DATA REPOSITORY 2009239: SAMPLE LIST AND LOCATIONS

Portions of the USGS 7.5' minute Manitou Springs and Cascade, Colorado quadrangles with exact locations of measured sections discussed in text and shown on Figures 4-7. Annotated white hexagons denote location of samples not tied to measured sections and are keyed to the Appendix Table A on next page.

Appendix Table A: Sample list and location key

Location Keyed	Sample Name	Tectonostratigraphic Unit	Grain Size	Gravel Composition
MSXN-I, 21 mab	p-sol 1a_18	lower	X	
TOPO, (H)	COG lower	lower	X	X
TOPO, (G)	COG upper	middle	X	X
MSXN-I, 62 mab	msp-ii_52	middle	X	X
MSXN-I, 128 mab	msp-iii_39.1	middle	X	
MSXN-I, 142 mab	msp-iii_53	middle	X	X
MSXN-I, 162 mab	msp-iii_73	middle		X
MSXN-I, 186 mab	msp-iii_99.8	middle		
TOPO, (F)	School	middle	X	X
TOPO, (E)	GOTG-Z	middle	X	X
MSXN-III, 60 mab	msp-viii_28	upper		X
TOPO, (C)	RRVW-Z	upper	X	
TOPO, (B)	RRVW-D	upper	X	X
MSXN-IV, 68.7 mab	msp-ix_68.7	upper	X	
MSXN-IV, 134.5 mab	msp-ix_134.5	upper		X
MSXN-IV, 229 mab	msp-ix_229	upper		X
MSXN-IV, 230.4 mab	msp-ix_230.4	upper	X	
TOPO, (A)	RRVE-A	upper	X	X
TOPO, (D)	upper outer	upper	X	

MSXN = measured section (Figs. 4-7)

TOPO = topographic map shown on previous page

mab = meters above base

GRAIN-SIZE DISTRIBUTION DATA

Grain-size analyses were conducted on the coarsest beds (inferred from visual inspection) to quantitatively assess the spatial and temporal degree of fining away from the ancestral Ute Pass fault. Data on the > 2 cm fraction was obtained by placing a 0.5 m^2 net with ~5 cm grid size on the outcrop and recording sizes of clasts > 2 cm (A-axis) at grid intersections. For clasts larger than the grid size, all intersections were counted. Data for the > 2 cm fraction was tallied into 5 cm bins. The matrix (< 2 cm fraction) of each site was then sampled for further grain size analysis through disaggregation and standard sieve analysis. Additionally, grain-size analysis was conducted through standard sieve methods on muddy granular sandstone facies (described later) to assess the proportion of mud to sand.

Appendix Table B (on next page displays raw data). Histograms of the grain-size distribution are displayed on the subsequent pages.

Appendix Table B: Grain-size distribution data													
SAMPLE	% ≤.125 mm	% .3-.125 mm	% .7-.3 mm	% 1.5-.7 mm	% 3-1.5 mm	% 20-3 mm	% 2-6 cm	% 7-10 cm	% 11-15 cm	%16-20 cm	%21-25 cm	%>26 cm	Total
Fluvial deposits													
upper outer	n/a	n/a	n/a	n/a	n/a	n/a	15.00%	1.00%	0.00%	0.00%	0.00%	0.00%	n/a
msp-ix_230.4	4.87%	6.69%	6.48%	8.90%	16.62%	29.45%	20.00%	7.00%	0.00%	0.00%	0.00%	0.00%	100.01%
RRVE-A	4.65%	9.52%	7.67%	8.50%	16.36%	41.31%	10.00%	2.00%	0.00%	0.00%	0.00%	0.00%	100.01%
RRVW-Z	3.93%	7.29%	6.50%	9.46%	17.85%	27.95%	24.00%	2.00%	0.00%	0.00%	0.00%	0.00%	98.98%
RRVW-D	5.74%	13.10%	11.54%	15.22%	26.49%	16.91%	9.00%	3.00%	0.00%	0.00%	0.00%	0.00%	101.00%
COG-lower	8.64%	10.16%	9.52%	12.25%	21.48%	14.95%	10.00%	8.00%	5.00%	0.00%	0.00%	0.00%	100.00%
COG-upper	4.75%	5.48%	6.51%	7.34%	5.65%	3.26%	13.00%	12.00%	20.00%	7.00%	16.00%	0.00%	100.99%
School	3.30%	4.53%	4.90%	5.29%	6.20%	5.77%	34.00%	15.00%	9.00%	4.00%	3.00%	5.00%	99.99%
msp-ii_52	2.18%	4.06%	3.85%	4.21%	3.64%	6.05%	20.00%	20.00%	19.00%	10.00%	7.00%	0.00%	99.99%
msp-iii_53	1.77%	9.94%	9.22%	11.08%	12.42%	6.57%	26.00%	12.00%	7.00%	3.00%	0.00%	0.00%	99.00%
GOTG-Z	10.35%	27.72%	19.99%	5.56%	2.47%	2.91%	23.00%	5.00%	0.00%	3.00%	0.00%	0.00%	100.00%
Debris flow deposits	clay	f. silt	c. silt	v.f.-f.sand	m.-c. sand	v.c sand-granule	pebble						
P-sol 1a-18	5.34%	5.70%	6.80%	14.39%	31.22%	26.19%	8.71%						
msp-iii_39	20.07%	16.59%	11.50%	12.18%	13.56%	6.25%	0.78%						
msp-ix_68.7	12.13%	13.21%	17.05%	27.92%	11.89%	2.39%	0.94%						

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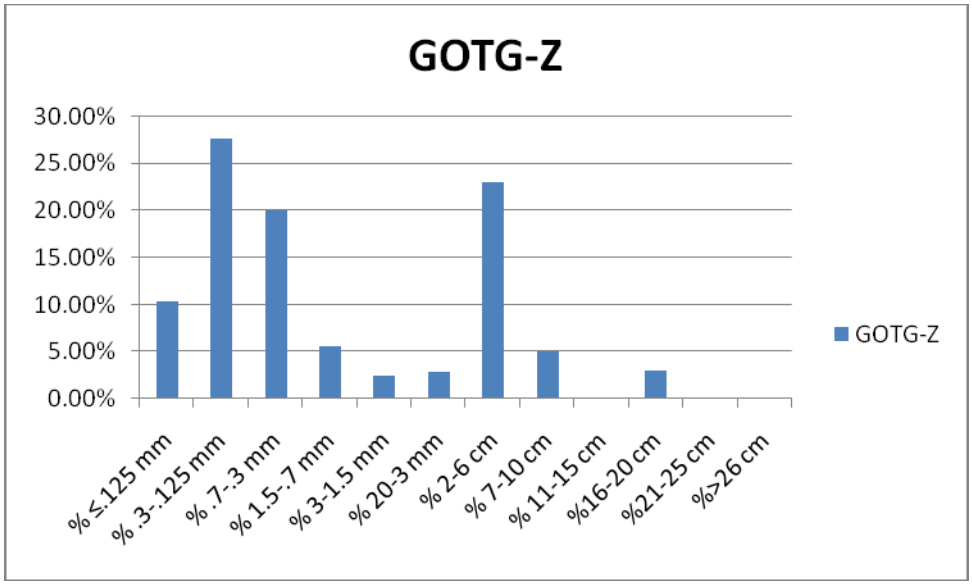
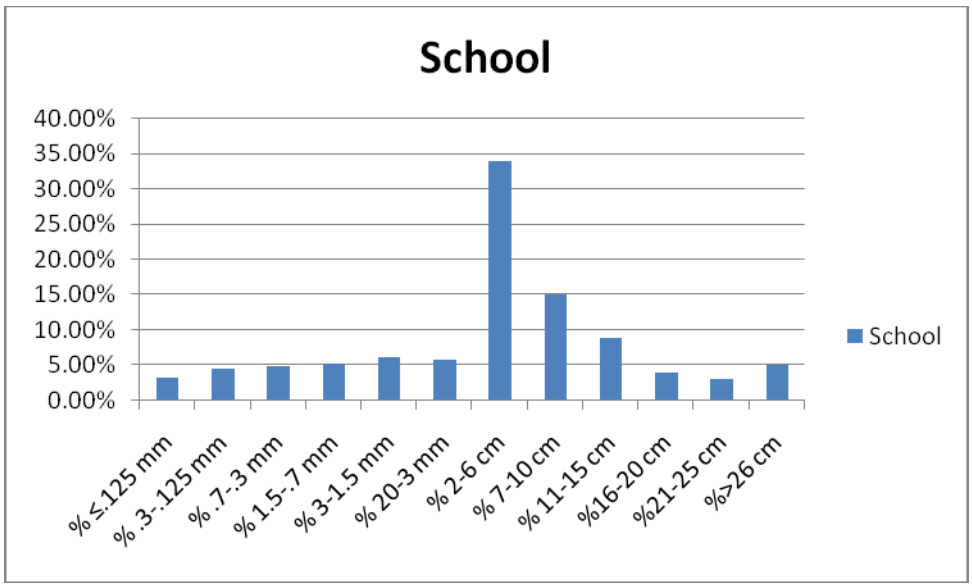
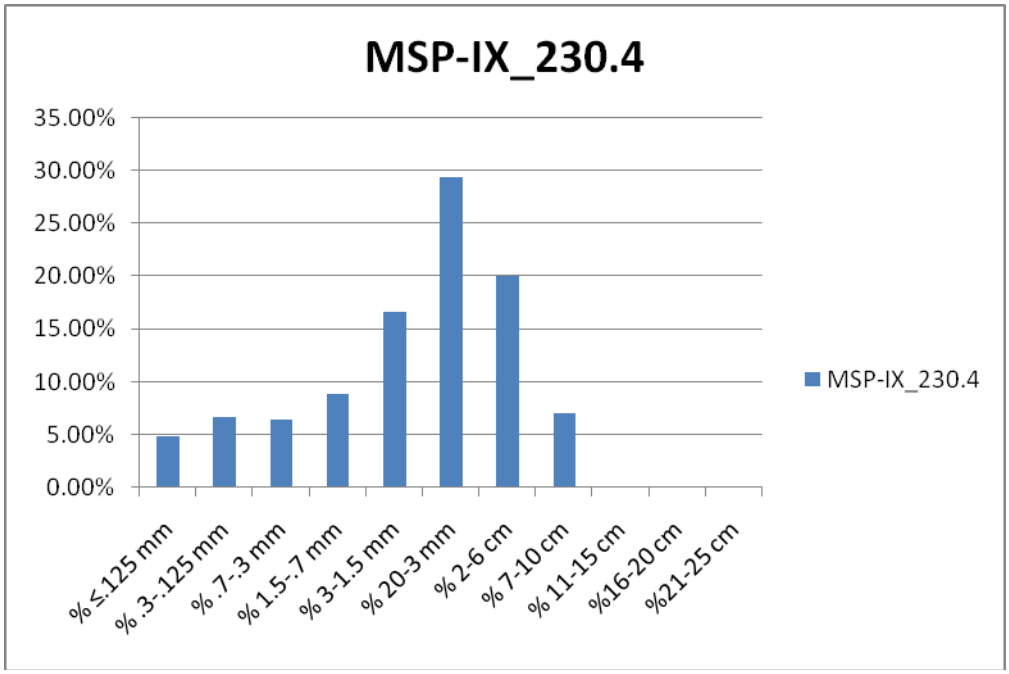
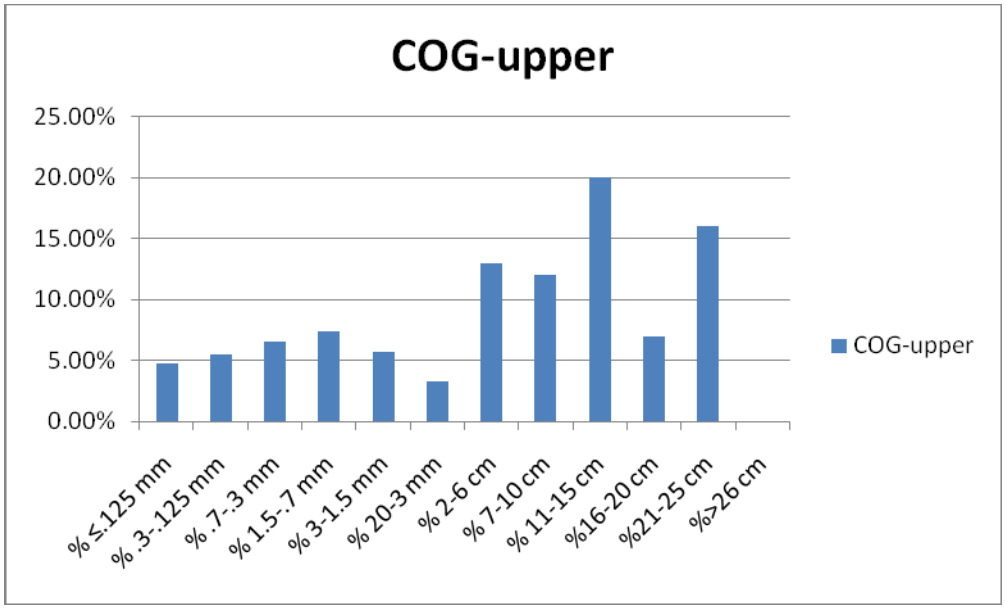
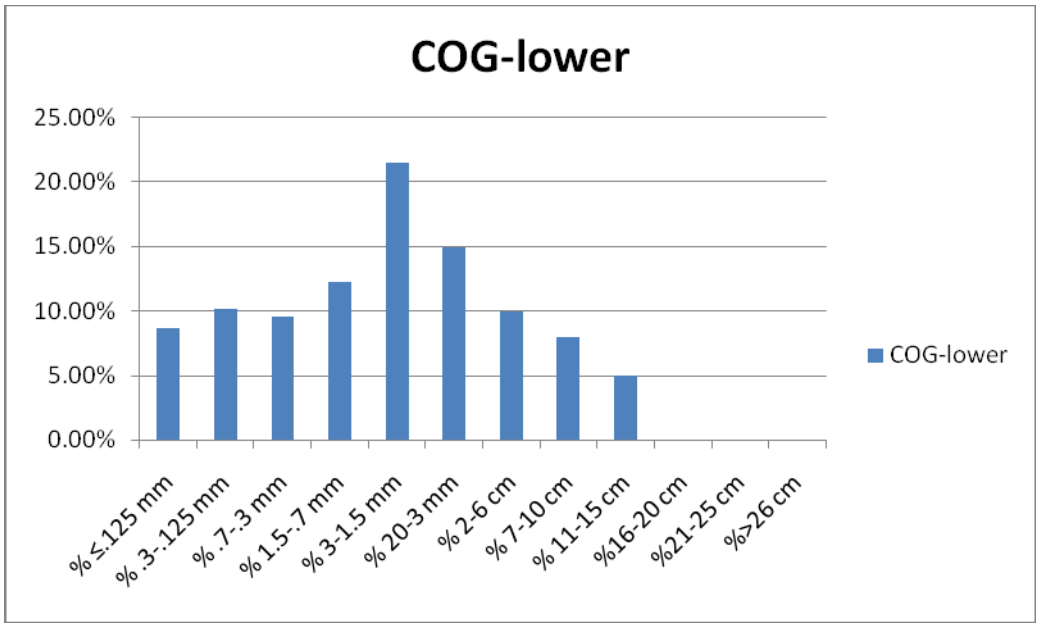
Grain-size distribution histograms

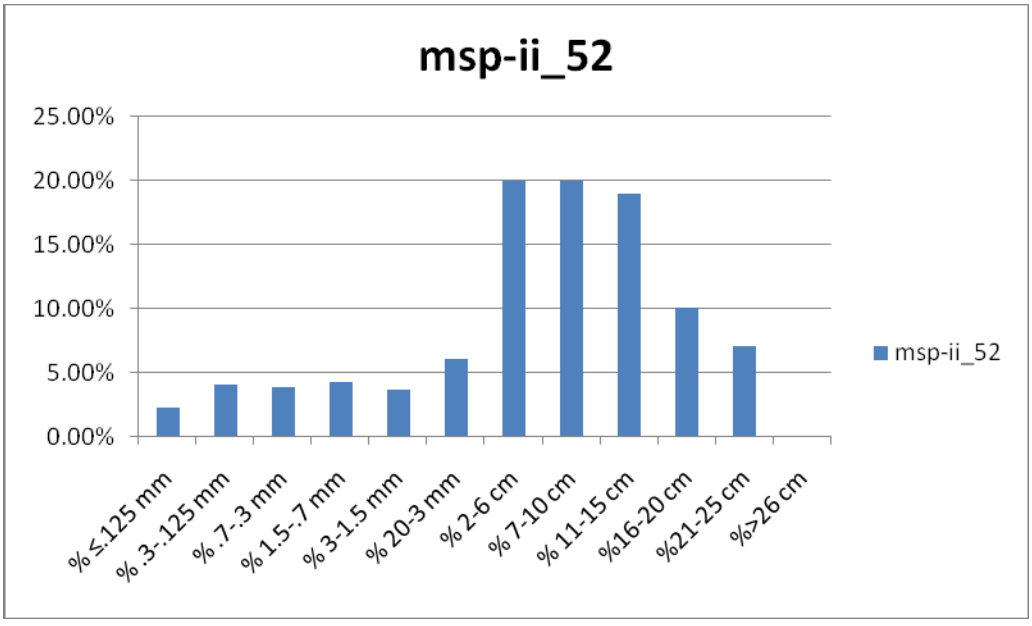


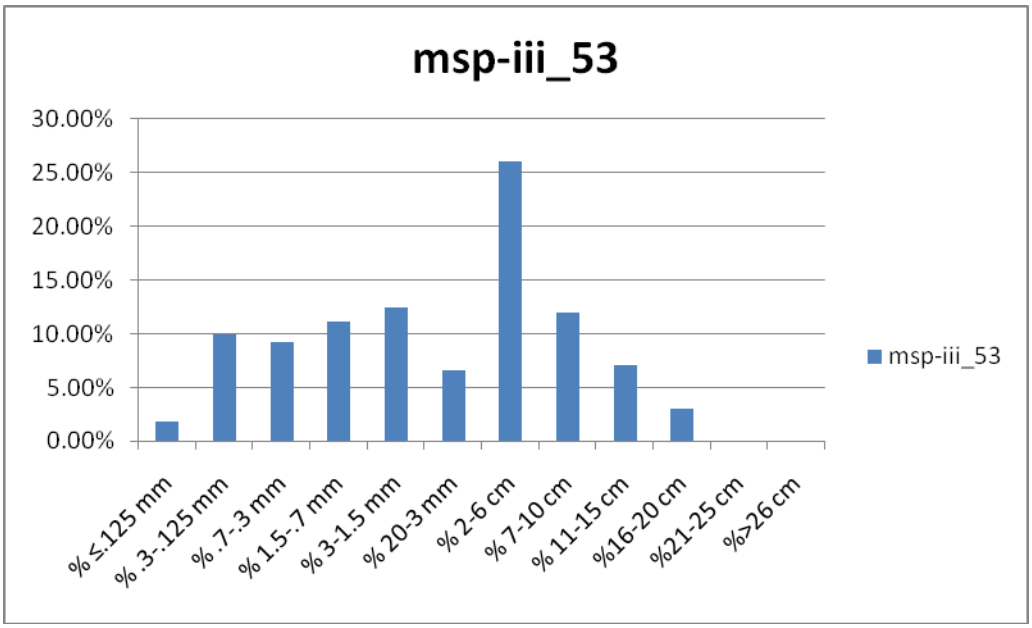


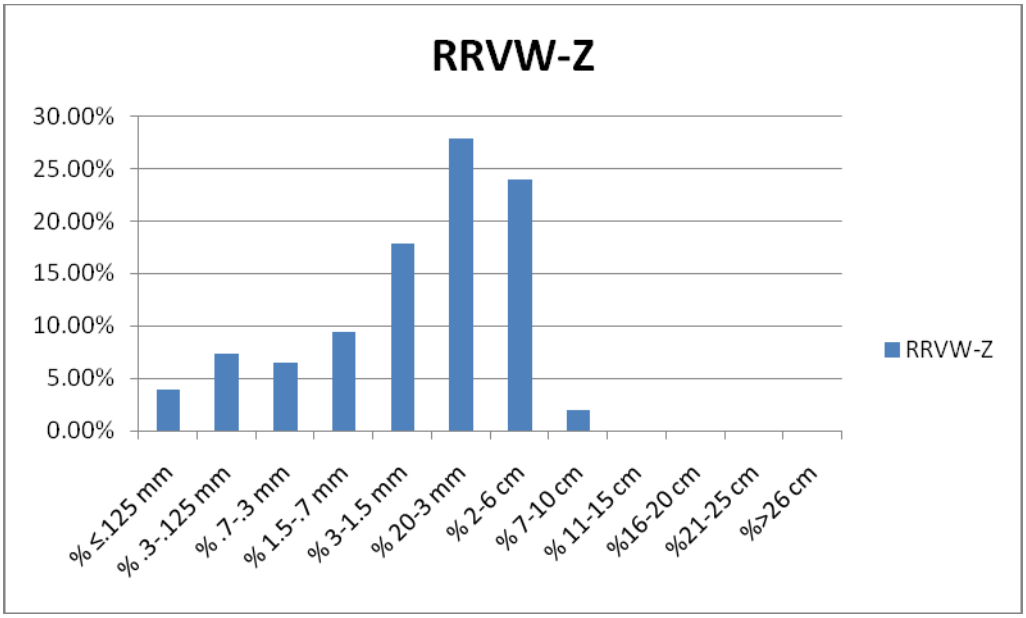

MSP-IX_230.4
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
% ≤.125 mm
% .3-.125 mm
% .7-.3 mm
% 1.5-.7 mm
% 3-1.5 mm
% 20-3 mm
% 2-6 cm
% 7-10 cm
% 11-15 cm
%16-20 cm
%21-25 cm
MSP-IX_230.4

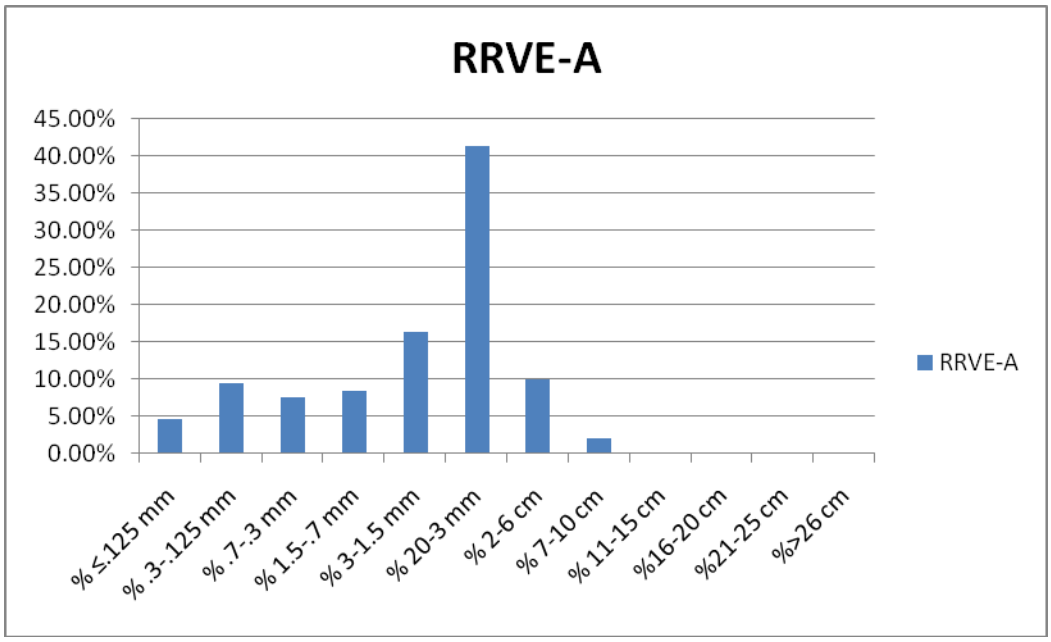

COG-upper
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
% ≤.125 mm
% .3-.125 mm
% .7-.3 mm
% 1.5-.7 mm
% 3-1.5 mm
% 20-3 mm
% 2-6 cm
% 7-10 cm
% 11-15 cm
%16-20 cm
%21-25 cm
%>26 cm
COG-upper

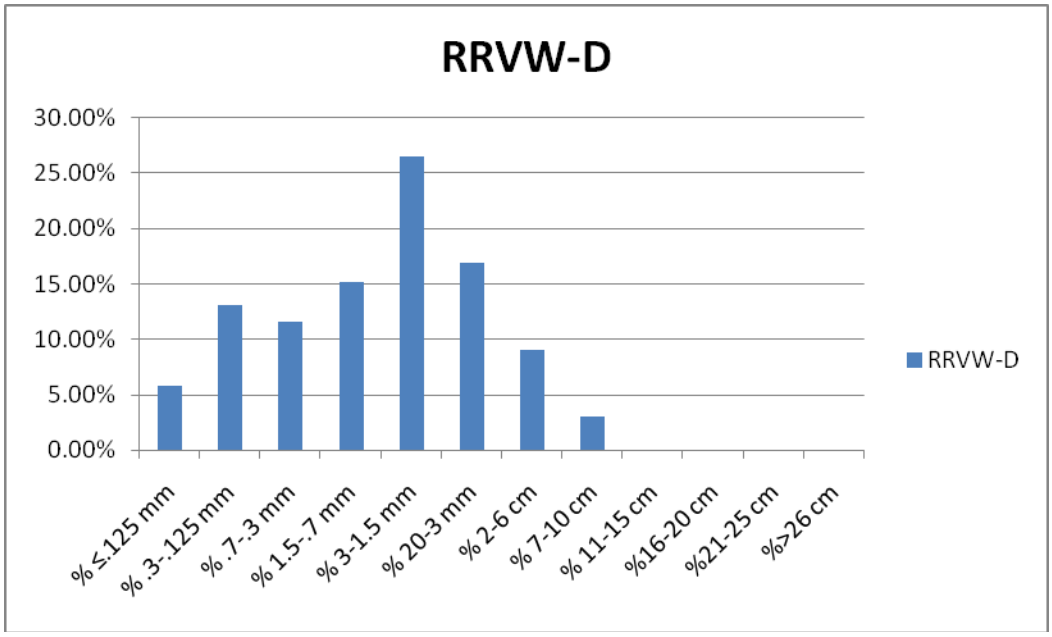

COG-lower
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
% ≤.125 mm
% .3-.125 mm
% .7-.3 mm
% 1.5-.7 mm
% 3-1.5 mm
% 20-3 mm
% 2-6 cm
% 7-10 cm
% 11-15 cm
%16-20 cm
%21-25 cm
%>26 cm
COG-lower

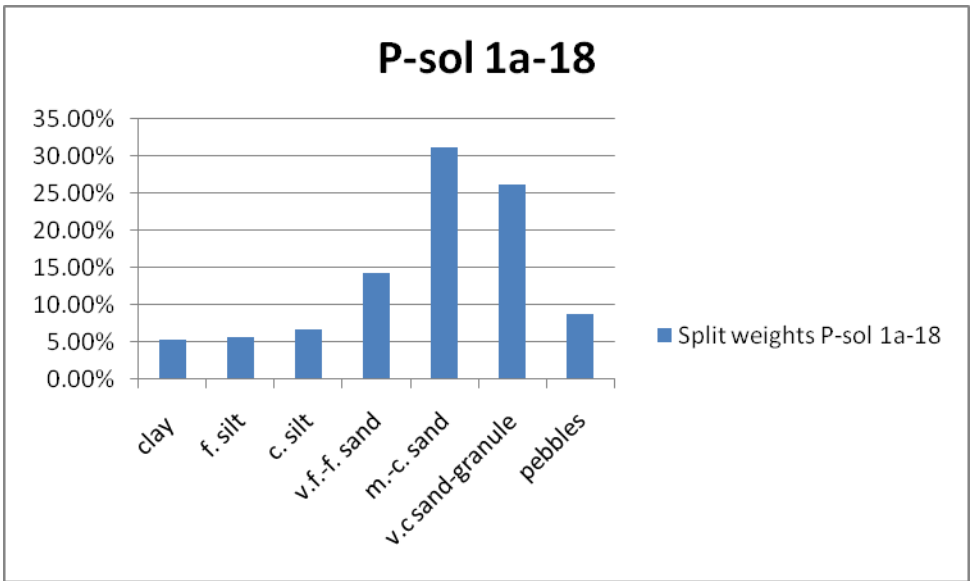

msp-ii_52
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
% ≤.125 mm
% .3-.125 mm
% .7-.3 mm
% 1.5-.7 mm
% 3-1.5 mm
% 20-3 mm
% 2-6 cm
% 7-10 cm
% 11-15 cm
%16-20 cm
%21-25 cm
%>26 cm
msp-ii_52

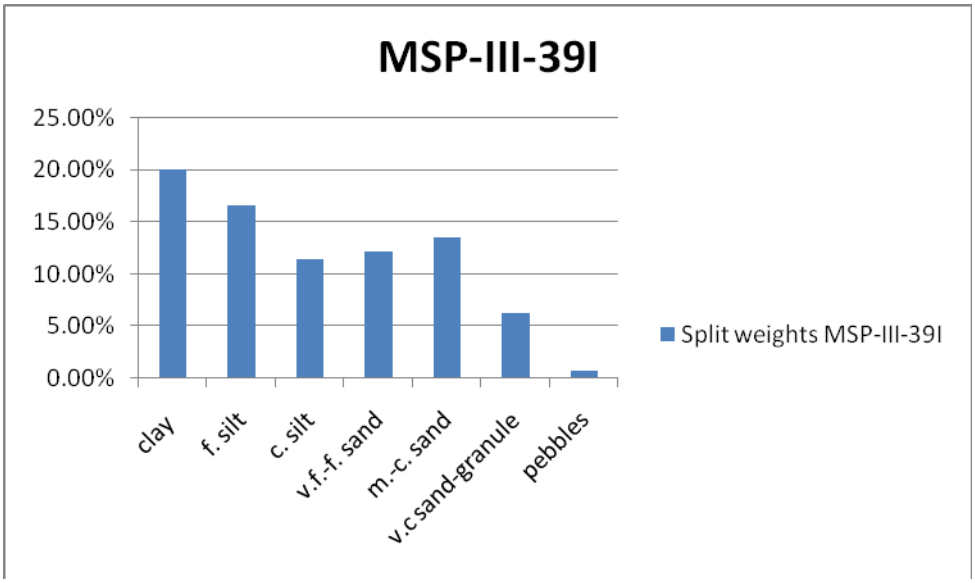

msp-iii_53
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
% ≤.125 mm
% .3-.125 mm
% .7-.3 mm
% 1.5-.7 mm
% 3-1.5 mm
% 20-3 mm
% 2-6 cm
% 7-10 cm
% 11-15 cm
%16-20 cm
%21-25 cm
%>26 cm
msp-iii_53

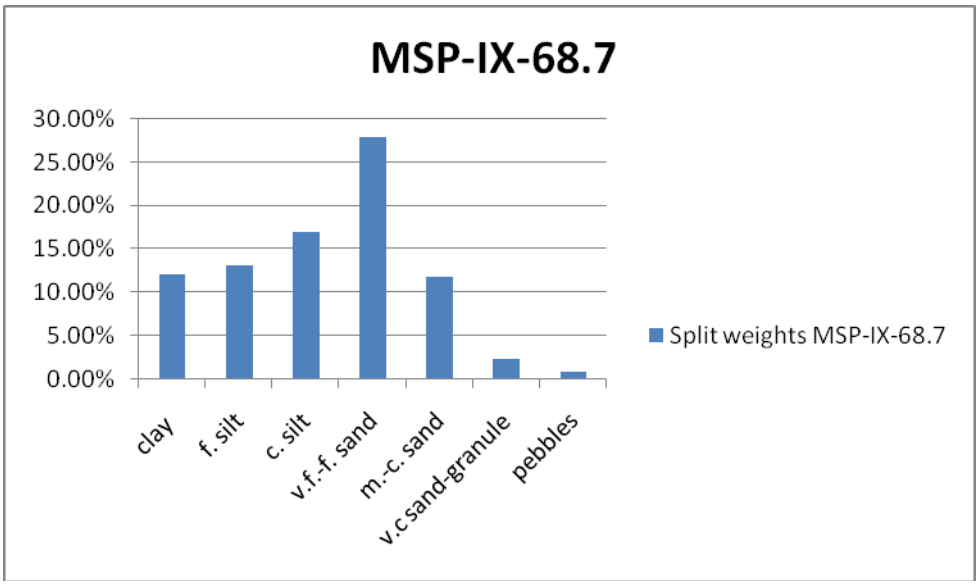

RRVW-Z
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
% ≤.125 mm
% .3-.125 mm
% .7-.3 mm
% 1.5-.7 mm
% 3-1.5 mm
% 20-3 mm
% 2-6 cm
% 7-10 cm
% 11-15 cm
%16-20 cm
%21-25 cm
%>26 cm
RRVW-Z


RRVE-A
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
% ≤.125 mm
% .3-.125 mm
% .7-.3 mm
% 1.5-.7 mm
% 3-1.5 mm
% 20-3 mm
% 2-6 cm
% 7-10 cm
% 11-15 cm
%16-20 cm
%21-25 cm
%>26 cm
RRVE-A


RRVW-D
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
% ≤.125 mm
% .3-.125 mm
% .7-.3 mm
% 1.5-.7 mm
% 3-1.5 mm
% 20-3 mm
% 2-6 cm
% 7-10 cm
% 11-15 cm
%16-20 cm
%21-25 cm
%>26 cm
RRVW-D

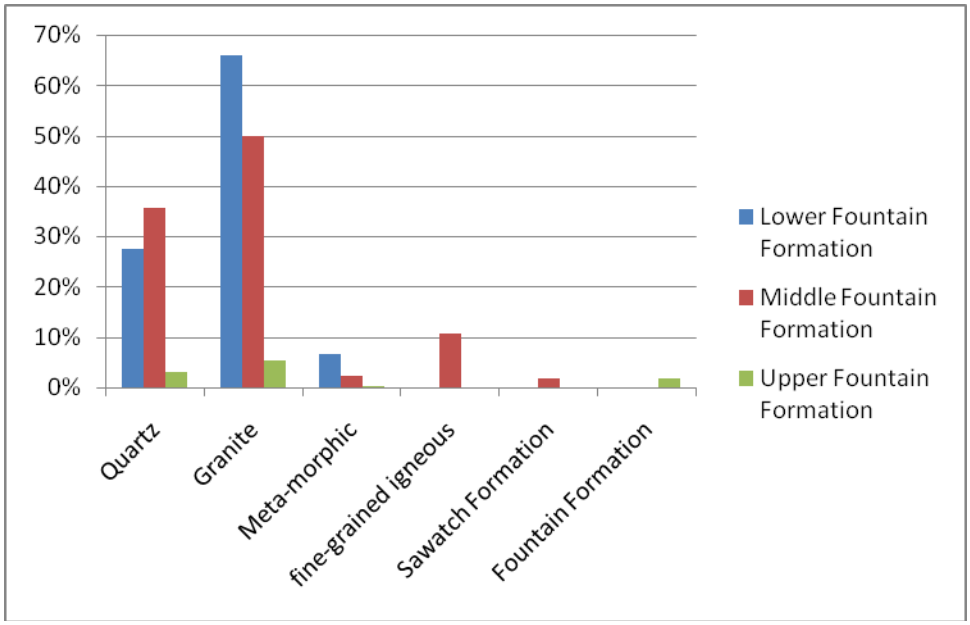

P-sol 1a-18
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
clay
f. silt
c. silt
v.f.-f. sand
m.-c. sand
v.c sand-granule
pebbles
Split weights P-sol 1a-18


MSP-III-39I
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
clay
f. silt
c. silt
v.f.-f. sand
m.-c. sand
v.c sand-granule
pebbles
Split weights MSP-III-39I


MSP-IX-68.7
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
clay
f. silt
c. silt
v.f.-f. sand
m.-c. sand
v.c sand-granule
pebbles
Split weights MSP-IX-68.7

COMPOSITION DATA FOR CLASTS > 2CM

Data was collected on the > 2 cm fraction by placing a 0.5 m^2 net with ~5 cm grid size on the outcrop and recording composition of clasts > 2 cm (A-axis) at grid intersections. For clasts larger than the grid size, all intersections were counted. Although they varied, no attempt was made to differentiate different types of granite and metamorphic clasts.



Bar-graph displaying the compositional variation of clasts larger than 2 cm in the lower, middle and upper Fountain Tectonostratigraphic units.

Fountain Formation composition of clasts > 2 cm

SAMPLE SITE	CLAST TYPE						TOTAL COUNT
	Quartz	Granite	Meta-morphic	fine-grained igneous	Sawatch Formation	Fountain Formation	
Lower Fountain							
COG lower	25	60	6				91
total	25	60	6				91
percentage	27%	66%	7%	0%	0%	0%	
Middle Fountain							
COG Upper	4	76	1		4		85
SXN-III-53	20	36		12	1		69
SXN-III-73	60	112		20	5		197
GOTG-Z	54	90	2	26			172
School	154	183	22	60	9		428
SXN-II-52	116	75		6			197
total	408	572	25	124	19		1148
percentage	36%	50%	2%	11%	2%	0%	
Upper Fountain							
RRVW-D	1	14	3				18
RRVE-A	20	27					47
SXN-IX-134.5	11	25					36
SXN-IX-229	18	15	2				35
RRVW-Uncon	17	34				38	89
total	67	115	5	0	0	38	2170
percentage	3%	5%	0%	0%	0%	2%	