

65701 – 271 grams
65710 – 91 grams
Soil and rake residue

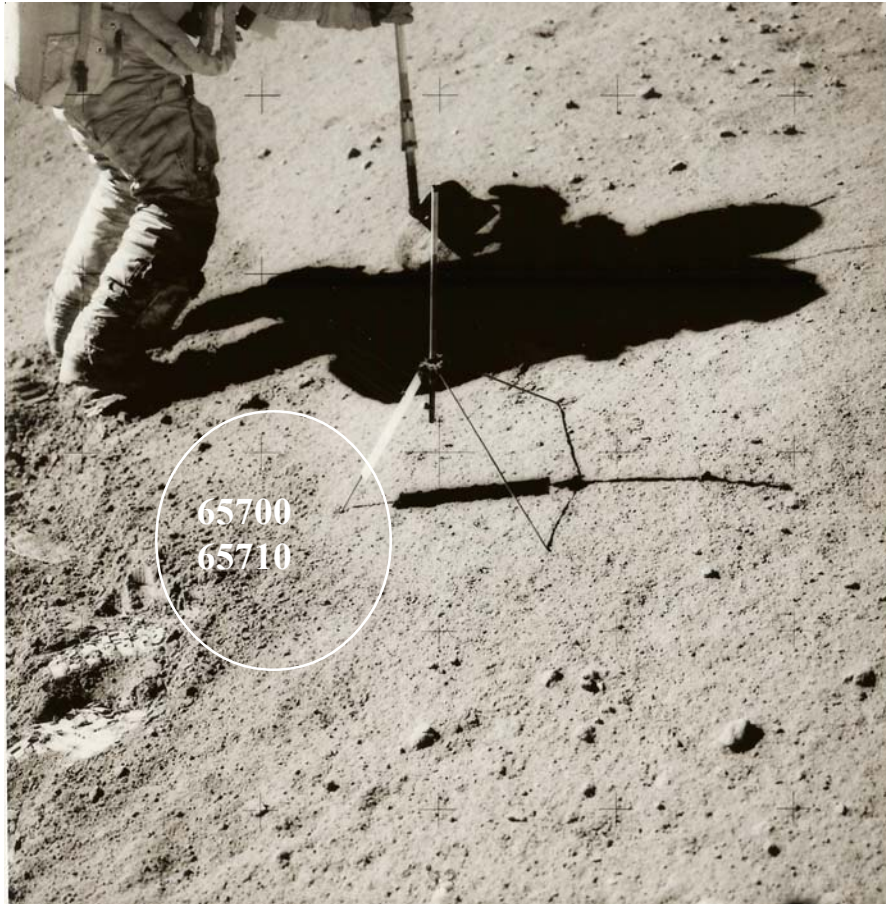
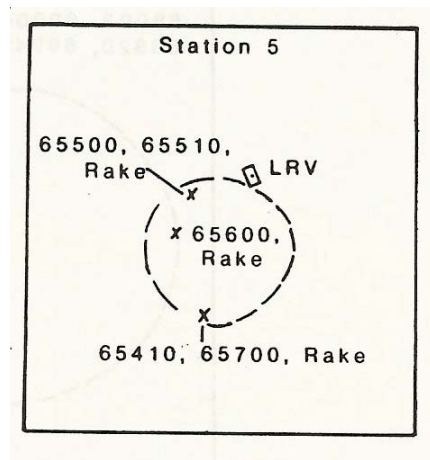
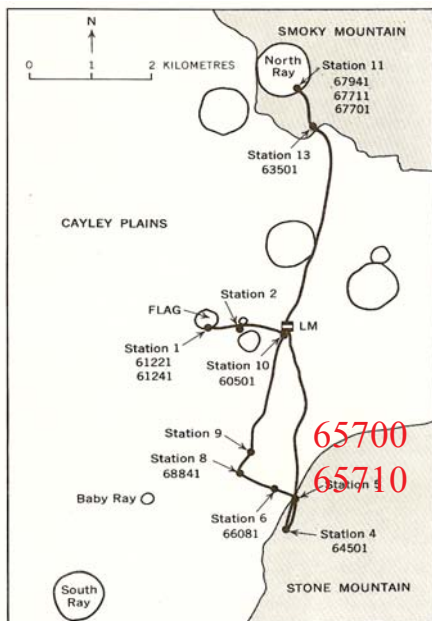


Figure 1: Close-up photo of area where 65700 and 65710 were collected. AS16-110-18022.



Figures 2 and 3: Maps of location of station 5 at Apollo 16.

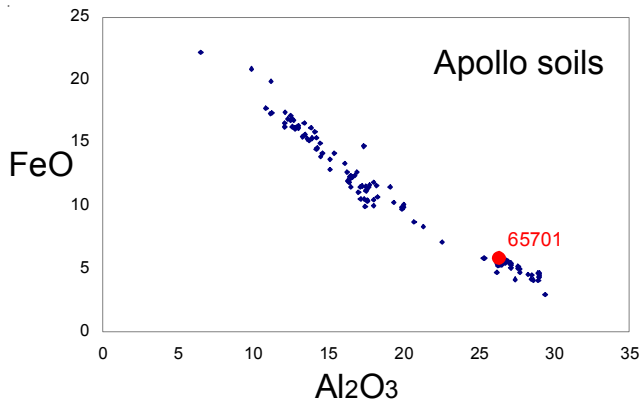


Figure 4: Composition of 65701 compared with that of all Apollo soils.

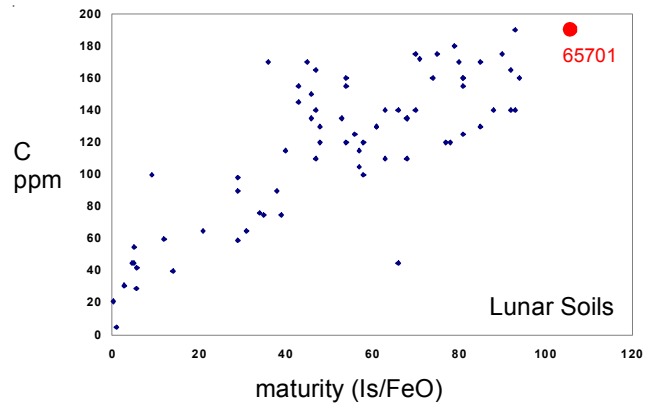


Figure 5: Carbon content and maturity index for 65701 compared with other soils.

Introduction

Station 5 was at the base of Stone Mountain on the Cayley Plain (figure 2). Soil samples 65501, 65601 and 65701 were all taken from a small crater (figure 3).

Petrography

The maturity index for 65701 is very high $I_s/FeO = 106$ (highest ever) and the average grain size is small (58 microns). The mineral mode and agglutinate content of 65701 have not been reported.

Chemistry

The bulk composition of 65701 is typical of Apollo 16 soil (table 1 and figures 4 and 6). The meteoritic siderophile content is high.

Moore et al. (1973) determined 190 ppm carbon for 65701 (figure 5). Moore et al. also studied the carbon content of various size fractions of 65701. Kerridge et al. (1975) reported 118 ppm nitrogen.

Cirlin and Housley (1981) determined 75 ppb Cd and 22 ppm Zn.

Cosmogenic isotopes and exposure ages

Wrigley (1973) determined the cosmic-ray-induced activity of $^{26}Al = 131$ dpm/kg and $^{22}Na = 56$ dpm/kg. Walton et al. (1973) determined a Ne exposure age of 200 m.y.

Other Studies

Walton et al. (1973) and Hintenberger and Weber (1973) determined the rare gas content and isotopic ratios for 65701.

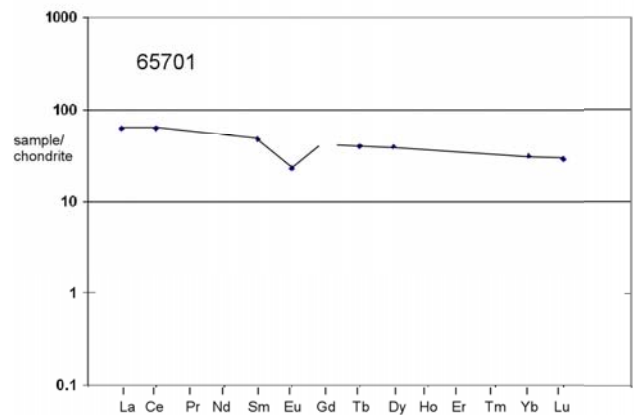
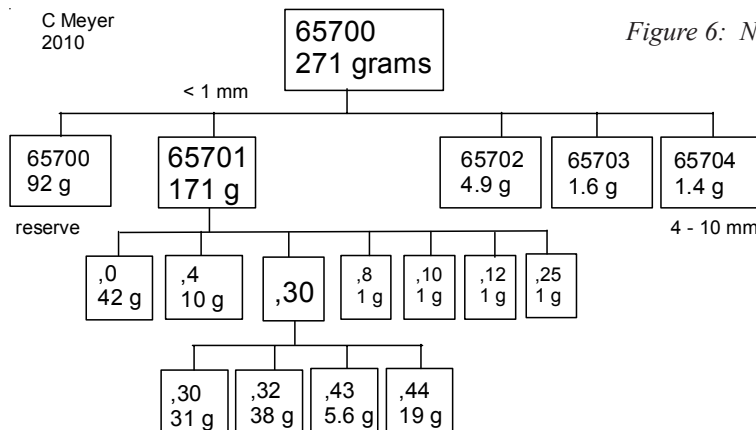
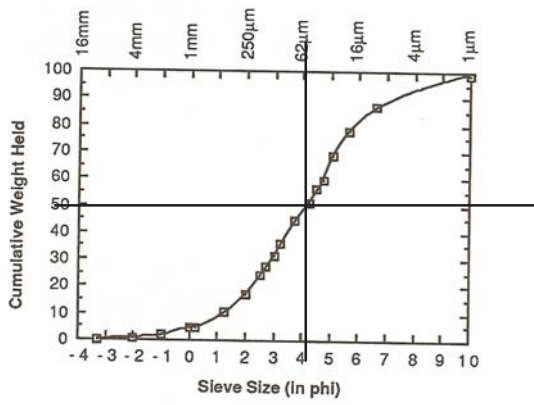


Figure 6: Normalized rare-earth-element diagram





average grain size = 58 microns

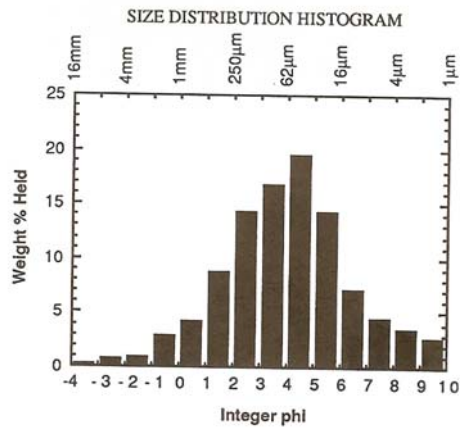


Figure 7: Grain size distribution of 65701 (Graf 1993, from data by Butler et al.).

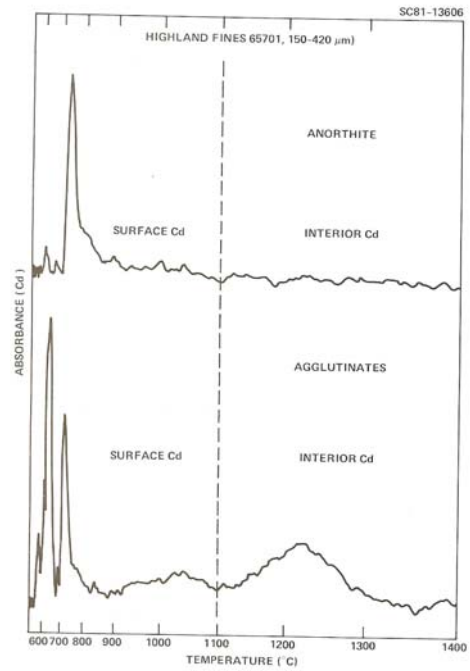
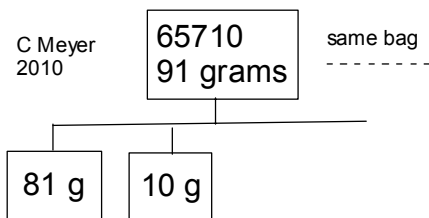


Figure 8: Cd as a surface feature on grains from 65701 (Cirlin and Housley 1981).



- | | |
|----------------------|------------------------|
| 65715 - 31.4 g - bx. | 65755 |
| 65716 - 14.3 g | 65756 |
| 65717 - 7.4 g | 65757 - 26.2 g |
| 65718 | 65758 |
| 65719 | 65759 |
| 65725 | 65765 |
| 65726 | 65766 |
| 65727 | 65767 |
| 65728 | 65768 |
| 65729 | 65769 |
| 65735 | 65775 |
| 65736 | 65776 |
| 65737 | 65777 - 16.6 g - xtln. |
| 65738 | 65778 - 12.2 g - xtln. |
| 65739 | 65779 - 12.7 g - xtln. |
| 65745 | 65785 - 5.2 g - xtln. |
| 65746 | 65786 - 83 g - bx. |
| 65747 | 65787 |
| 65748 | 65788 |
| 65749 | 65789 - 12.2 g - anor. |
| | 65795 - 6.8 g - anor. |

Table 1. Chemical composition of 65701.

<i>reference weight</i>	LSPET72	Compston73	Taylor73	Wrigley73	Wanke73	Haskin73	Boynton76	ave. st. 5 Korotev81
SiO ₂ %	45.03	(a) 44.95	(a) 44.7	(b)	45.1	(c) 45.4		45.3
TiO ₂	0.64	(a) 0.65	(a) 0.65	(b)		0.7		0.65
Al ₂ O ₃	26.47	(a) 26.22	(a) 26.3	(b)	26.6	(c) 28.2		26.2
FeO	5.87	(a) 5.85	(a) 5.68	(b)	5.84	(c) 5.53		5.85
MnO	0.08	(a) 0.08	(a)		0.07	(c) 0.074		0.075
MgO	6.02	(a) 6.34	(a) 6.19	(b)	6.1	(c) 6.02		6.25
CaO	15.29	(a) 15.39	(a) 15	(b)	15.1	(c) 12.8		15
Na ₂ O	0.41	(a) 0.45	(a) 0.43	(b)	0.44	(c) 0.48		0.45
K ₂ O	0.12	(a) 0.12	(a) 0.25	(b) 0.12	(d) 0.12	(c) 0.138		0.134
P ₂ O ₅	0.13	(a) 0.11	(a)					
S %	0.09	(a) 0.06	(a)					
<i>sum</i>								
Sc ppm			11	(b)	9	(c) 10.11	(c)	10.1
V			30	(b)				25
Cr	820	(a)	850	(b)	770	(c)		780
Co			30	(b)	30	(c) 31.7		31
Ni	356	(a)	370	(b)	420	(c) 510	498	(e) 430
Cu			8	(b)		91		
Zn							17.7	(e)
Ga						15.4	(c) 5.4	(e)
Ge ppb							1000	(e)
As								
Se								
Rb	2.9	(a) 3.14	(f) 2.15	(b)		3.2	(c)	3.3
Sr	173	(a) 168	(f)		152	(c)		162
Y	48	(a)	45	(b)				48
Zr	207	(a)	207	(b)				205
Nb	13	(a)	13.9	(b)				
Mo								
Ru							34	(e)
Rh								
Pd ppb								
Ag ppb								
Cd ppb							77	(e)
In ppb							23.3	(e)
Sn ppb								
Sb ppb								
Te ppb								
Cs ppm			0.09	(b)				
Ba			180	(b)	100	(c)		130
La			13.6	(b)	13	(c) 14.7	(c)	14.4
Ce			36.6	(b)	38	(c) 38.3	(c)	
Pr			4.7	(b)				
Nd			20	(b)	19	(c) 25.4	(c)	
Sm			5.61	(b)	5.9	(c) 7.01	(c)	6.7
Eu			1.09	(b)	1.17	(c) 1.27	(c)	1.24
Gd			7.55	(b)		8.8	(c)	
Tb			1.1	(b)	1.2	(c) 1.46	(c)	1.44
Dy			7.3	(b)	7.5	(c) 9.6	(c)	
Ho			1.81	(b)	1.9	(c)		
Er			5	(b)				
Tm			0.76	(b)				
Yb			4.62	(b)	4.45	(c) 5.05	(c)	4.9
Lu			0.72	(b)	0.58	(c) 0.71	(c)	0.71
Hf					4.8	(c) 5.4	(c)	5.1
Ta					0.54	(c)		0.54
W ppb								
Re ppb								
Os ppb								
Ir ppb					19	(c)	9.2	(e)
Pt ppb								
Au ppb					13.5	(c)	9.4	(e)
Th ppm	1.9	(a)	2.4	(b) 2.31	(d)			2.2
U ppm			0.63	(b) 0.57	(d)			0.67

technique: (a) XRF, (b) SSMS, (c) INAA, (d) radiation count. (e) RNAA, (f) IDMS

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