

66031
Soil
135 grams

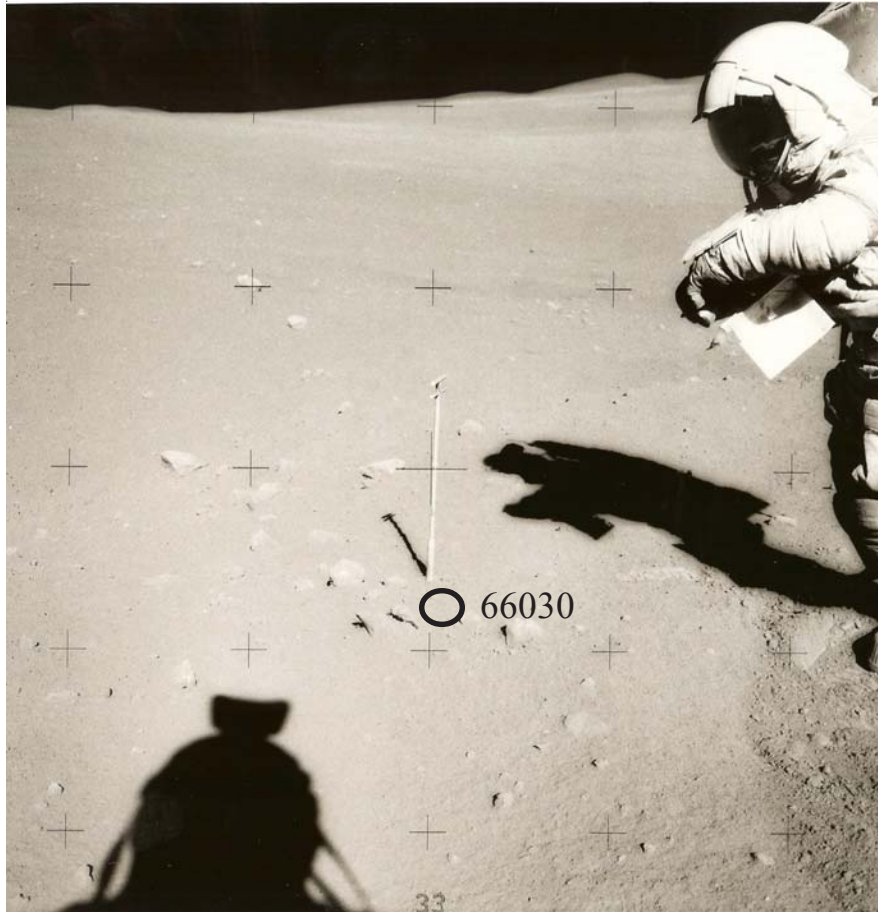
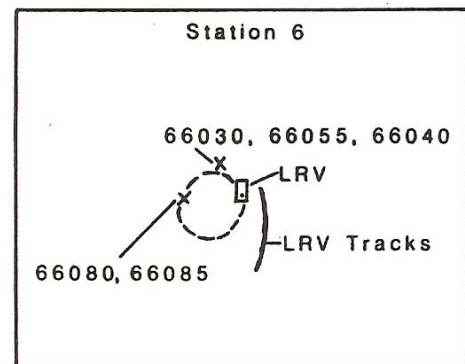
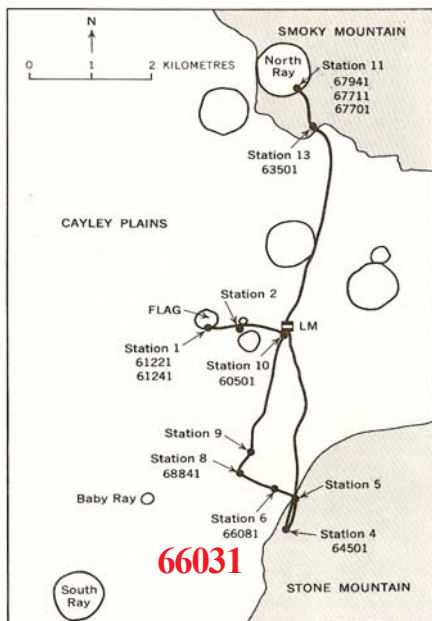


Figure 1: Location of sample 66030 at station 6. AS16-108-17627



Figures 2 and 3: Maps of Apollo 16 site and station 6 on Cayley Plain.

Table 1. Chemical composition of 66031.

reference weight	Korotev82	Eldridge73	Brunfeld73	
SiO ₂ %				
TiO ₂			0.6	(a)
Al ₂ O ₃	26.7	(a)	27.8	(a)
FeO	5.8	(a)	5.47	(a)
MnO	0.075	(a)	0.077	(a)
MgO	6.8	(a)	7.6	(a)
CaO	14.6	(a)	15.3	(a)
Na ₂ O	0.44	(a)	0.54	(a)
K ₂ O		0.116	(b) 0.072	(a)
P ₂ O ₅				
S %				
sum				
Sc ppm	9.95	(a)	9.5	(a)
V	22	(a)	26	(a)
Cr	777	(a)	798	(a)
Co	34	(a)	29.4	(a)
Ni	480	(a)	417	(a)
Cu			8	(a)
Zn			12	(a)
Ga			4.9	(a)
Ge ppb				
As				
Se				
Rb			3.8	(a)
Sr	155	(a)	70	(a)
Y				
Zr	210	(a)		
Nb				
Mo				
Ru				
Rh				
Pd ppb				
Ag ppb				
Cd ppb				
In ppb			50	(a)
Sn ppb				
Sb ppb				
Te ppb				
Cs ppm	0.12	(a)	0.26	(a)
Ba	144	(a)	137	(a)
La	13.65	(a)	12.2	(a)
Ce	36.8	(a)	38.5	(a)
Pr				
Nd				
Sm	6.5	(a)	6.56	(a)
Eu	1.19	(a)	1.28	(a)
Gd				
Tb	1.37	(a)	1.3	(a)
Dy			7.92	(a)
Ho			1.5	(a)
Er				
Tm				
Yb	4.55	(a)	5.27	(a)
Lu	0.64	(a)	0.76	(a)
Hf	5	(a)	5.2	(a)
Ta	0.685	(a)	0.54	(a)
W ppb				
Re ppb				
Os ppb				
Ir ppb	15.4	(a)		
Pt ppb				
Au ppb				
Th ppm	2.49	(a)	1.88	(b) 1.5
U ppm	0.7	(a)	0.53	(b) 0.6

technique: (a) INAA, (b) radiation count.

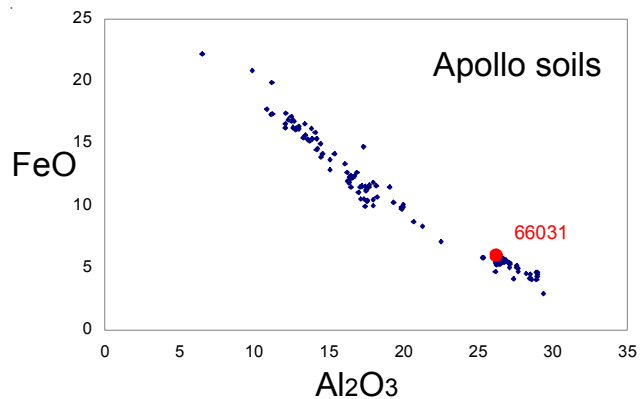


Figure 4: Composition of 66031 compared with that of Apollo soil samples.

Introduction

Soil sample 66030 – 66034 was collected with breccia samples 66035, 66036 and 66037. Both 66041 and 66031 were collected from the same location on the Cayley Plain near Stone Mountain (figures 1-3).

Petrography

66031 is a very mature soil with $I_s/FeO = 102$ (Morris 1987). It has an average grain size of 121 microns (figure 6). The mineral mode and agglutinate content are presumably like that for 66041.

Chemistry

Korotev (1982) determined an average for soils from each station at Apollo 16. The analysis by Brunfeldt et al. (1973) is similar (figure 5).

Cirlin and Housley (1981) determined 71 ppb Cd and 20.5 ppm Zn.

Cosmogenic isotopes and exposure ages

Eldridge et al. (1973) determined the cosmic-ray-induced activity of $^{26}Al = 208$ dpm/kg and $^{22}Na = 52$ dpm/kg.

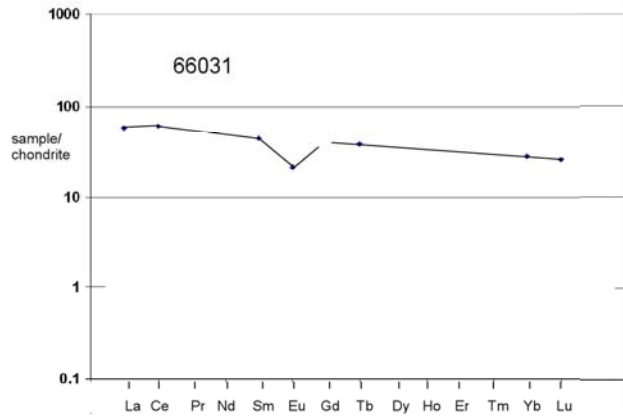
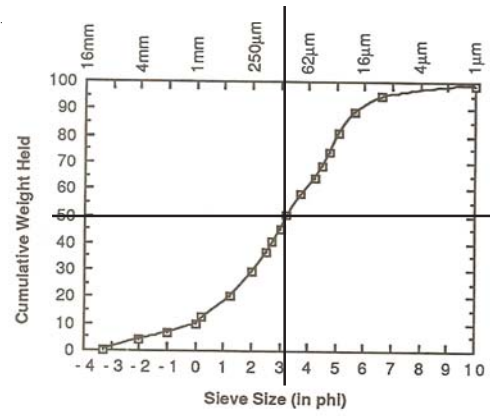


Figure 5: Normalized rare-earth-element diagram for 66031.



average grain size = 121 microns

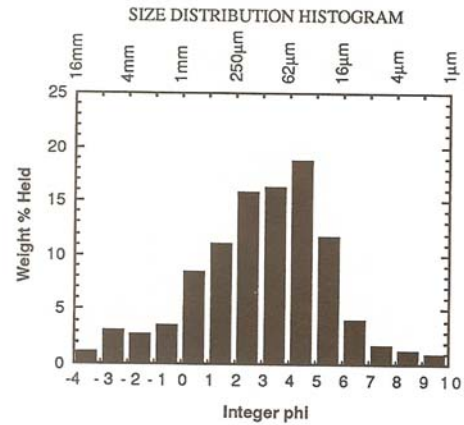
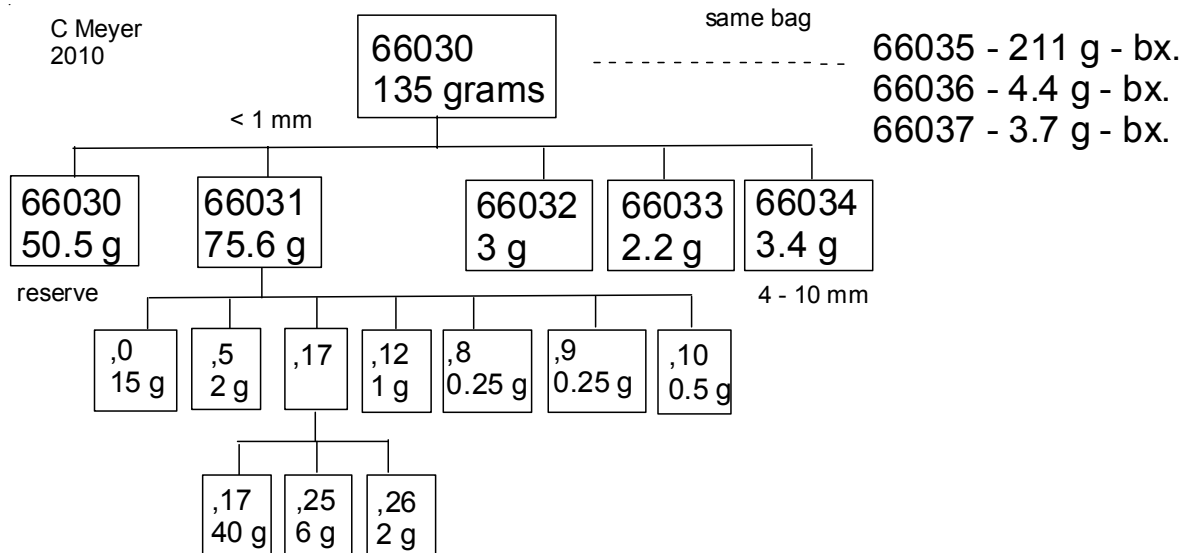


Figure 6: Grain size distribution for 66030 (Graf 1993, data by Butler et al).



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