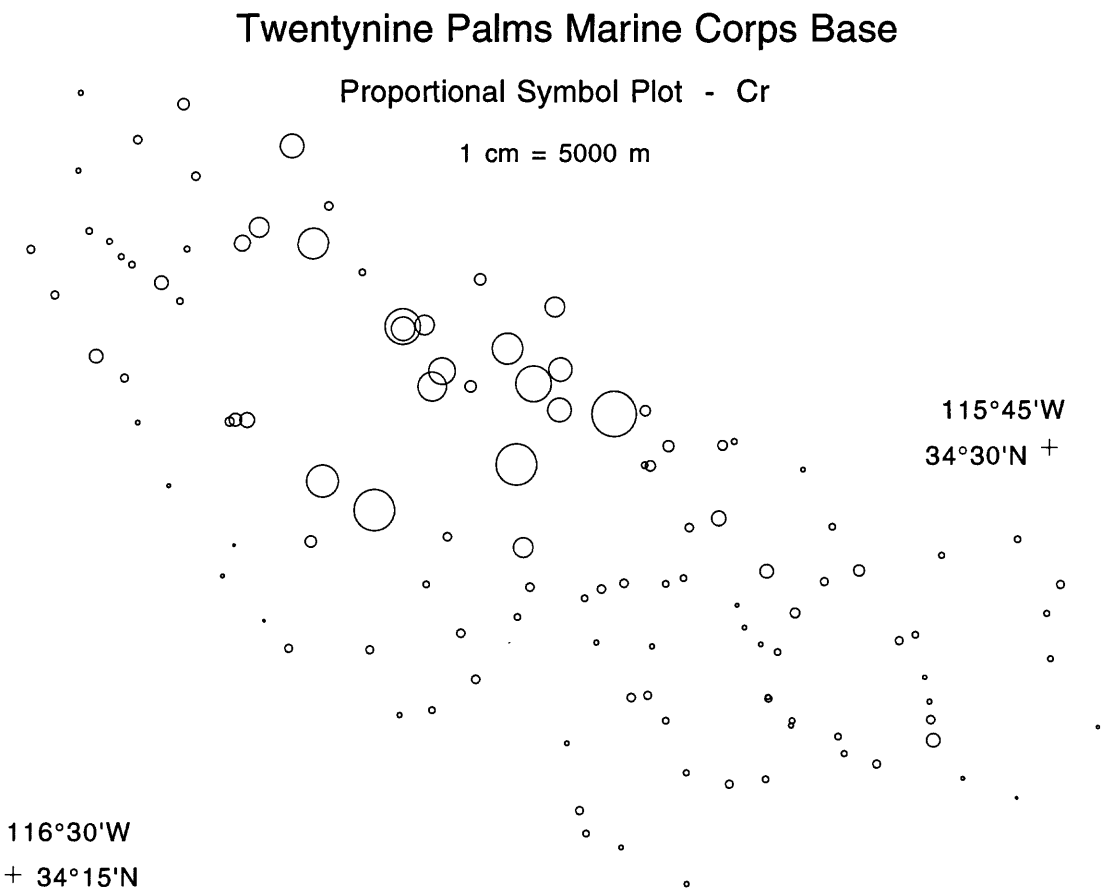

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Bi'
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

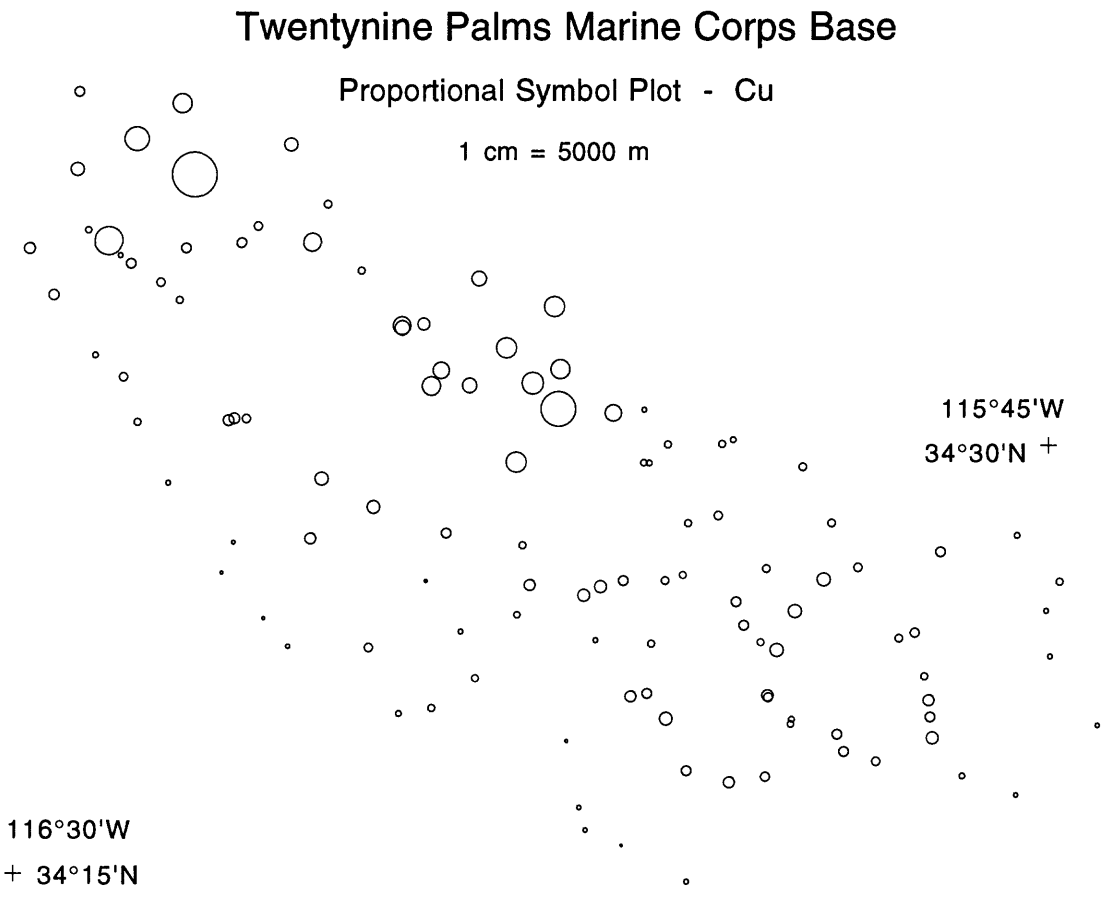

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Ca
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

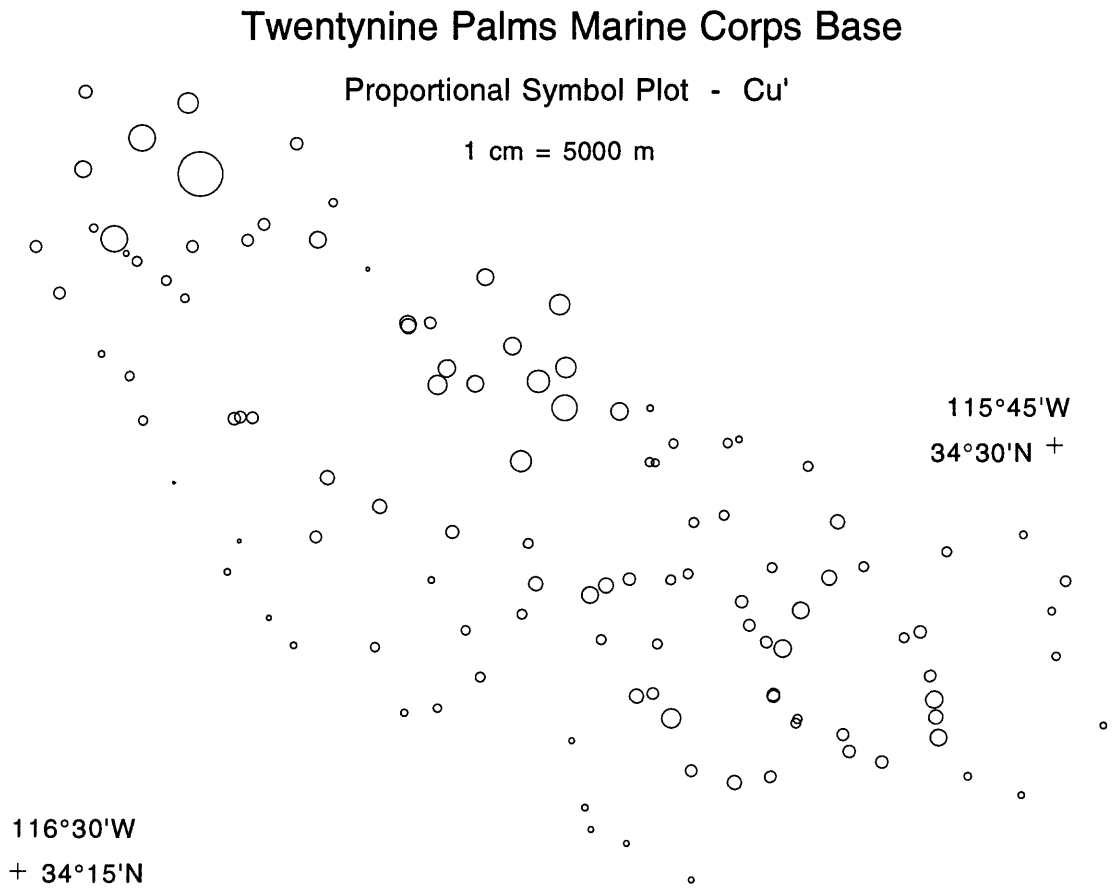

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Cd'
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

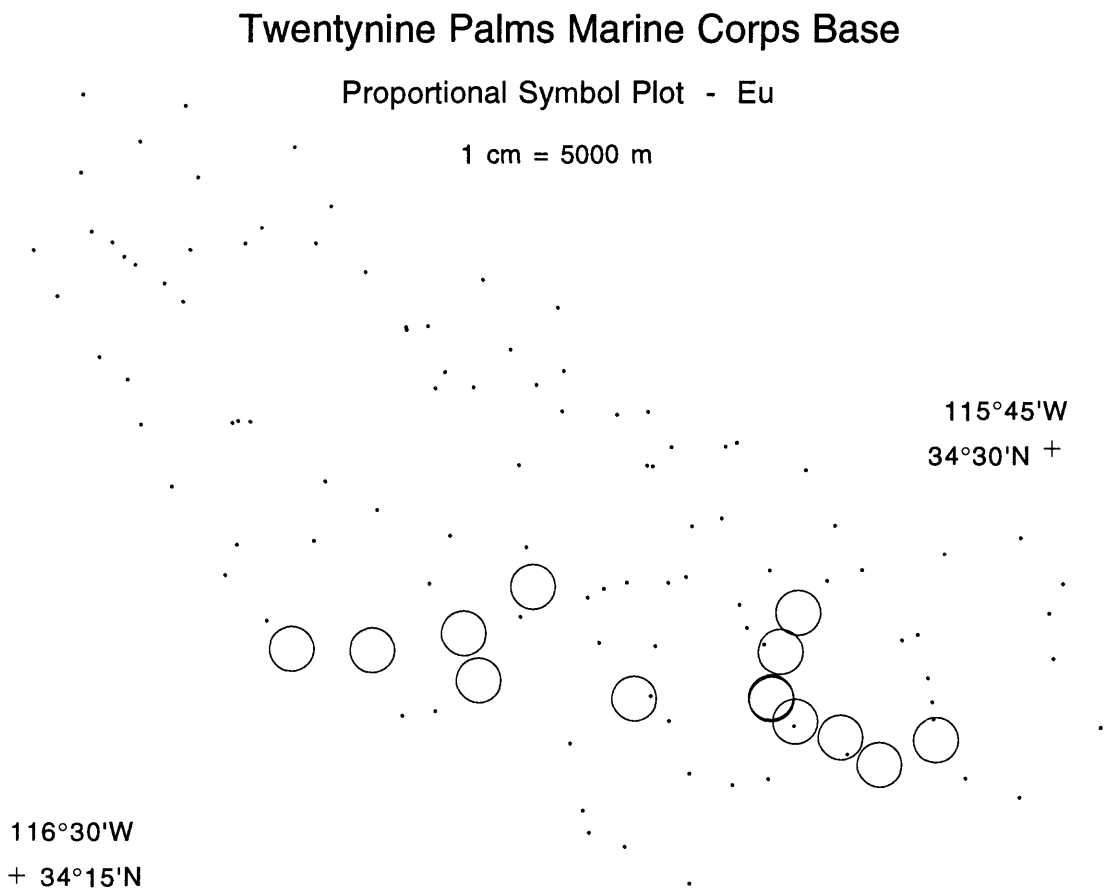

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Ce
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

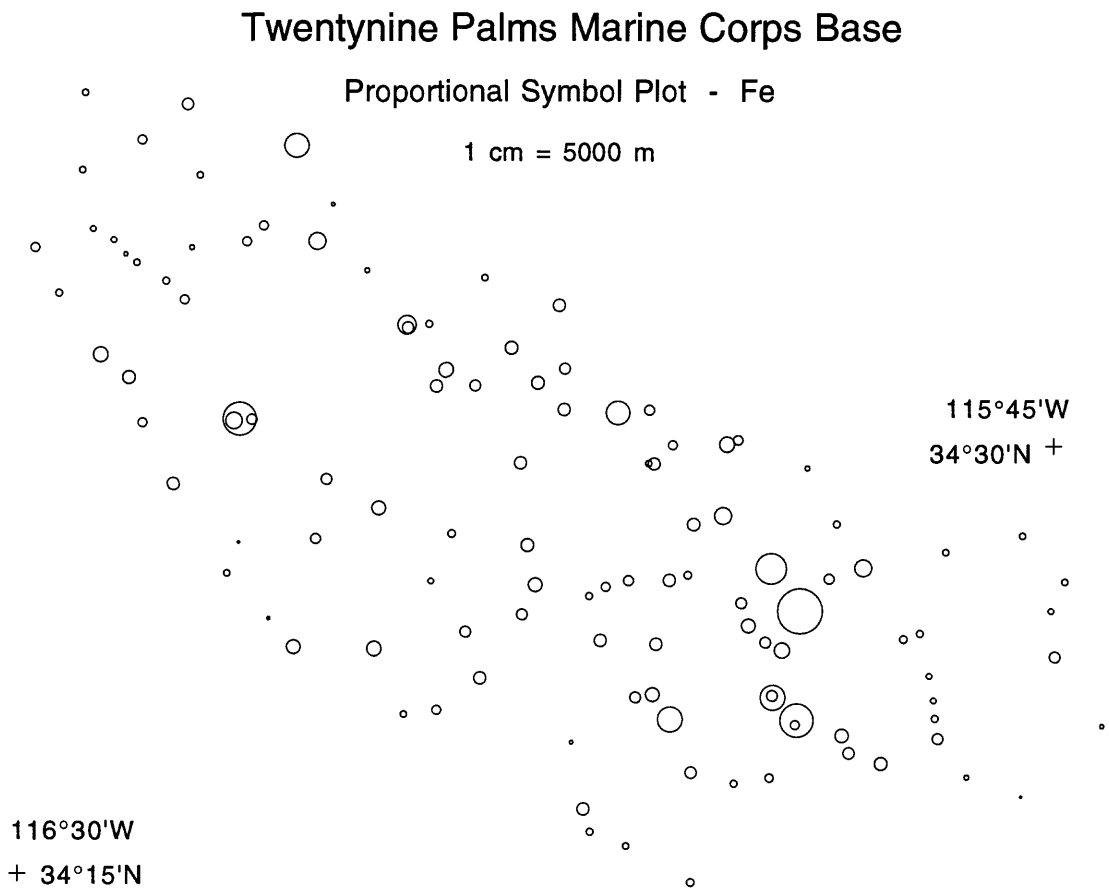

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Co
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

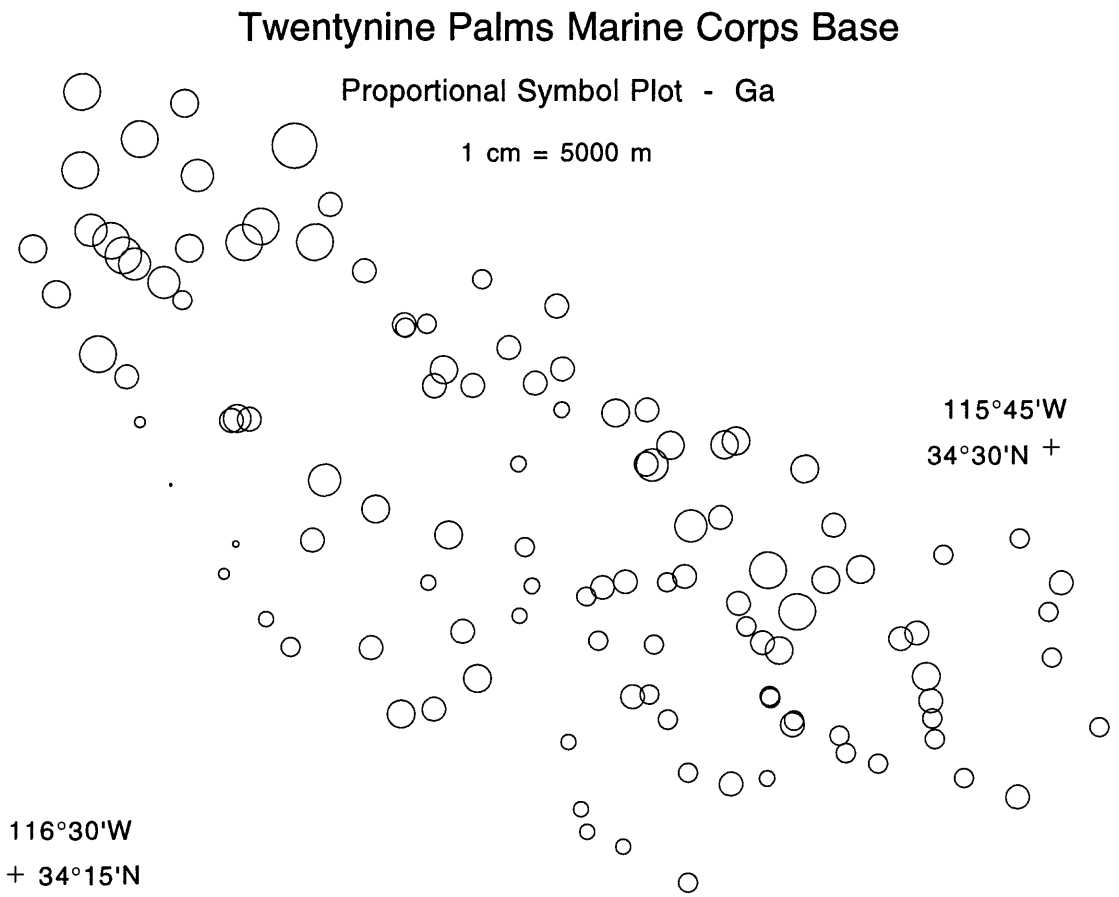

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Cr
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

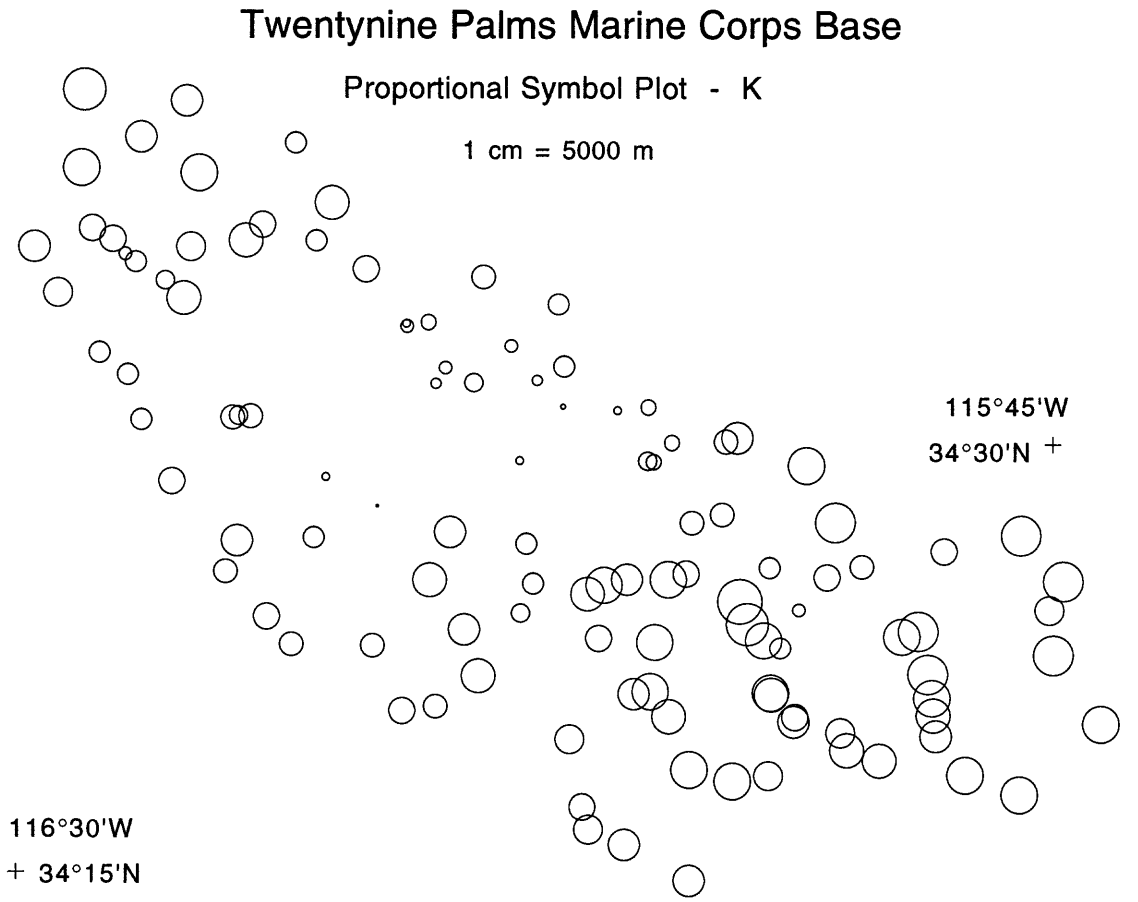

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Cu
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

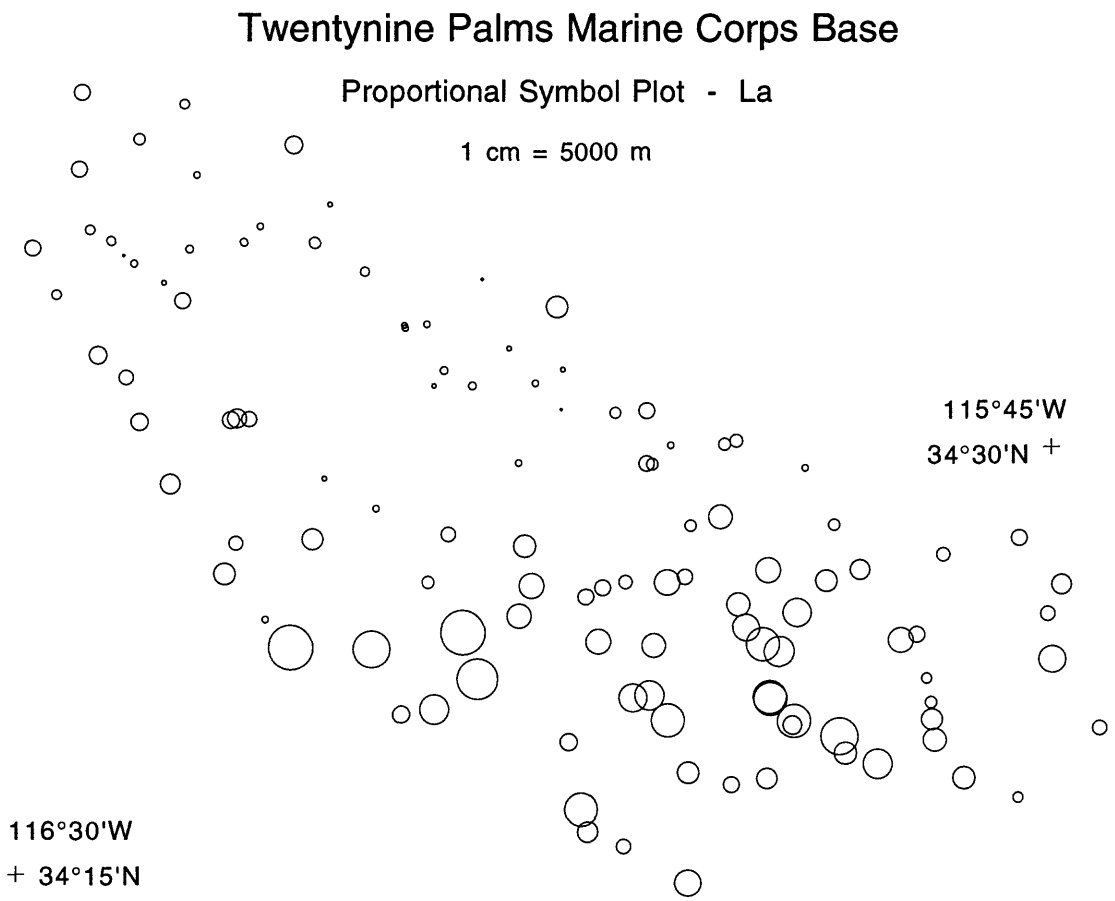

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Cu'
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

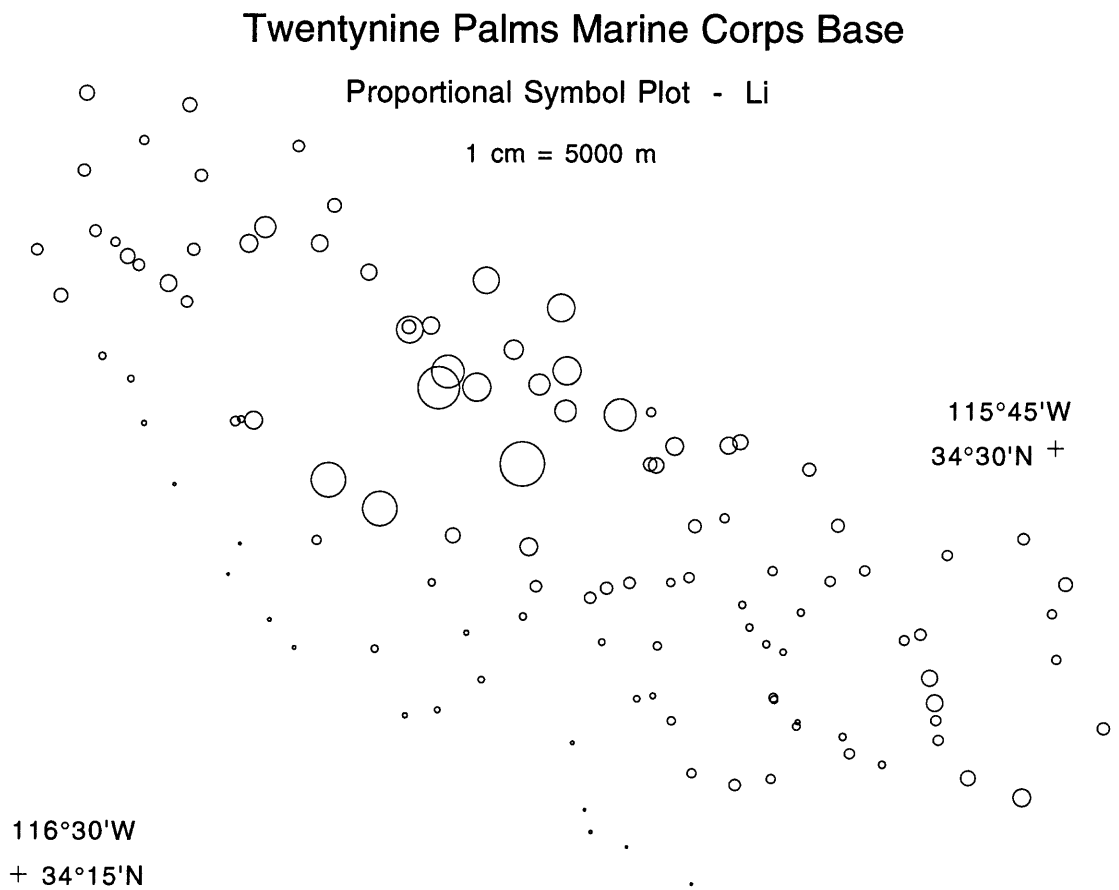

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Eu
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

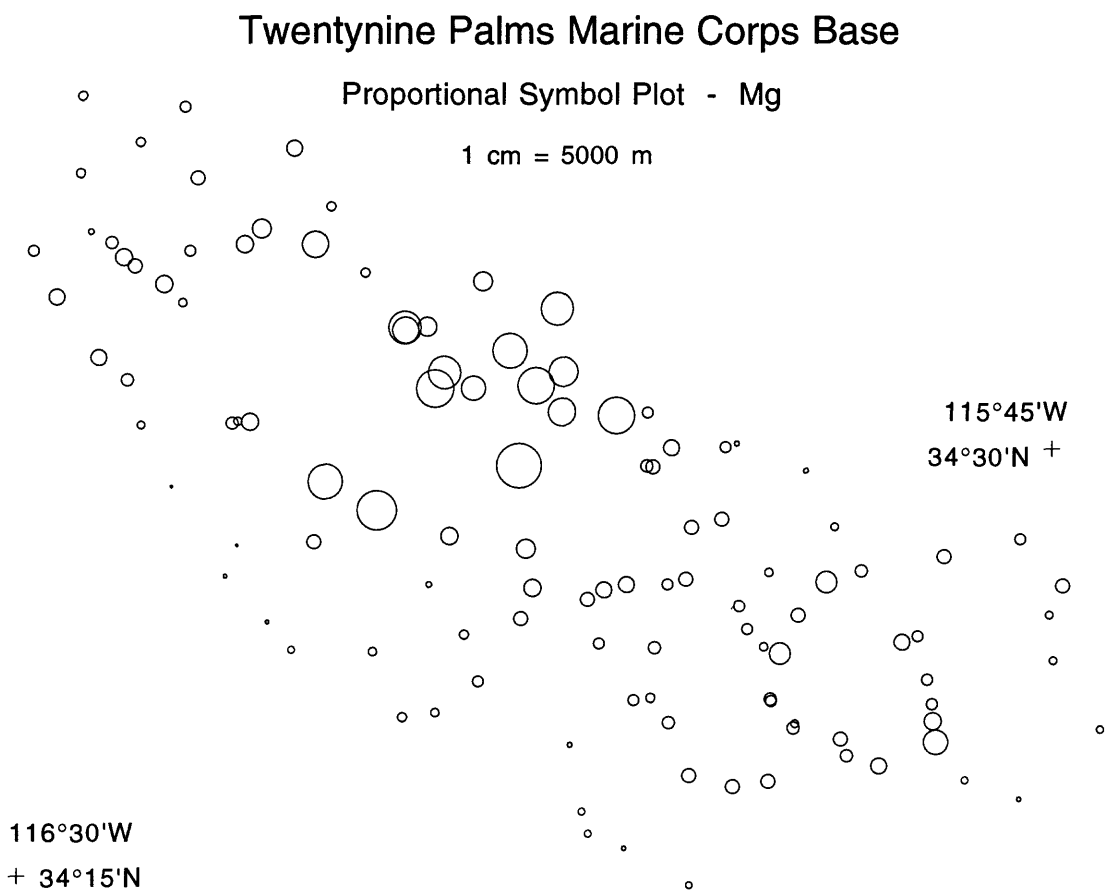

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Fe
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

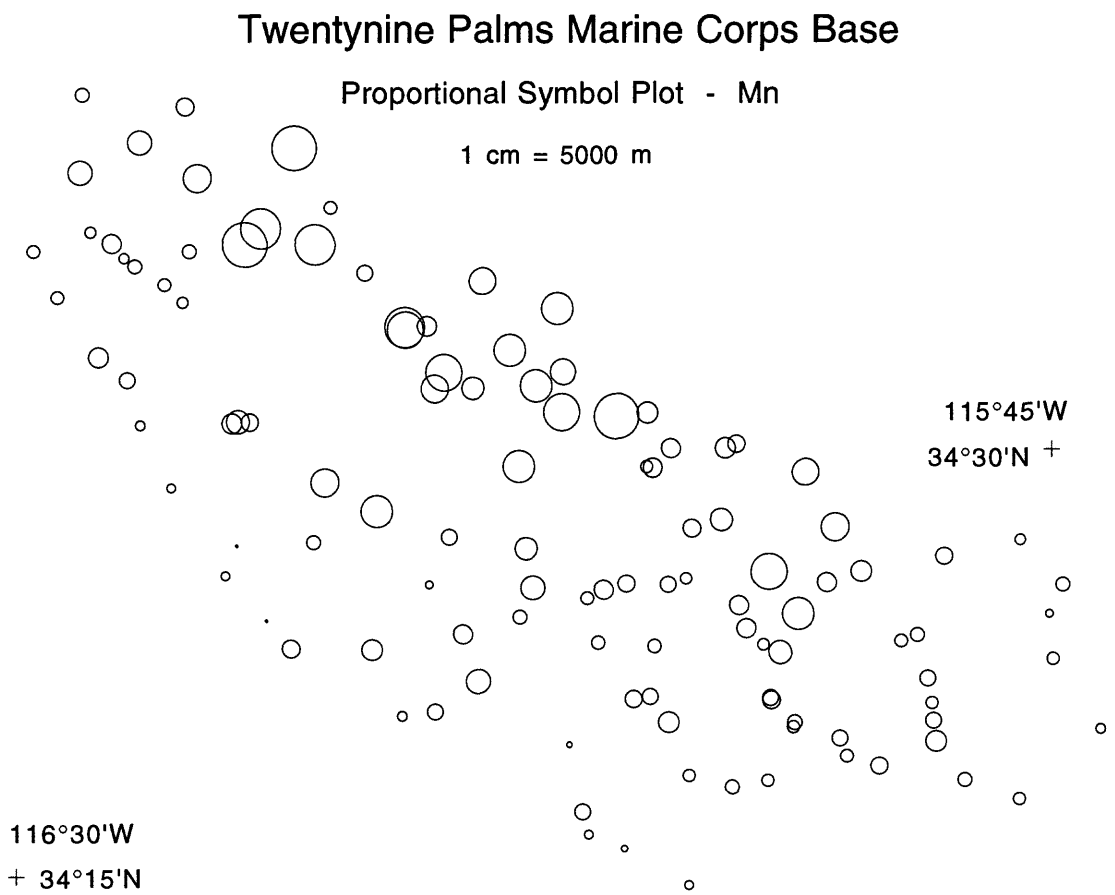

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Ga
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

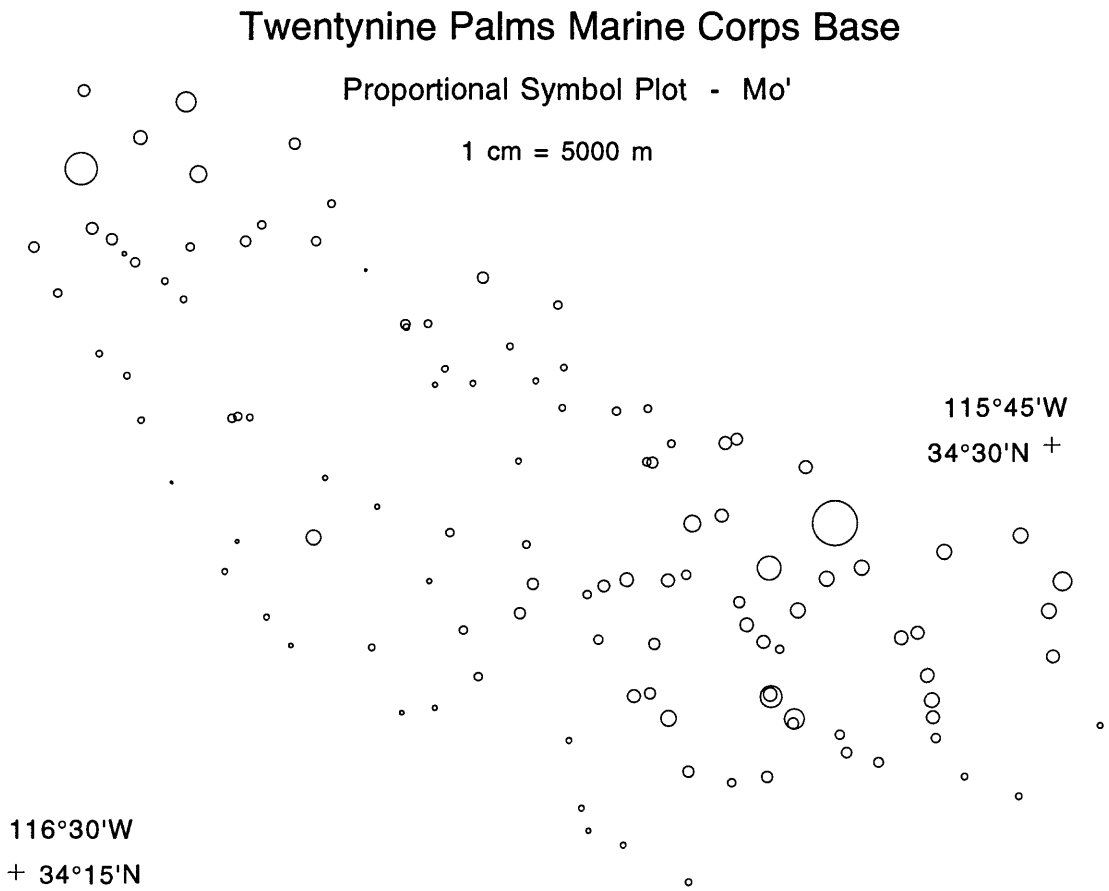

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - K
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

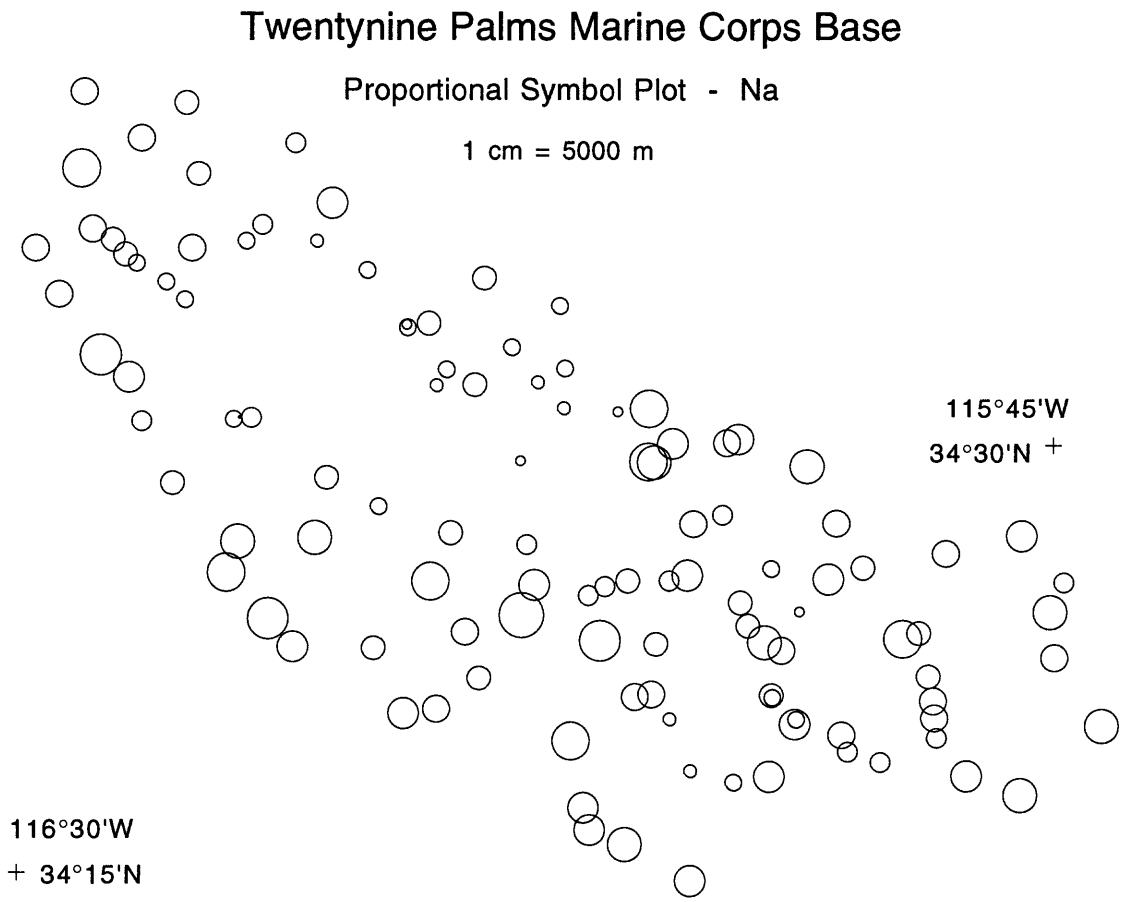

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - La
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

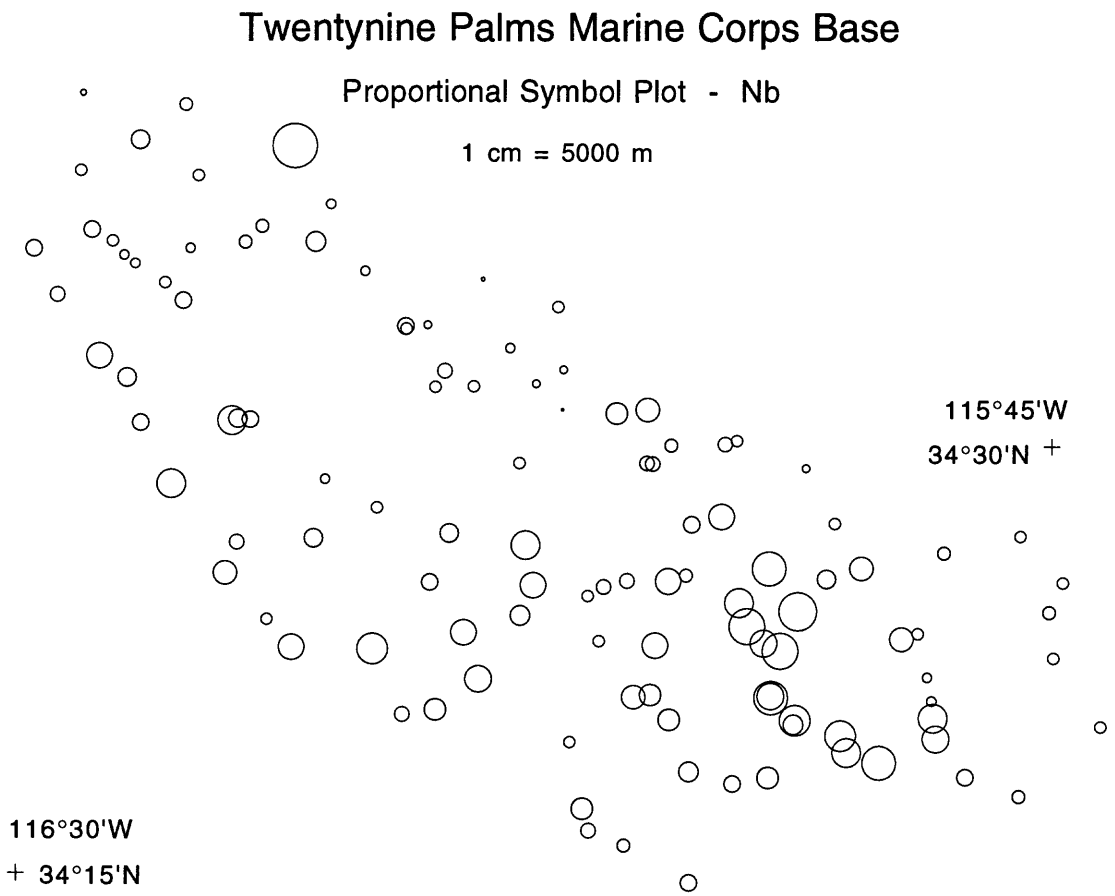

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Li
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

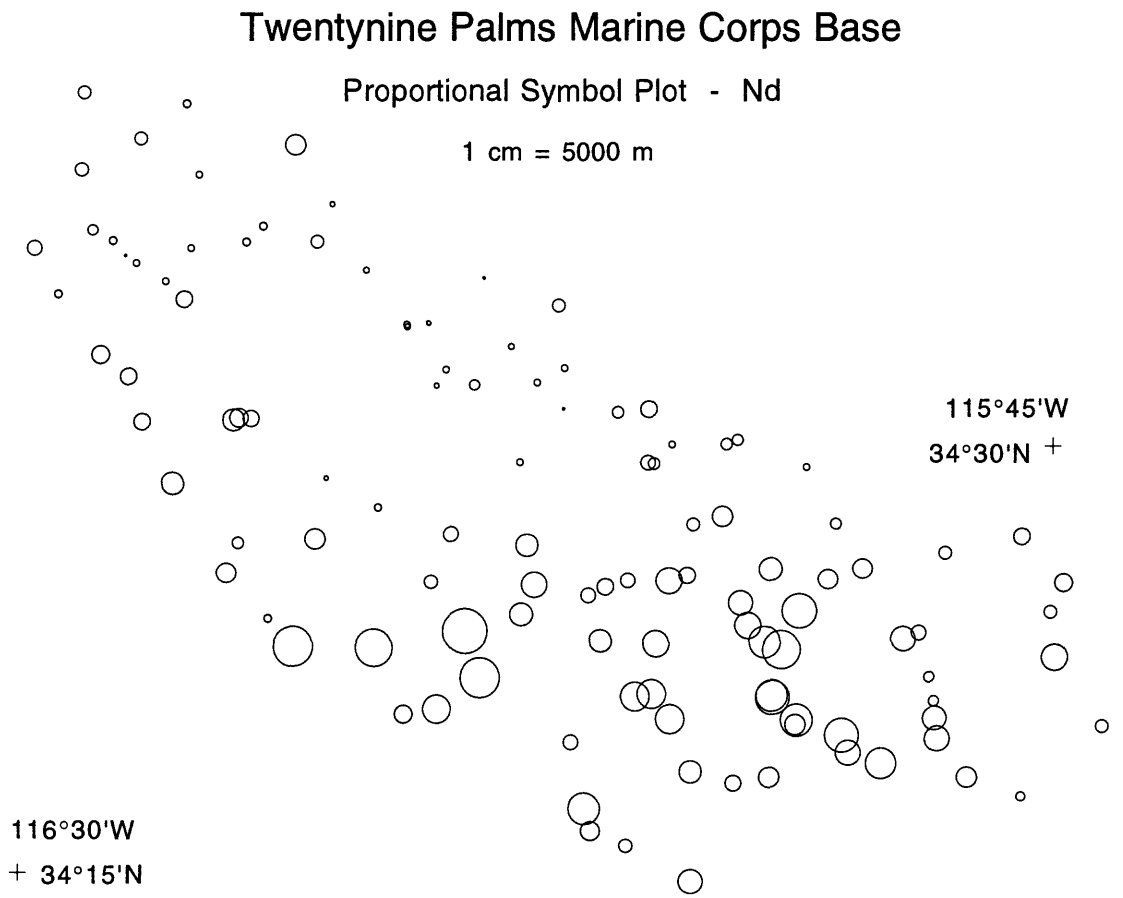

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Mg
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Mn
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Mo'
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Na
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

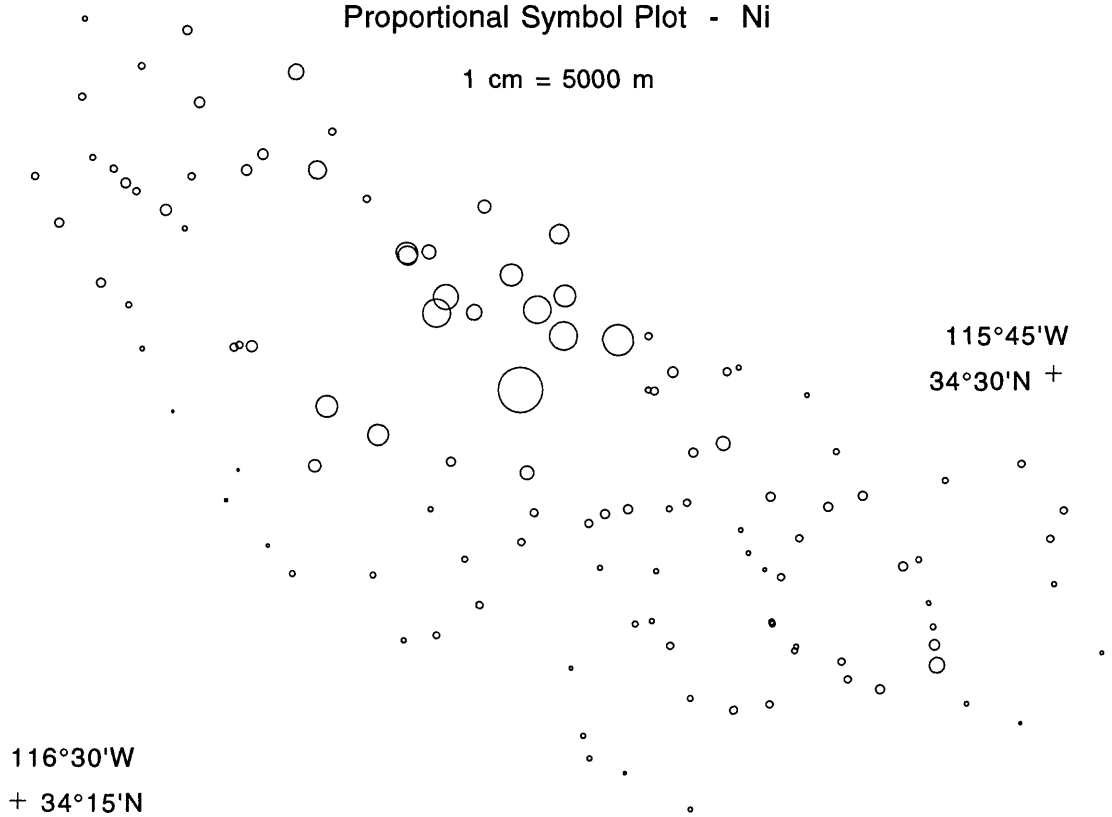

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Nb
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

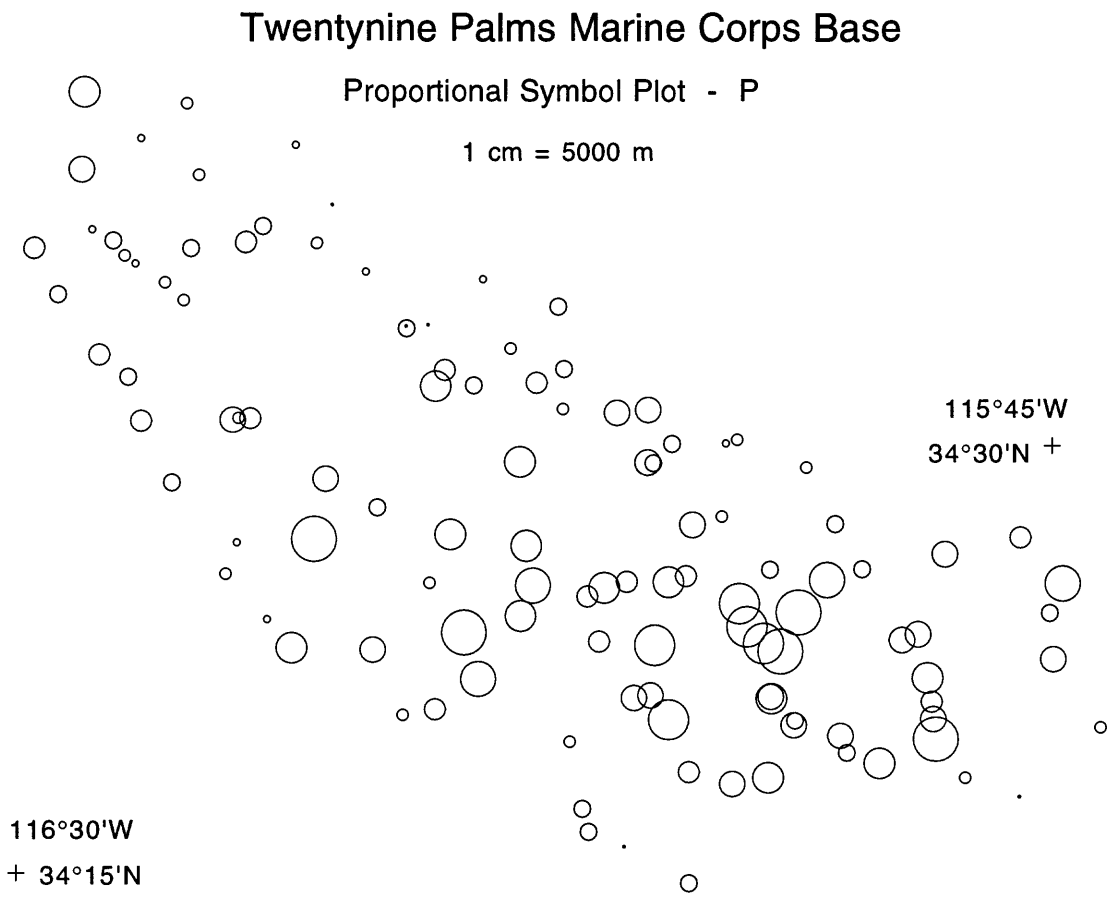

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Nd
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

Twentynine Palms Marine Corps Base

Proportional Symbol Plot - Ni

1 cm = 5000 m

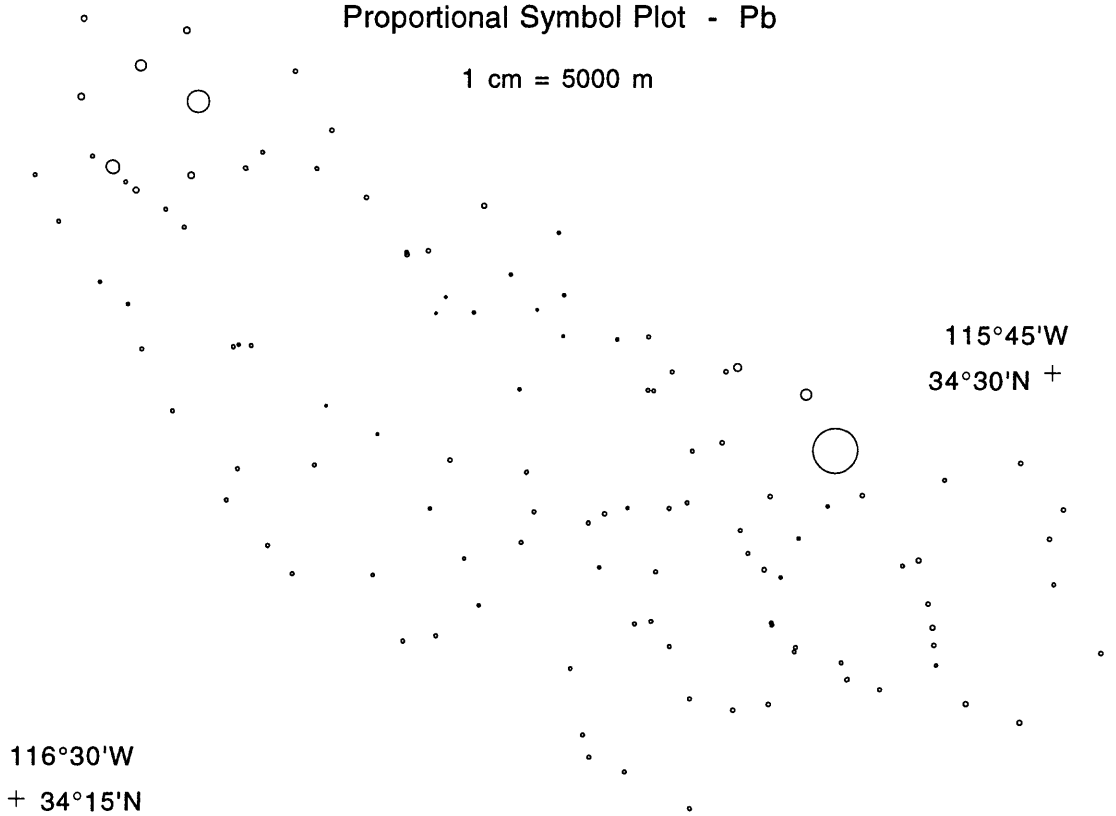



Twentynine Palms Marine Corps Base
Proportional Symbol Plot - P
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

Twentynine Palms Marine Corps Base

Proportional Symbol Plot - Pb

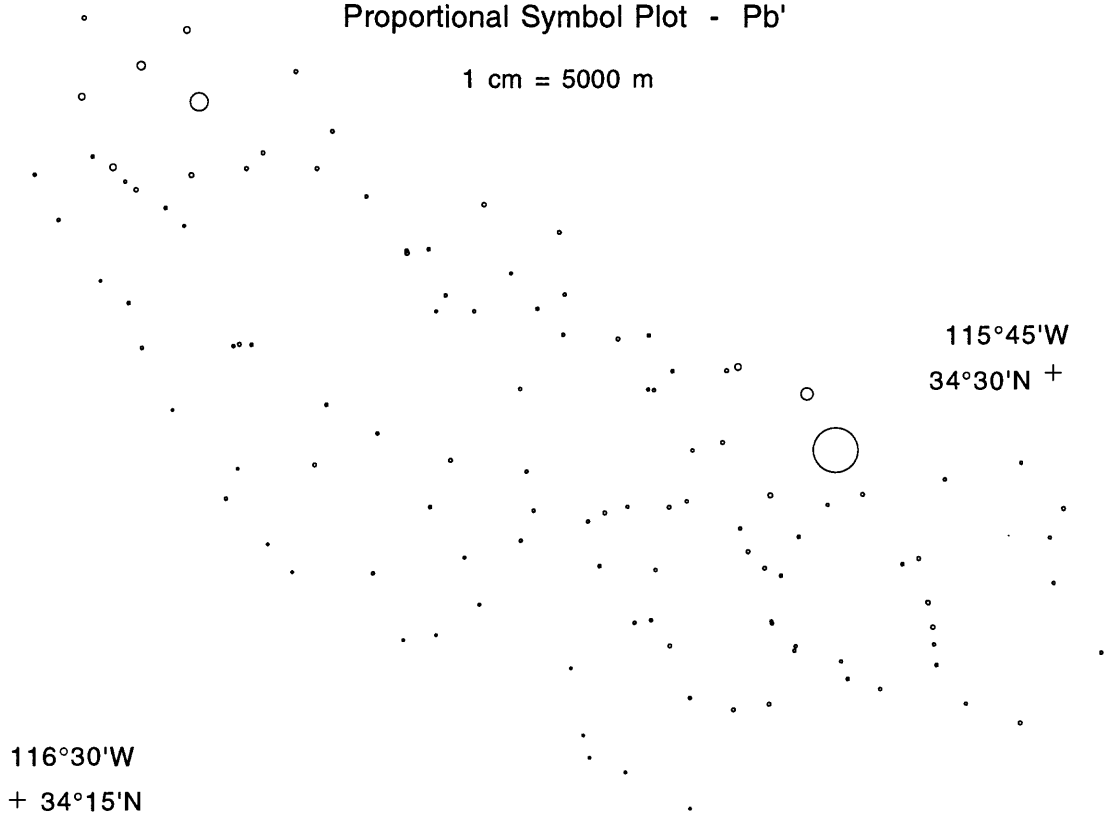
1 cm = 5000 m



Twentynine Palms Marine Corps Base

Proportional Symbol Plot - Pb'

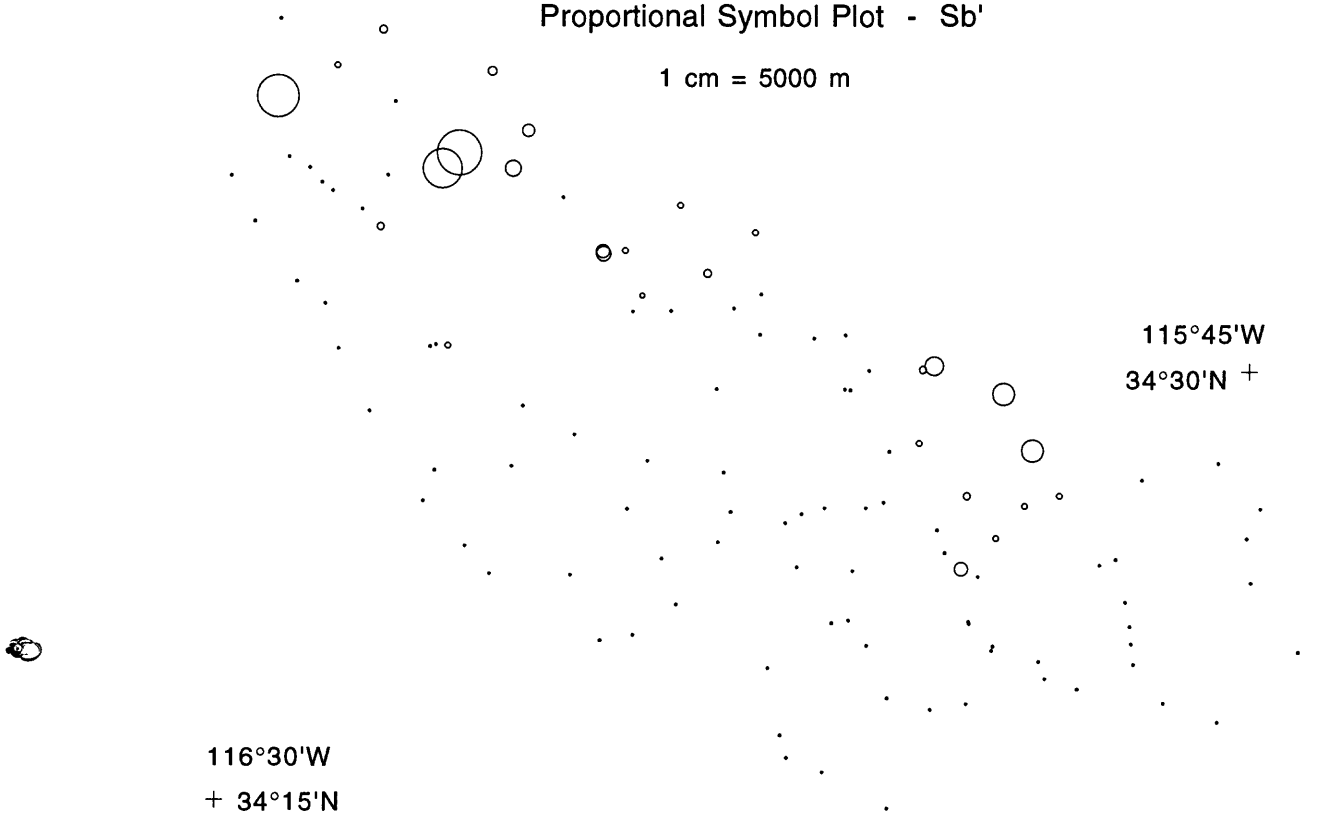
1 cm = 5000 m

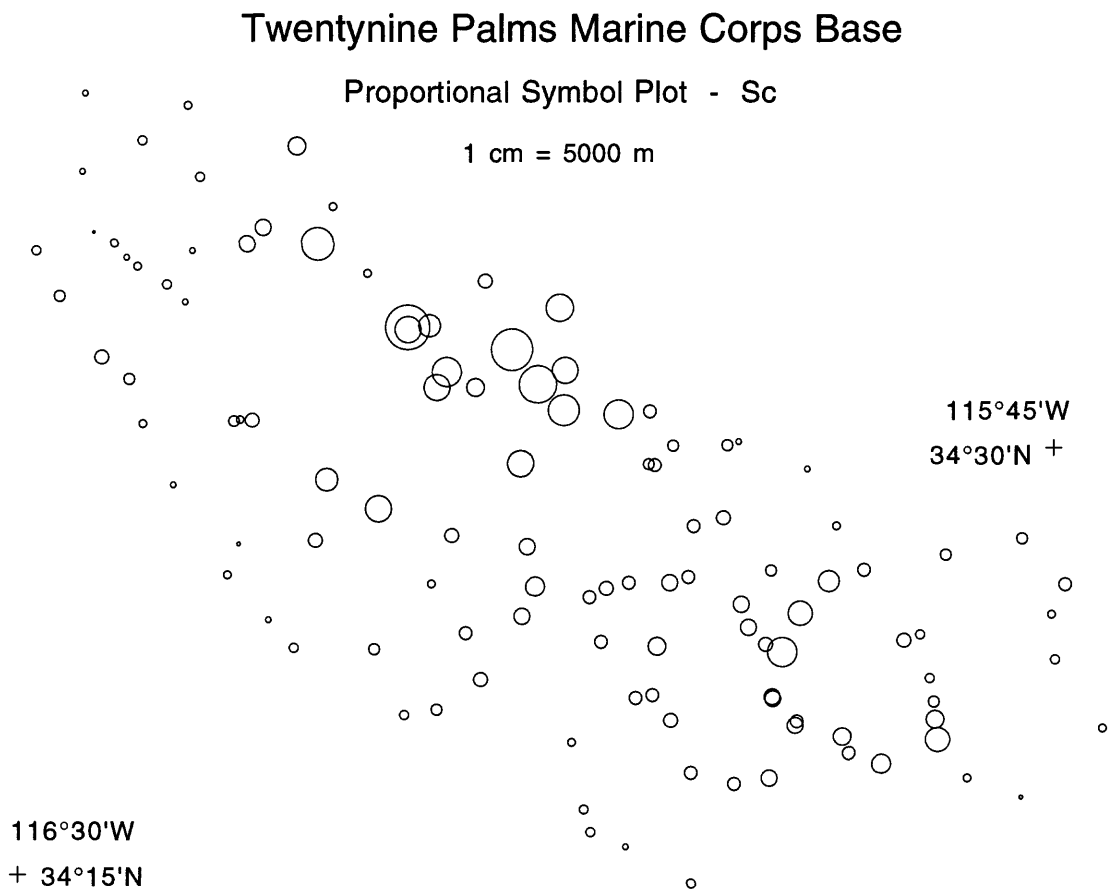


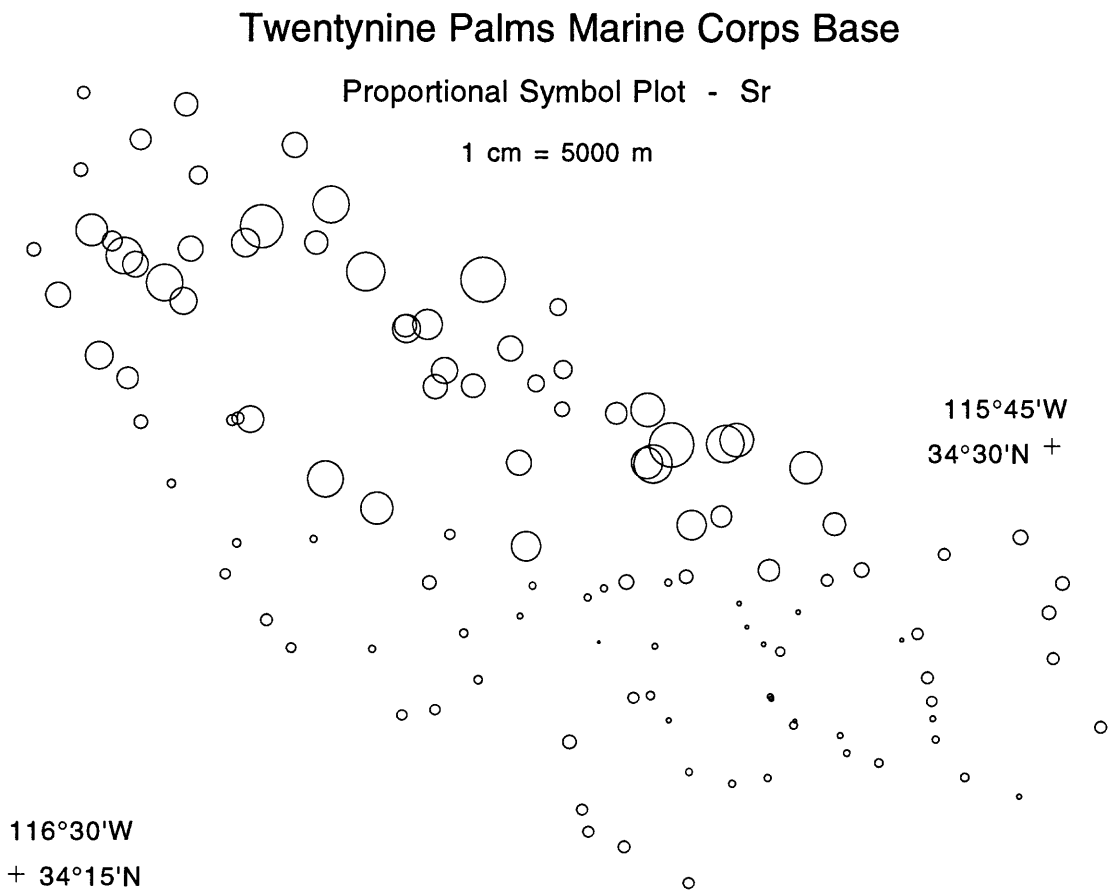
Twentynine Palms Marine Corps Base

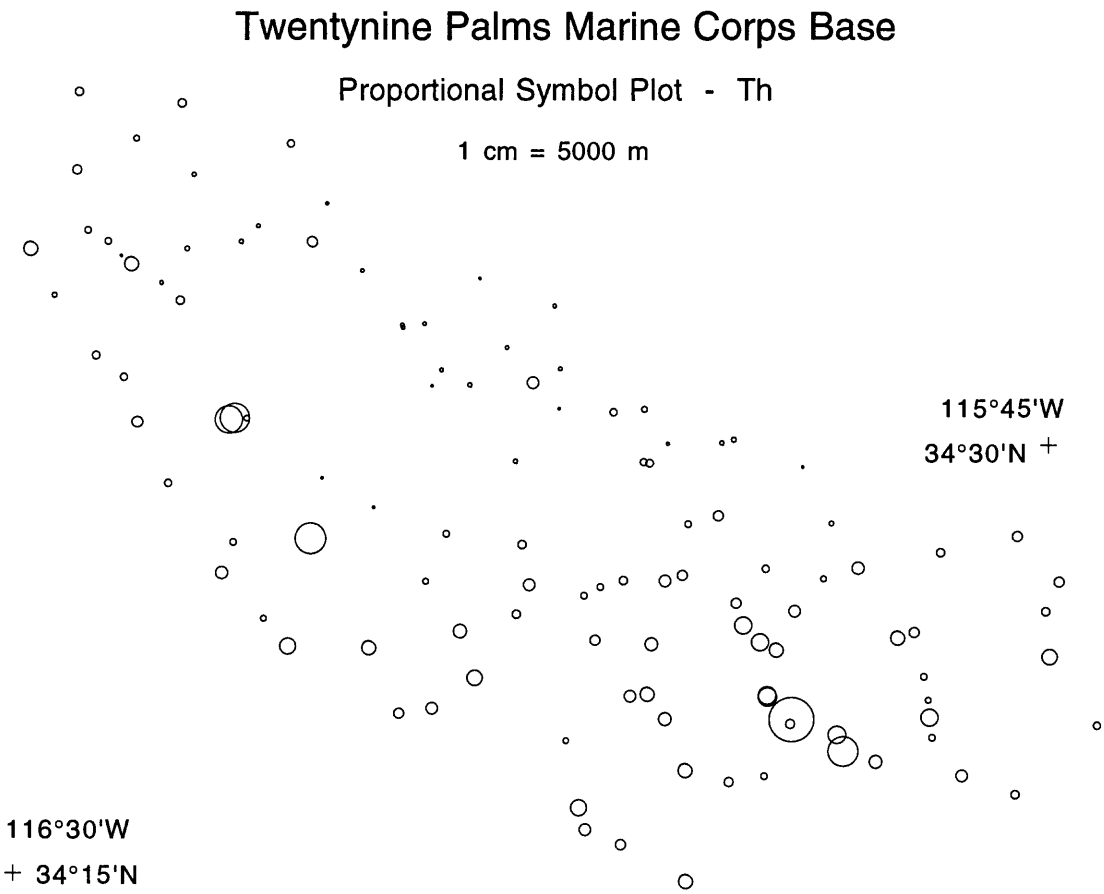
Proportional Symbol Plot - Sb'

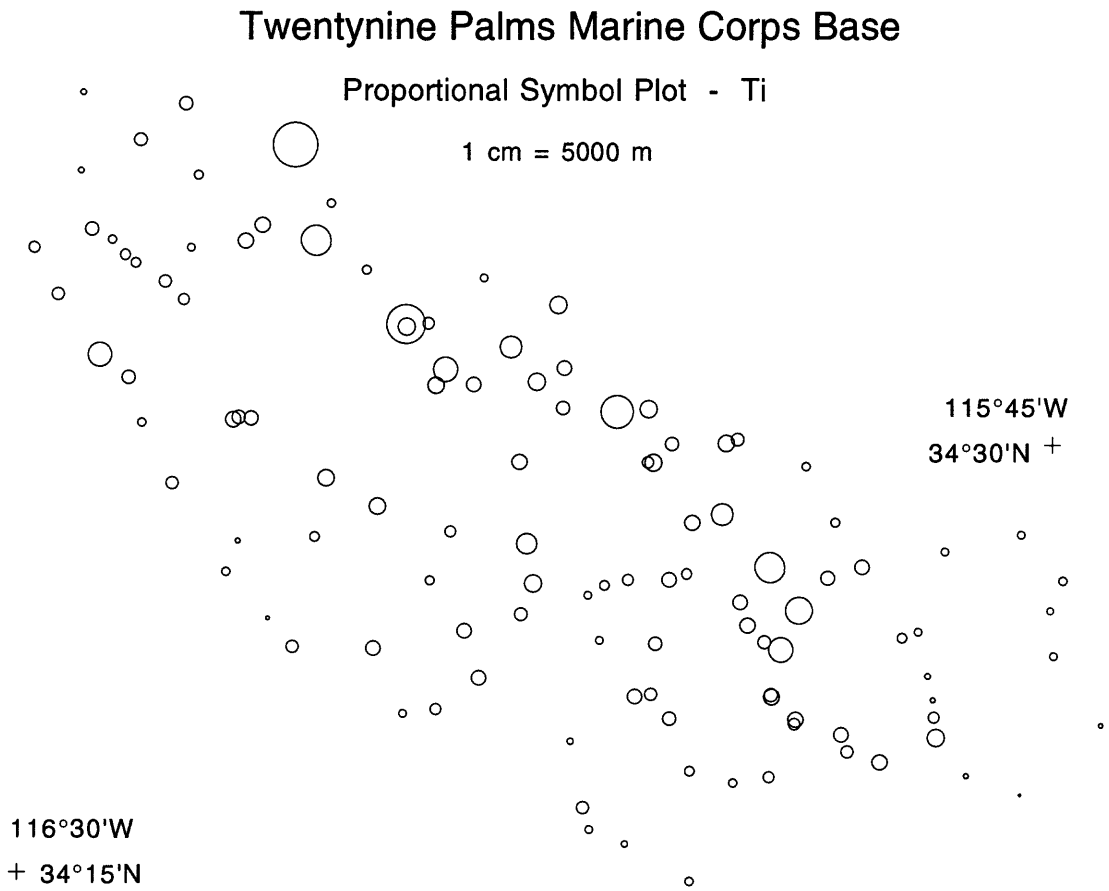
1 cm = 5000 m

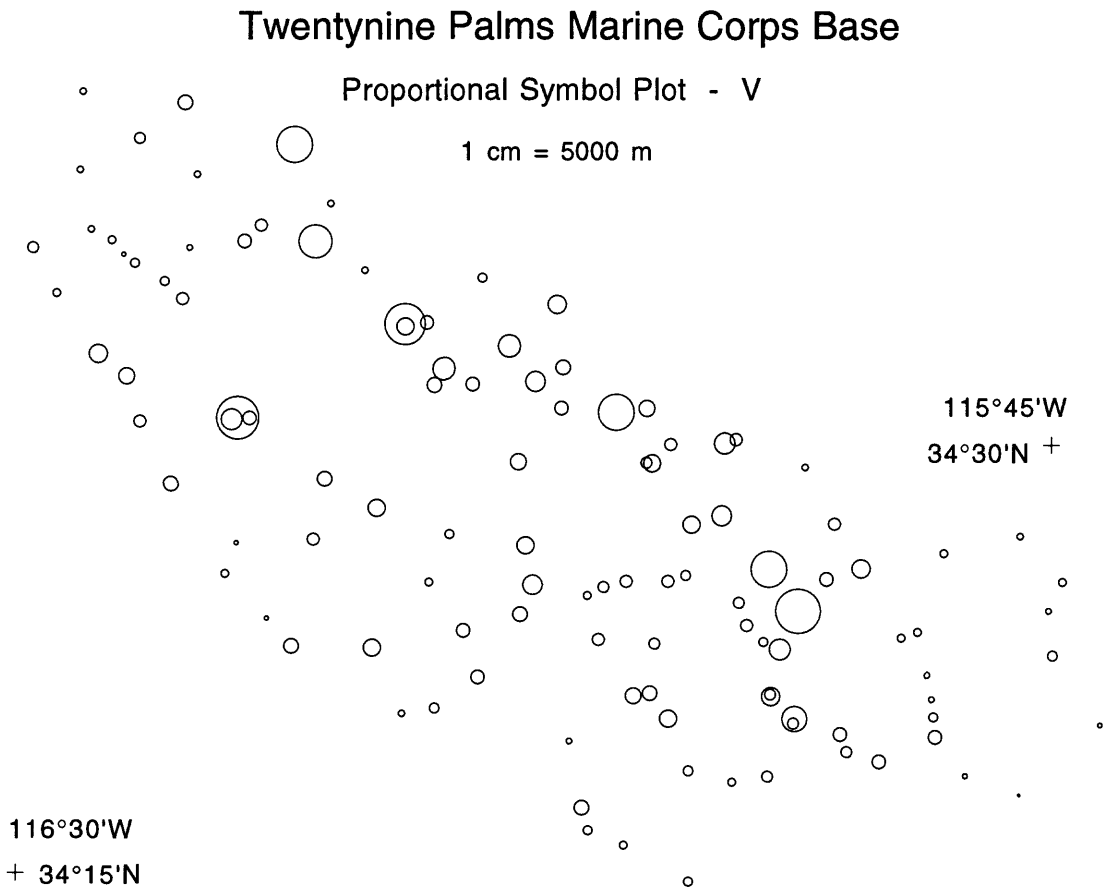


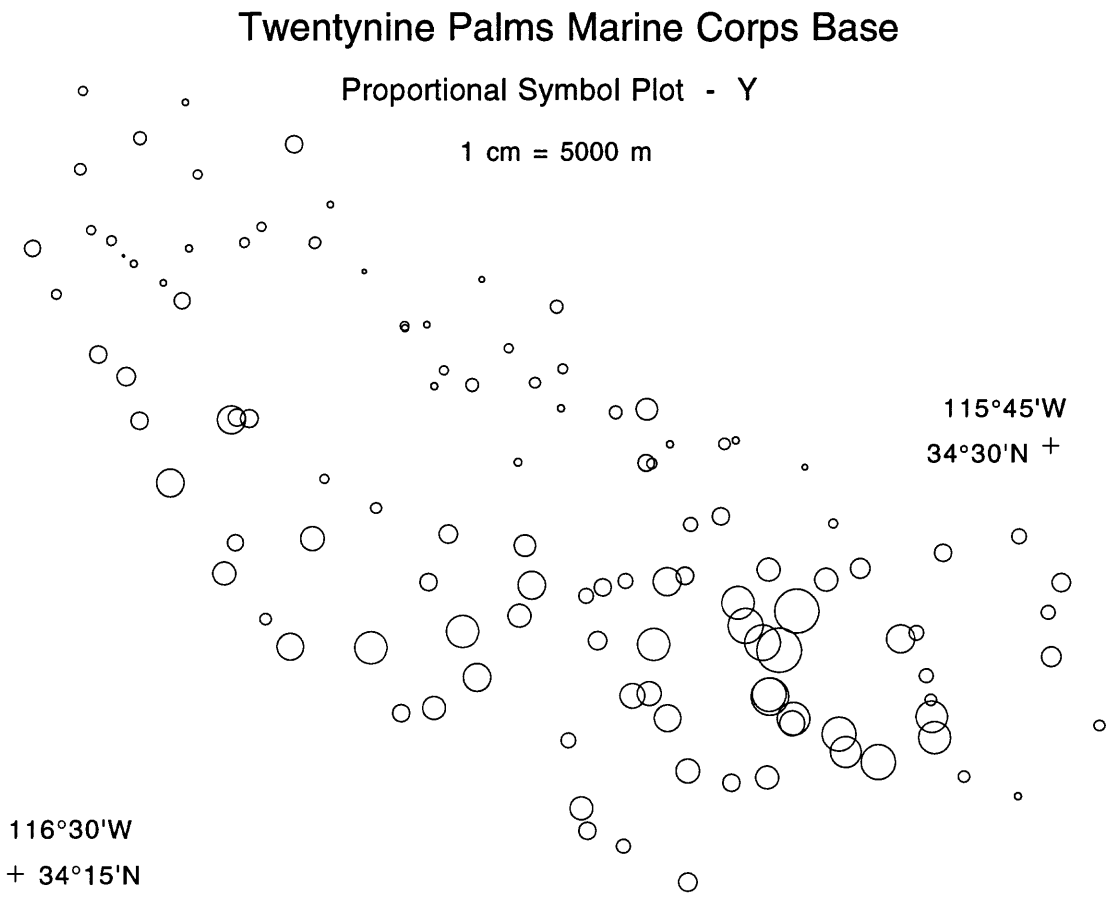

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Sc
1 cm = 5000 m
115°45'W
34°30'N +
116°30'W
+ 34°15'N

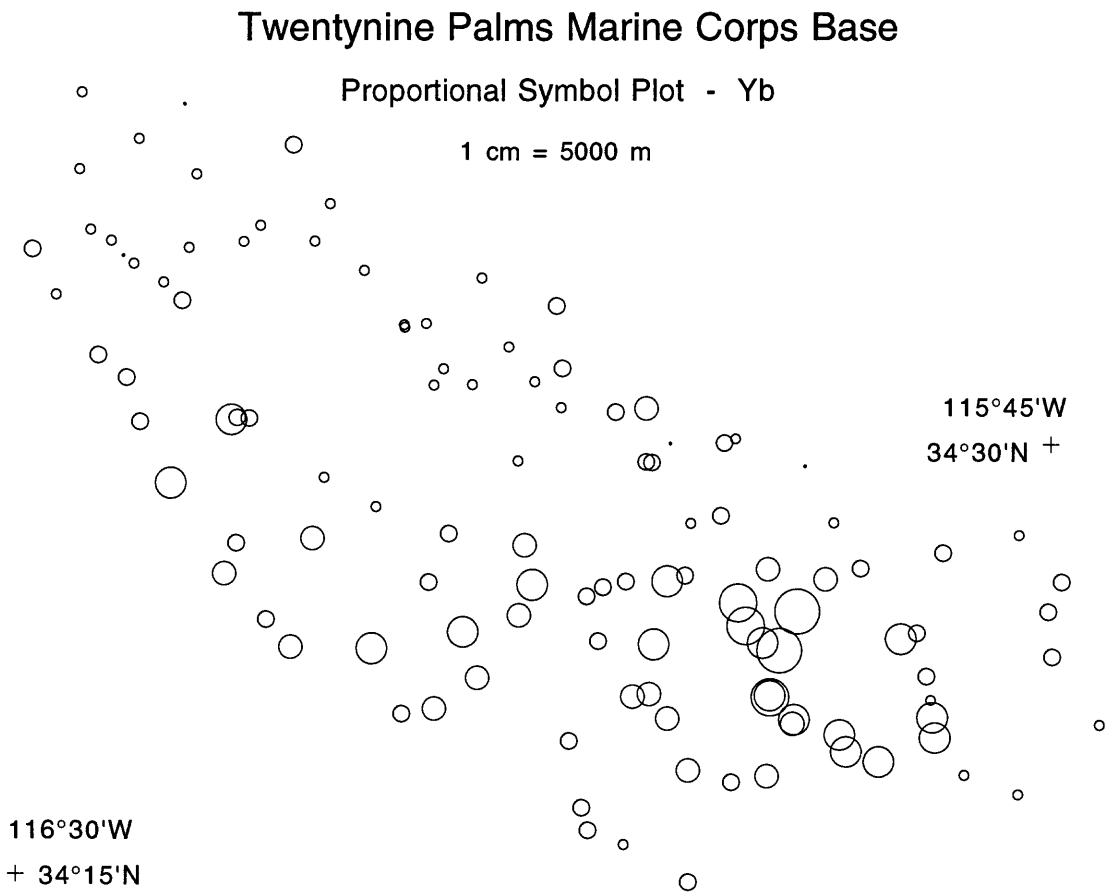

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Sr
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

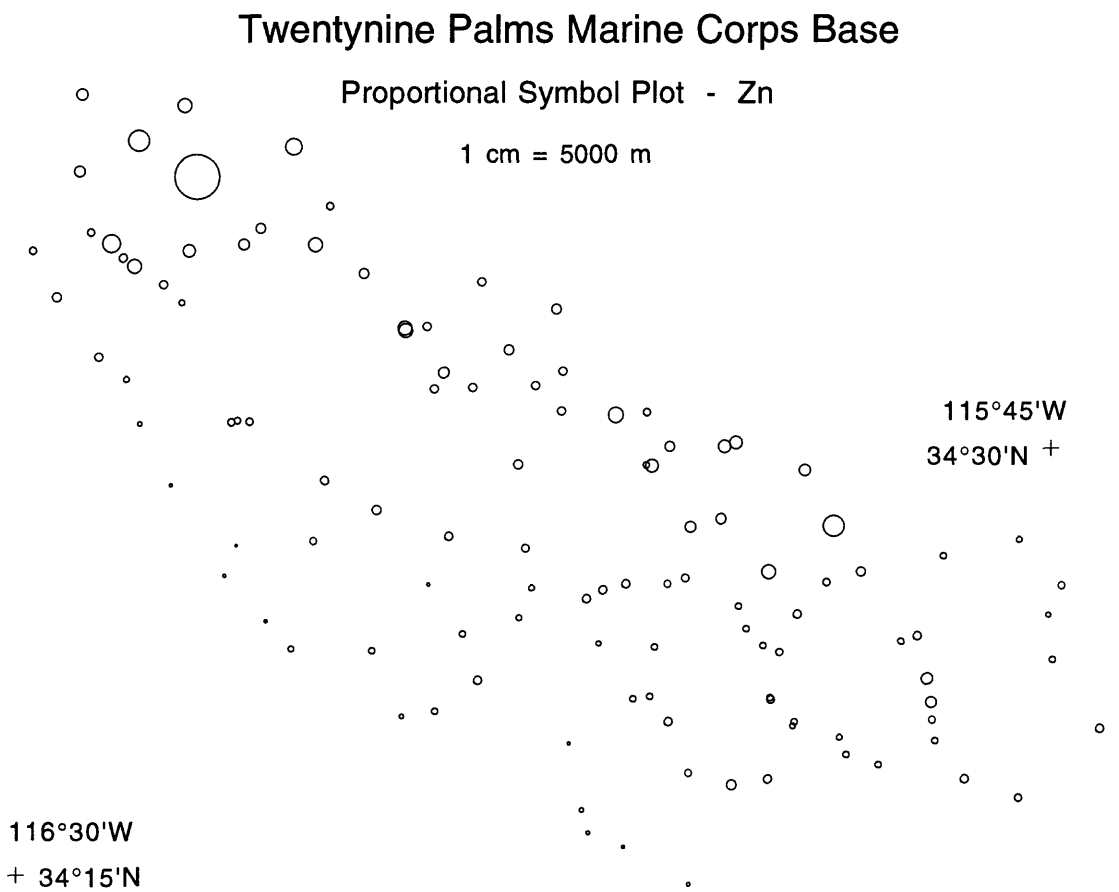

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Th
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

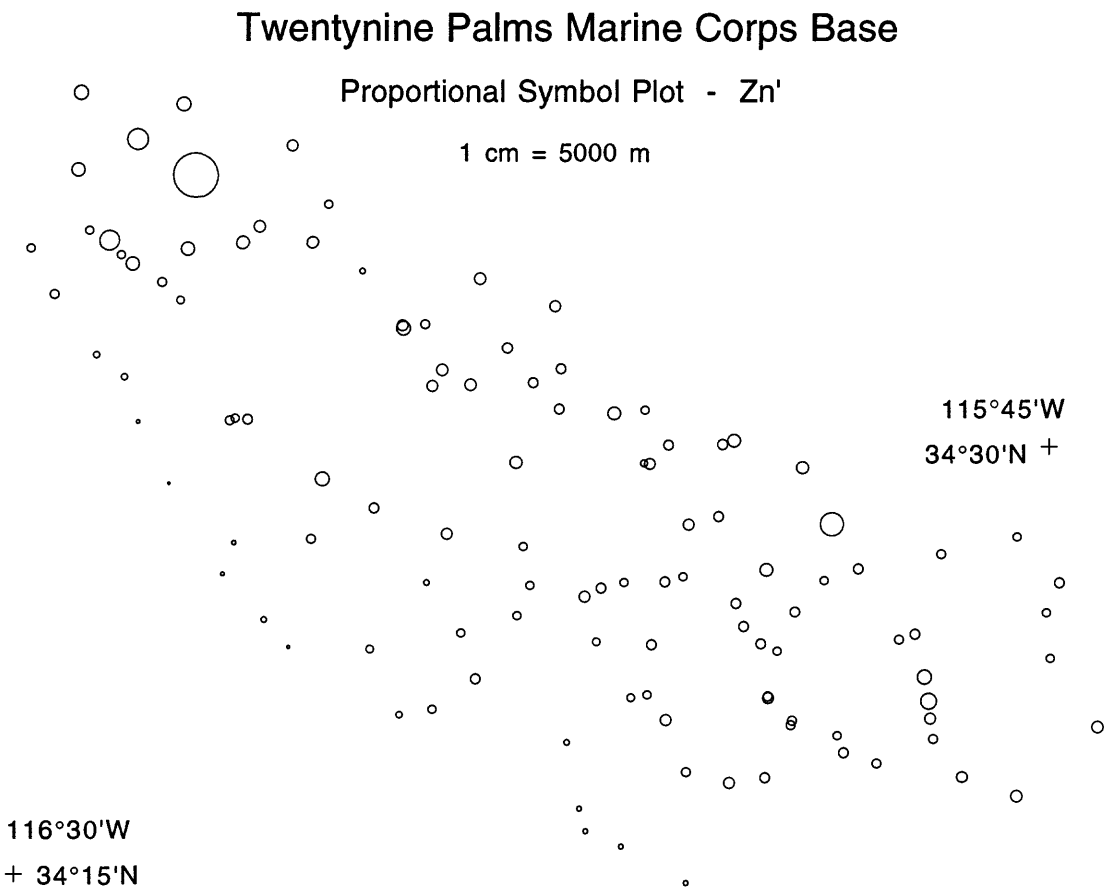

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Ti
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - V
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Y
1 cm = 5000 m
115°45'W
34°30'N +
116°30'W
+ 34°15'N

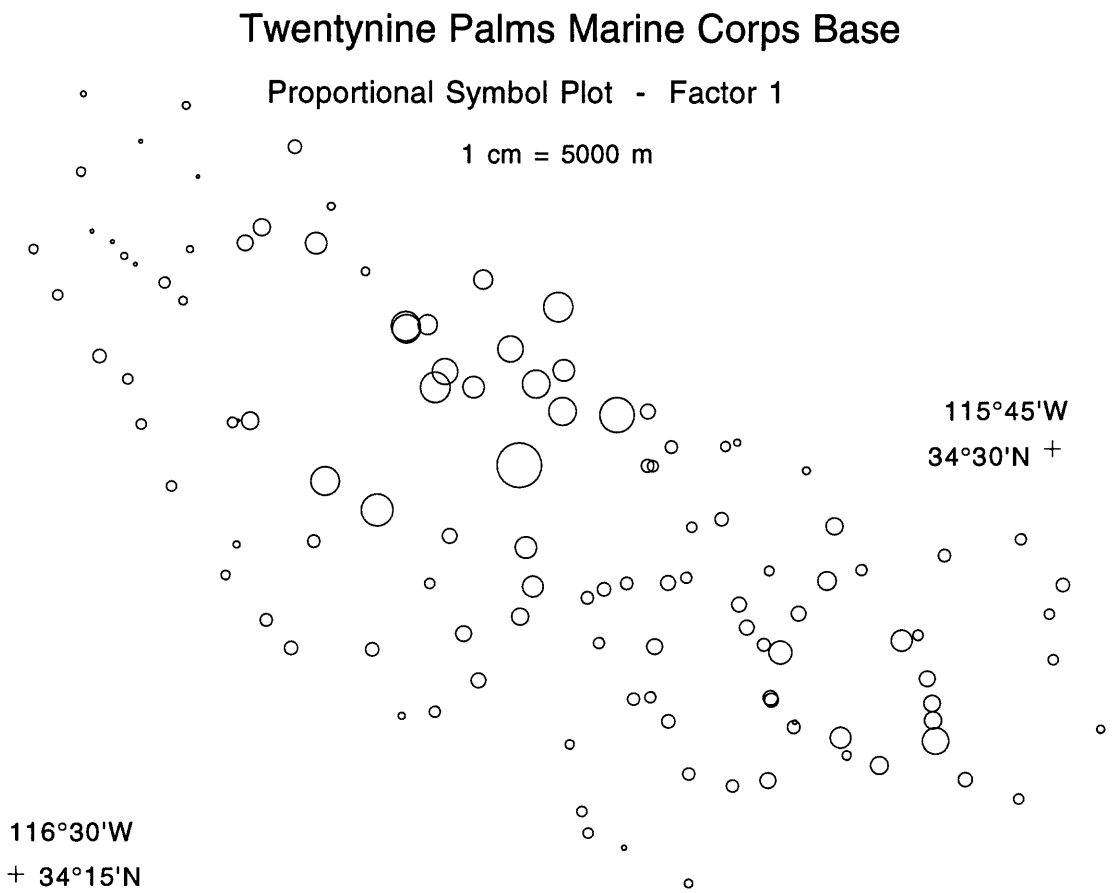

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Yb
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

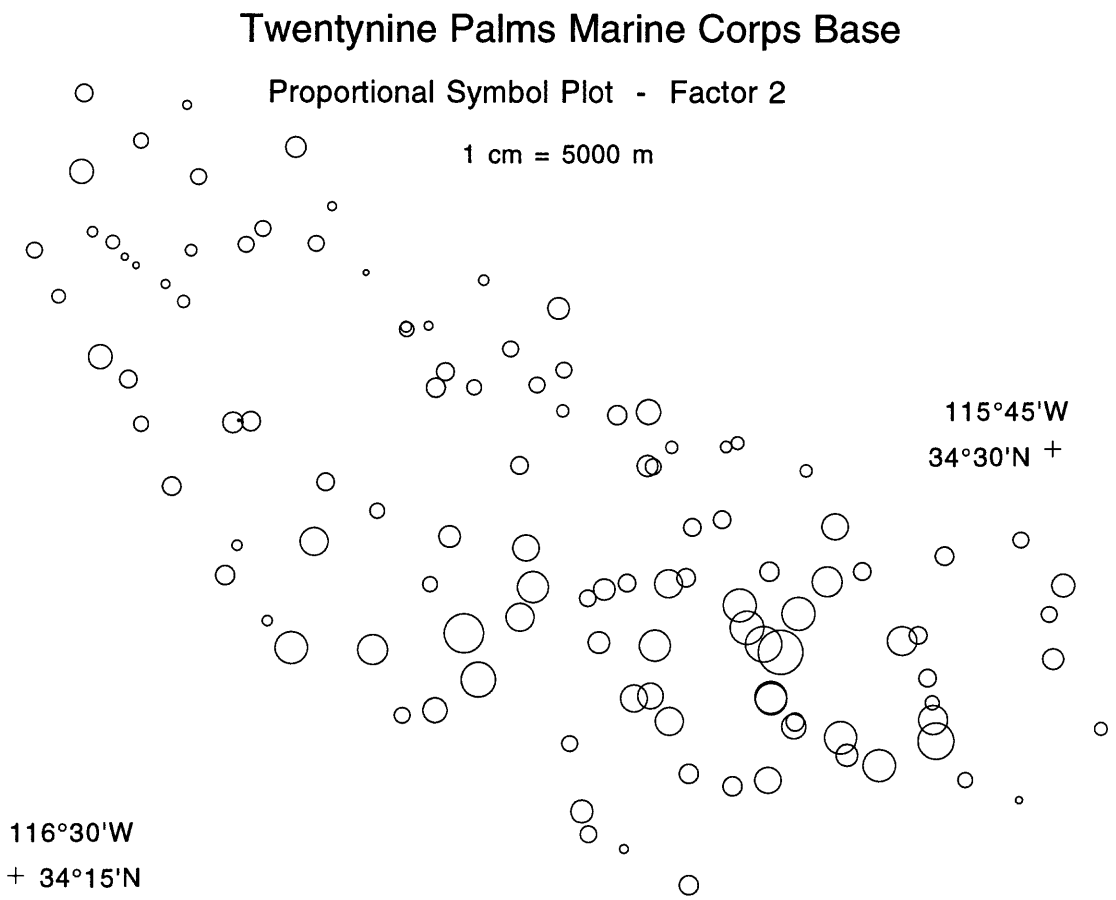

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Zn
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Zn'
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

APPENDIX 5

PROPORTIONAL SYMBOL PLOTS FOR EACH FACTOR

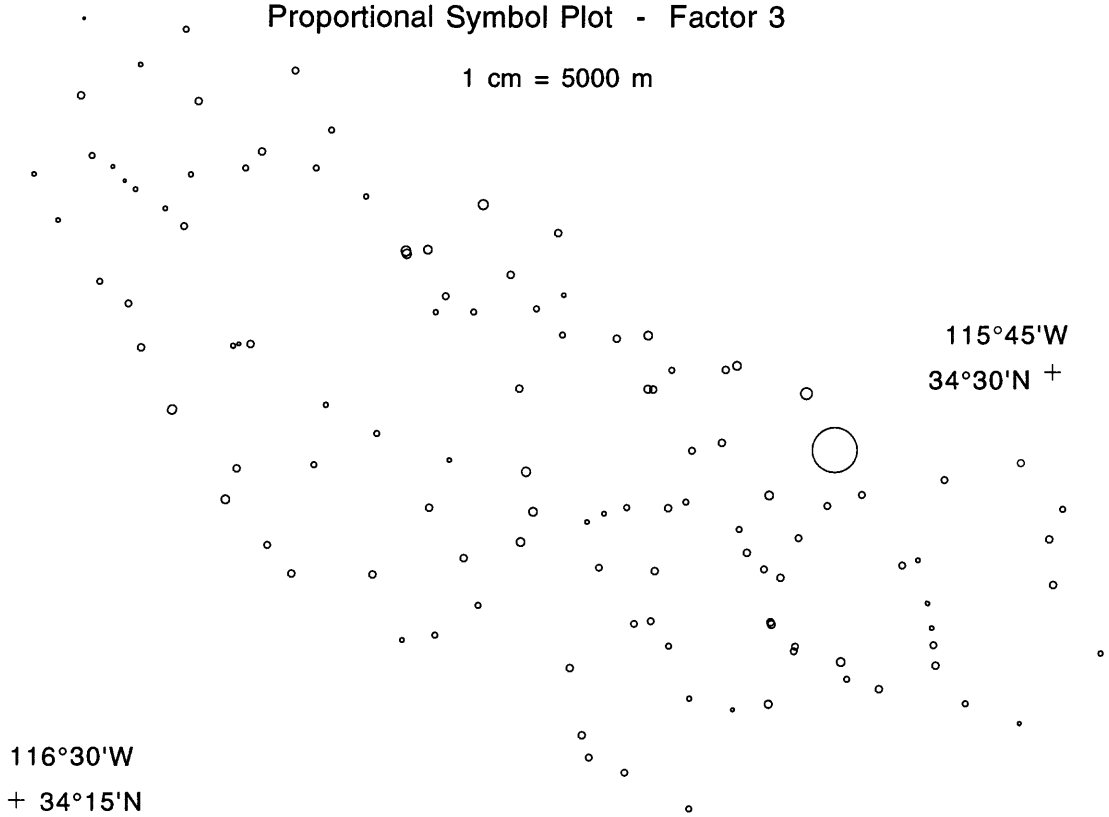

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Factor 1
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

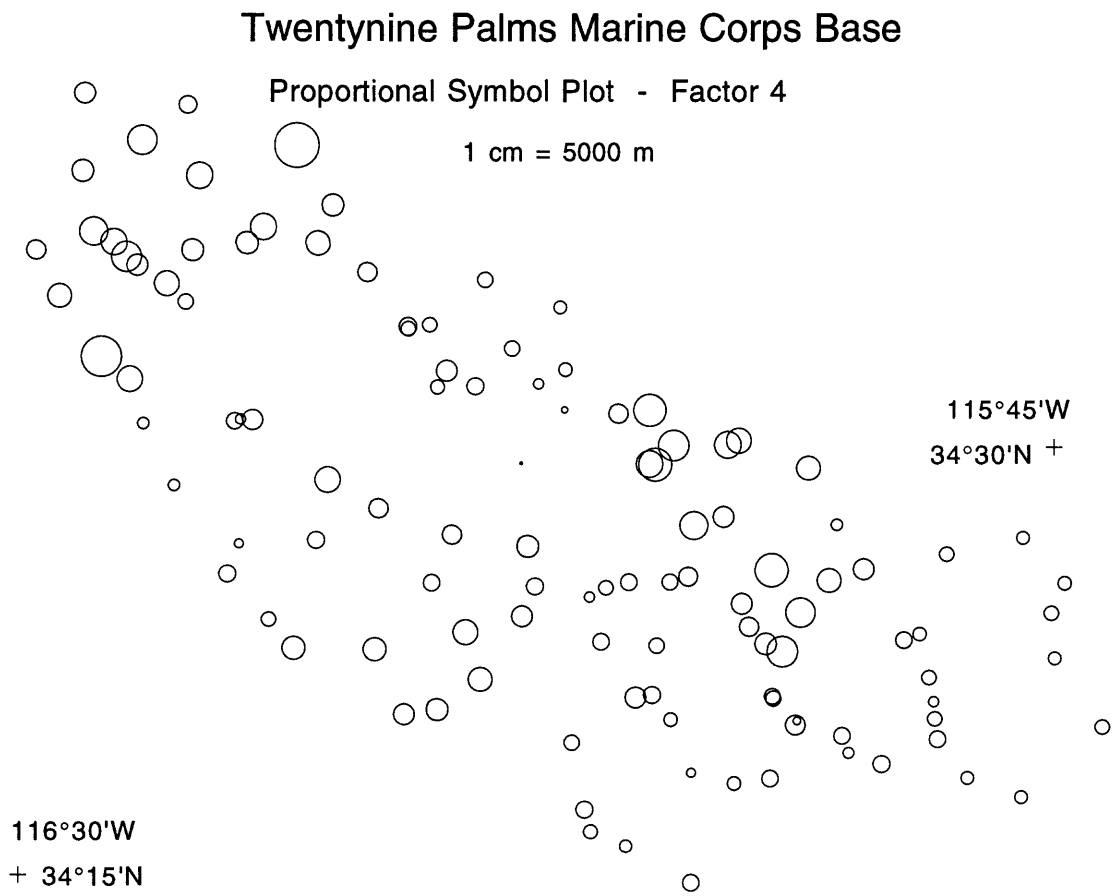

Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Factor 2
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N

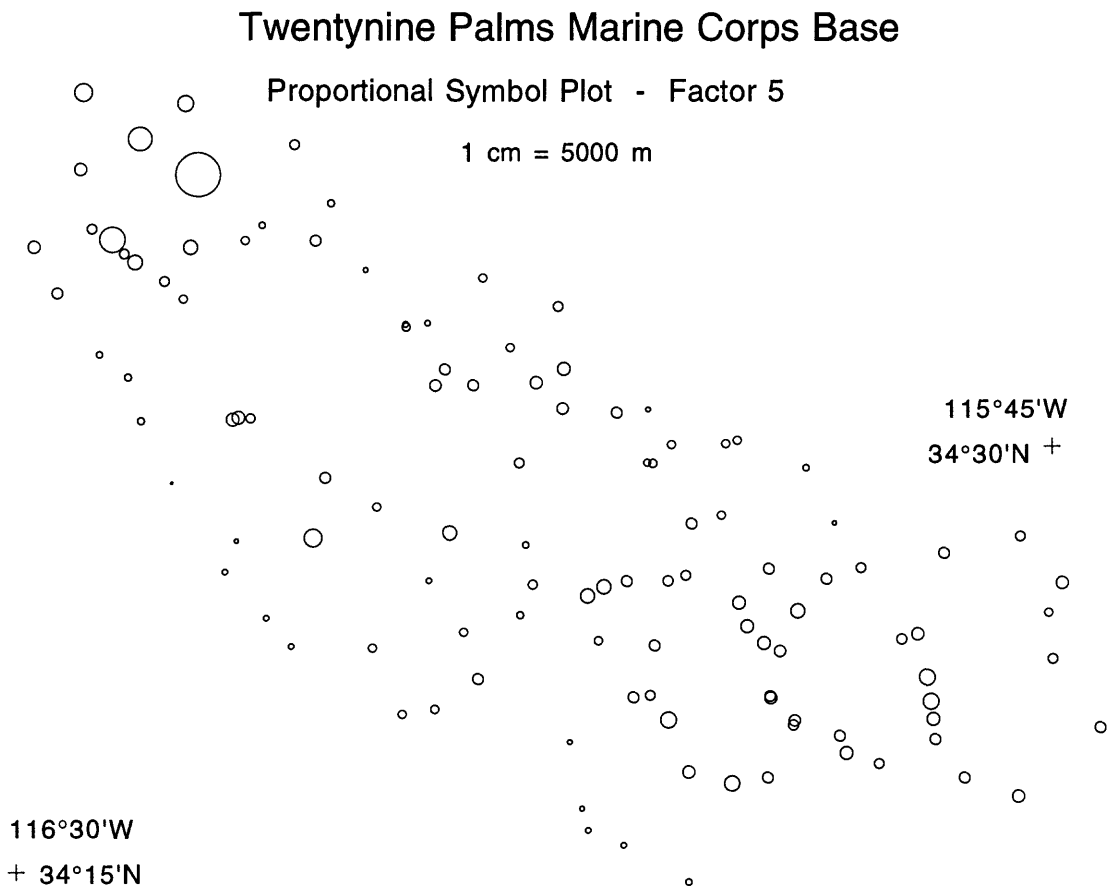
Twentynine Palms Marine Corps Base

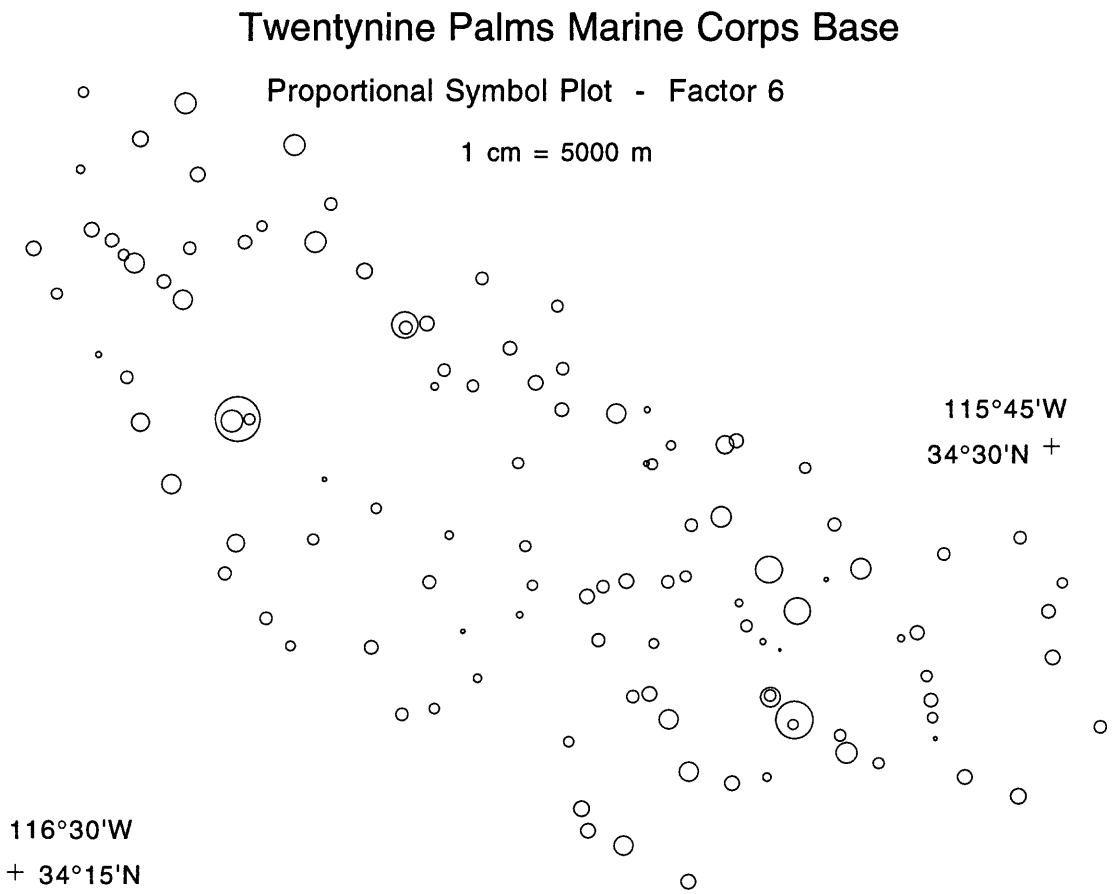
Proportional Symbol Plot - Factor 3

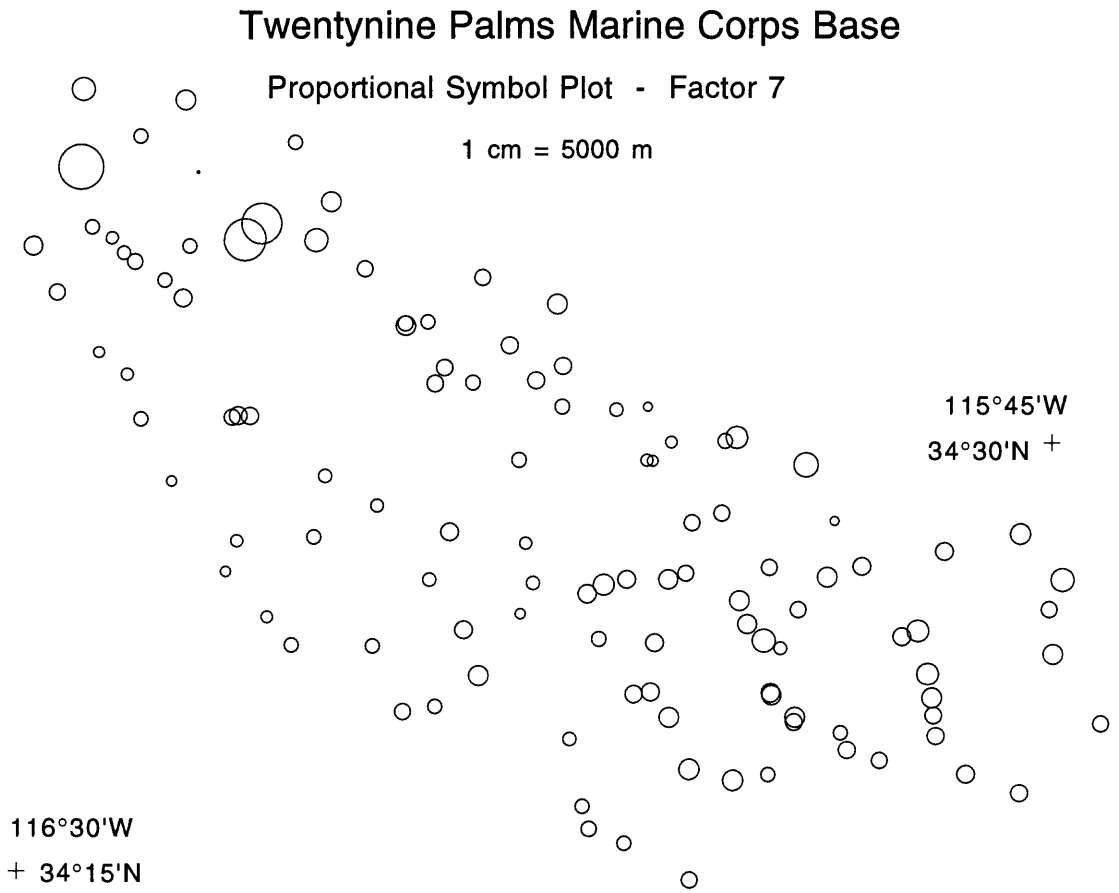
1 cm = 5000 m

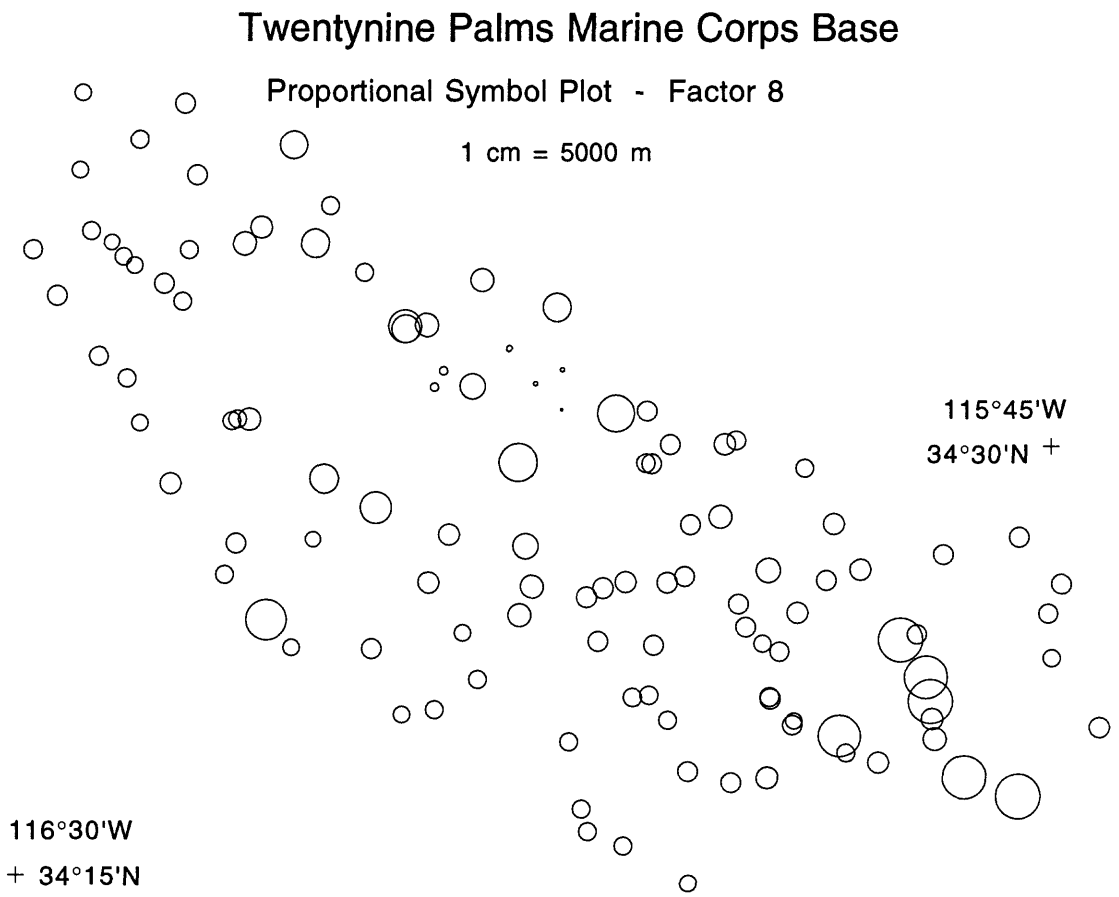



Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Factor 4
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Factor 5
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Factor 6
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Factor 7
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N


Twentynine Palms Marine Corps Base
Proportional Symbol Plot - Factor 8
1 cm = 5000 m
115°45'W
34°30'N
116°30'W
34°15'N