70250, 70270 and 70290

Soil

62, 193 and 56 grams

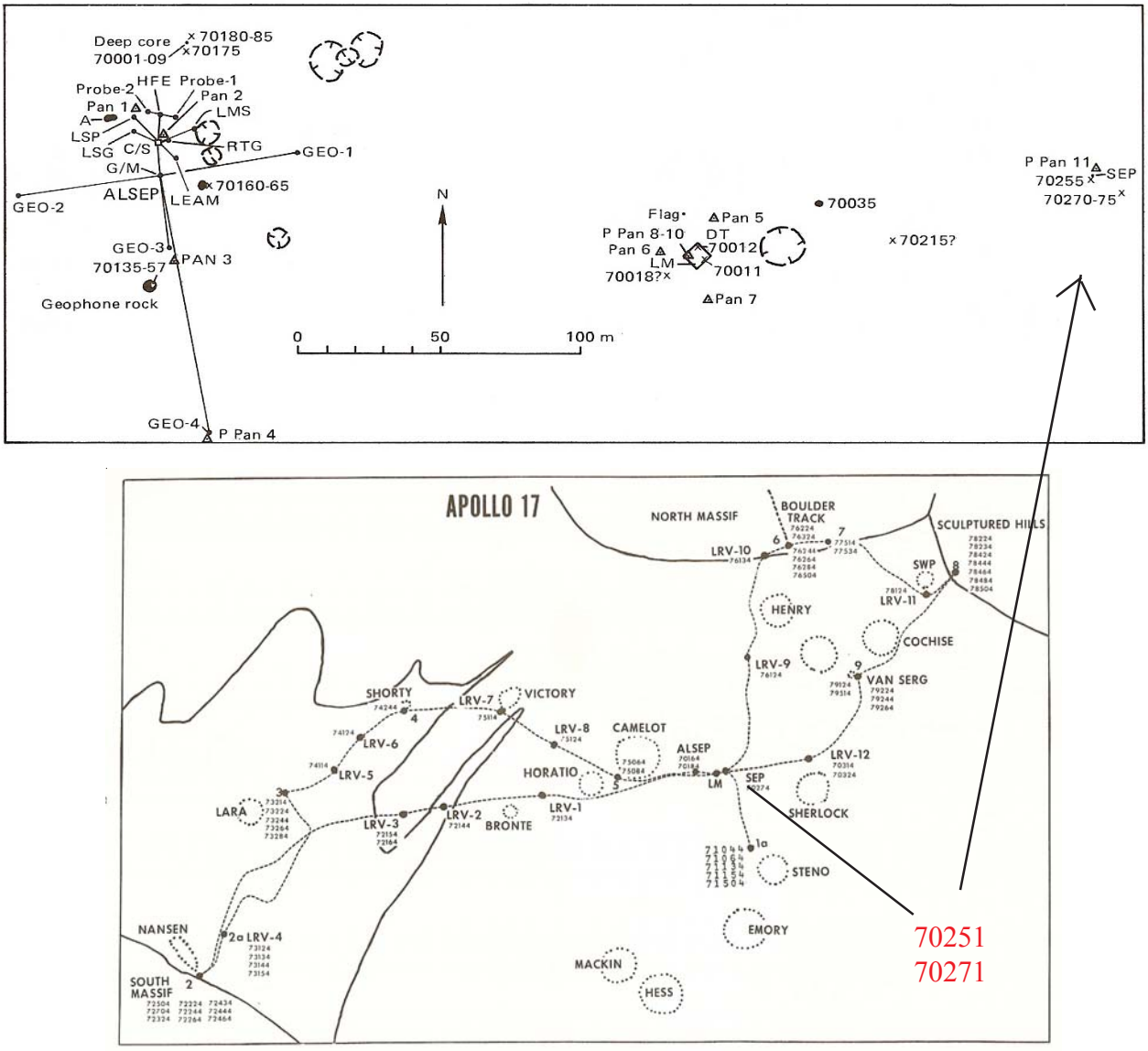


Figure 1: Location of soil samples 70250 and 70270 at SEP site on Apollo 17 map (Meyer 1973). S73-24071

Introduction

70250 is the soil collected along with 70255 (basalt), 70270 is a soil sample collected along with 70275 (basalt) and 70290 is a soil sample collected along with 70295 (breccia) near the SEP (Science Experiment Package) site (figure 1). The precise location of 70295 is unknown. Since they are "bag residue", they are not considered true soils, because they may contain bits and pieces of the large sample in bag.

Petrography

Morris (1978) determined the maturity index (I_s/FeO) of 70250 and 70271 as 43 and 56 respectively. This high maturity must indicate that these are true soils.

Table 1. Composition of 70251 and 70271.

	70251		70271	
reference	Korotev92		Korotev92	
weight				
SiO2 %				
TiO2				
Al2O3				
FeO	16.7	(a)	16.7	(a)
MnO				
MgO				
CaO				
Na2O	0.402	(a)	0.395	(a)
K2O				
P2O5				
S %				
sum				
Sc ppm	59	(a)	61.7	(a)
V				
Cr	3000	(a)	2970	(a)
Co	34.5	(a)	35.5	(a)
Ni	180	(a)	160	(a)
Cu				
Zn				
Ga				
Ge ppb				
As				
Se				
Rb				
Sr	190		140	(a)
Y				
Zr	200	(a)	230	(a)
Nb				
Mo				
Ru				
Rh				
Pd ppb				
Ag ppb				
Cd ppb				
In ppb				
Sn ppb				
Sb ppb				
Te ppb				
Cs ppm				
Ba	100	(a)	100	(a)
La	8.26	(a)	7.74	(a)
Ce	23.7	(a)	23.3	(a)
Pr				
Nd	21	(a)	24	(a)
Sm	8.17	(a)	8.12	(a)
Eu	1.76	(a)	1.7	(a)
Gd				
Tb	2.03	(a)	1.94	(a)
Dy				
Ho				
Er				
Tm				
Yb	7.22	(a)	7.28	(a)
Lu	0.99	(a)	1.03	(a)
Hf	6.8	(a)	6.78	(a)
Ta	1.21	(a)	1.17	(a)
W ppb				
Re ppb				
Os ppb				
Ir ppb	6	(a)	7	(a)
Pt ppb				
Au ppb	5.5	(a)	4	(a)
Th ppm	1.01	(a)	0.78	(a)
U ppm	0.24	(a)	0.3	(a)
technique:	*(a) INAA*			

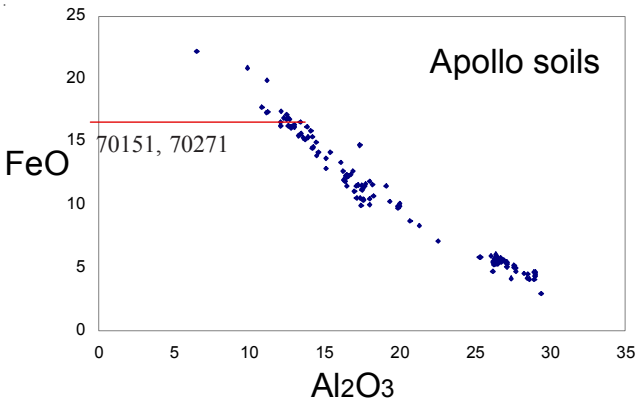


Figure 2: FeO content of 70251 and 70271 compared with other Apollo soil samples.

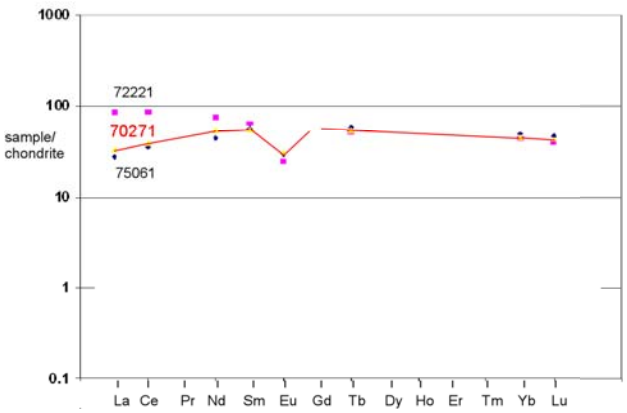
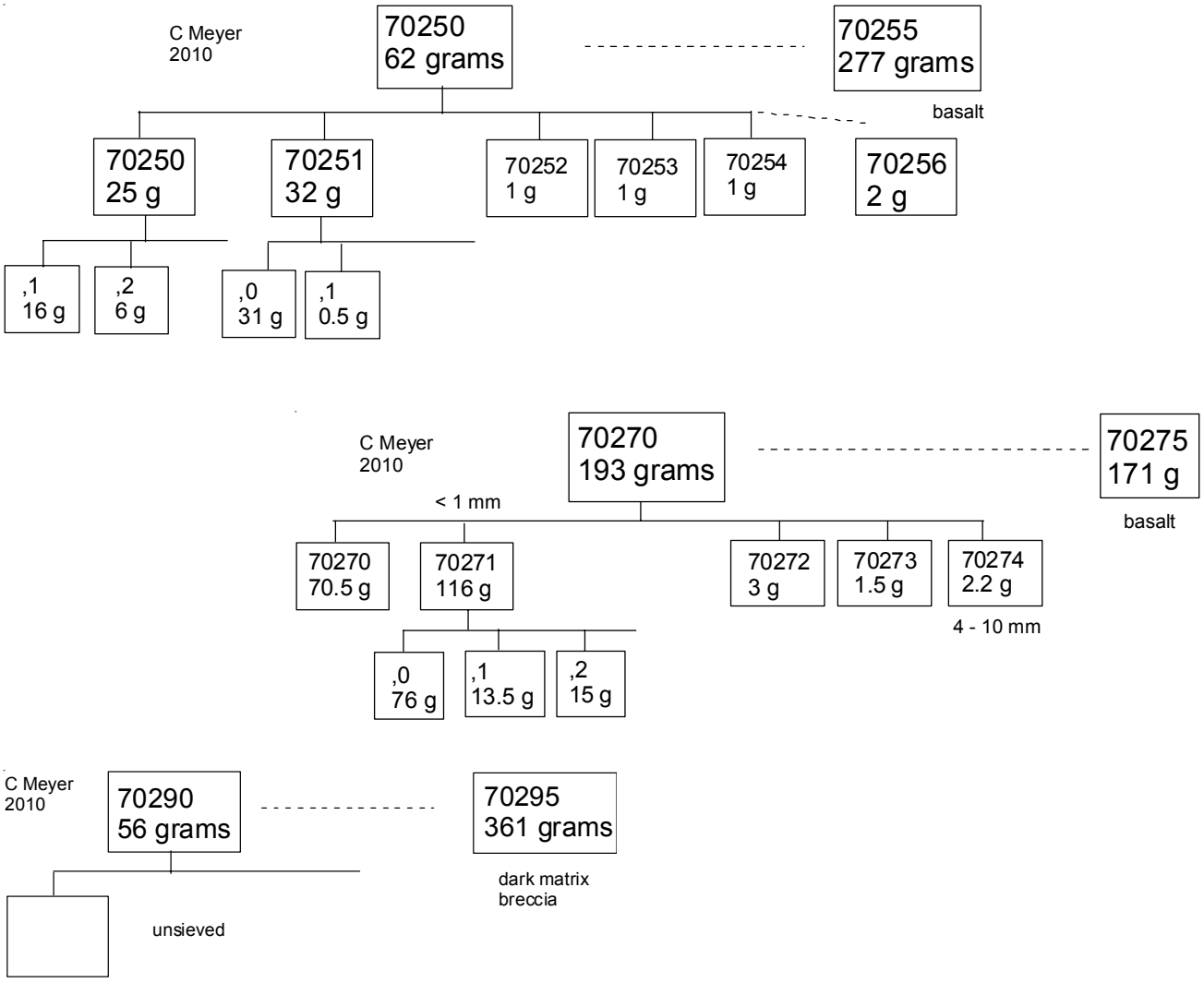


Figure 3: Normalized rare-earth-element diagram for 70250 showing similarity with mare soil 75061.

Chemistry

The chemical composition of 70251 and 70271 has been determined by Korotev (1992). These are typical mare soils (figures 2 and 3). 70290 has not been sieved nor analyzed.



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