78555

Soil Breccia
6.64 g, 2.6 x 1.8 x 1.1 cm

INTRODUCTION

Sample 78555 is a very friable soil breccia that was collected as part of a large rake sample at Station 8 (Fig. 1).

PETROGRAPHY

Butler (1973) described 78555 as friable, medium grey, matrix-rich breccia with clasts generally of millimeter size composing less than 5%. Small clasts are generally white plagioclase, mare basalt, black aphanite, and orange glass.

Keil et al. (1974) and Warner et al. (1978f) included this sample in their catalogs. They noted that it was very porous and contained fine-grained breccia clasts, minor basalt fragments, and some agglutinates (which prove that it was a soil). Glass spherules and angular glass fragments are abundant.

Jerde et al. (1987) have determined the maturity (Is/FeO) of 78555 to be that of a submature soil.

MINERAL CHEMISTRY

Warner et al. (1979) have studied the glass compositions in 78555.

WHOLE-ROCK CHEMISTRY

Jerde et al. (1987) have reported the chemical composition of 78555 (Table 1 and Fig. 3). It has a TiO2 content about half that of the local soil and may be another soil breccia from upslope on the Sculptured Hills.

Figure 1: Photograph of 78555. Scale is 1 cm. S73-21021.

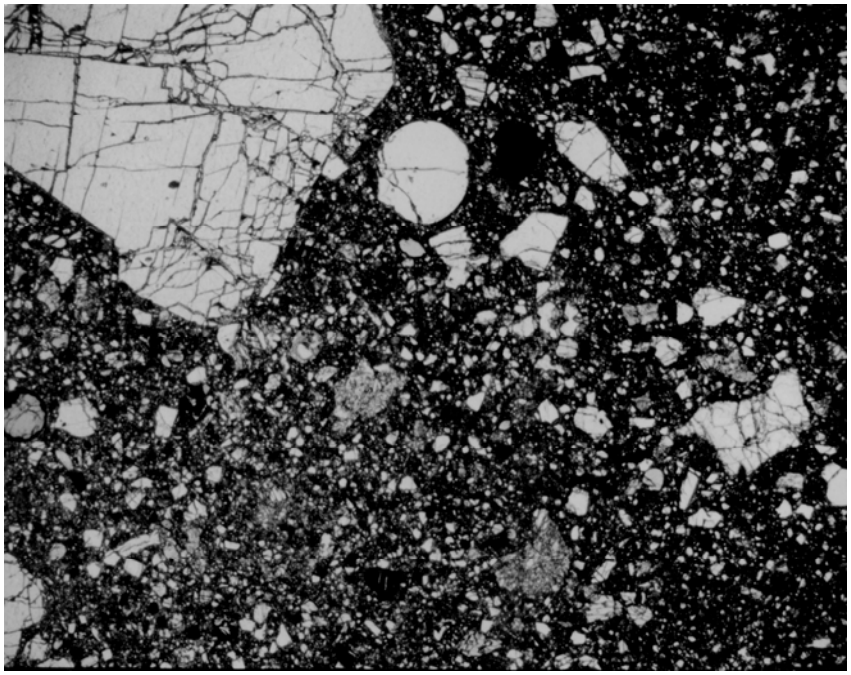

Figure 2: Photomicrograph of thin section of 78555,4. Field of view is 3 x 4 mm.

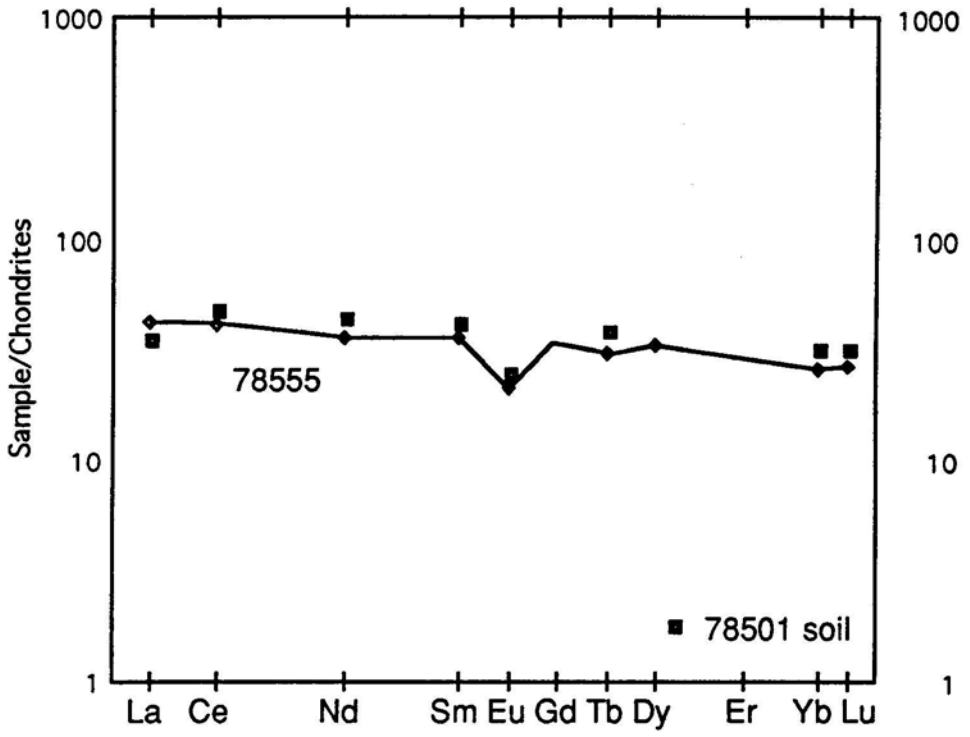

Figure 3: Normalized rare earth element diagram for 78555. Data from Jerde et al. (1987). Data for 78501 soil are for comparison.

Table 1: Whole-rock chemistry of 78555.
From Jerde et al. (1987).

Split Technique	,6 INAA	Split Technique	,6 INAA
SiO_2 (wt%)	44.51	Ni	260
TiO_2	2.42	Co	35.6
Al_2O_3	17.97	Sc	
Cr_2O_3	0.35	La	9.9
FeO	9.90	Ce	25
MnO	0.15	Nd	16
MgO	11.27	Sm	5.3
CaO	11.49	Eu	1.17
Na_2O	0.39	Gd	
K_2O	0.11	Tb	1.1
Nb (ppm)		Dy	8.1
Zr	180	Er	
Hf	3.7	Yb	4.2
Ta	0.56	Lu	0.65
U	0.53	Ga	4.2
Th	1.86	Ge (ppb)	
Sr	160	Ir	11
Ba	130	Au	3.3
Cs	0.55		