63556

Poikilitic Impact Melt Breccia

18.1 grams

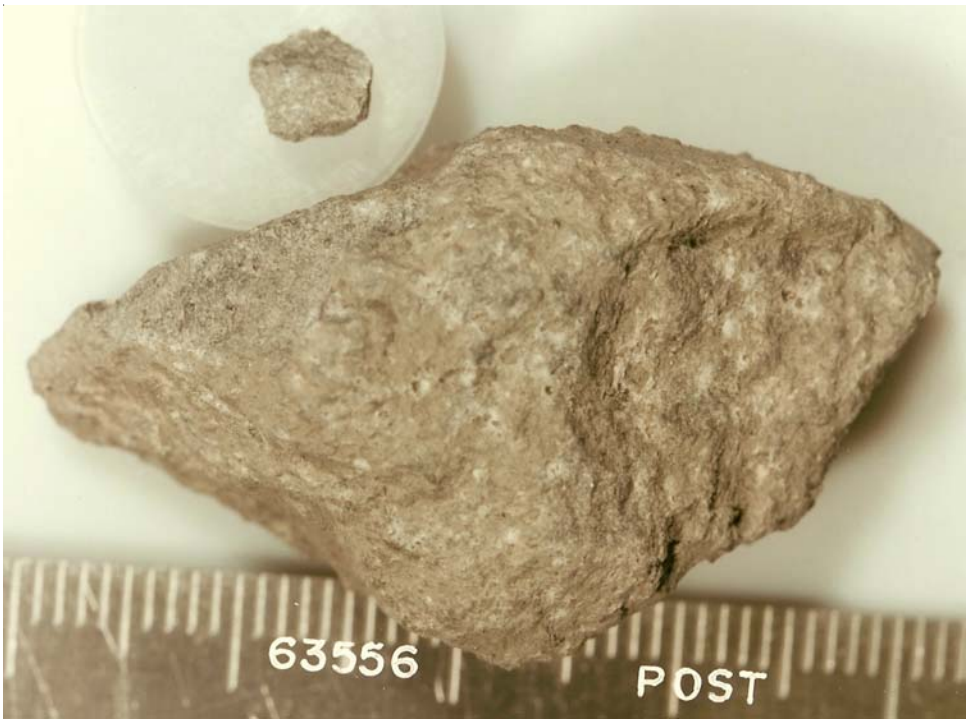

Figure 1: Photo of 63556. Scale is cm/mm. S72-55401

Introduction

63556 was collected as a rake sample from station 13, on the flank of North Ray Crater – see section on 63500. It is a poikilitic impact melt with the bulk composition of KREEP. It has a few micrometeorite zap pits (figure 1).

Petrography

This rake sample is similar in texture and composition with 62235. It is holocrystalline with a patchy network of pyroxene oikocrysts enclosing a few fragments of plagioclase (figures 2 and 3). Ilmenite is concentrated between pyroxene oikocrysts (Warner et al. 1973; Simonds et al. 1973).

Pyroxene: Simonds et al. (1973) reported the composition of pyroxene ($Wo_7En_{73}Fs_{20}$).

Chemistry

This rake sample is very KREEPy (table 1 and figure 4).

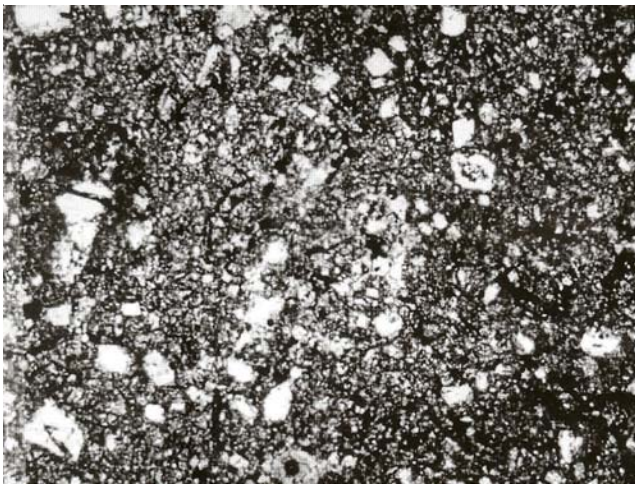

Figure 2: Photomicrograph of thin section 63556

Mineralogical Mode 63556

	Simonds et al. 1973
Plagioclase	68 %
Pyroxene	29
Olivine	2
Opaques	1

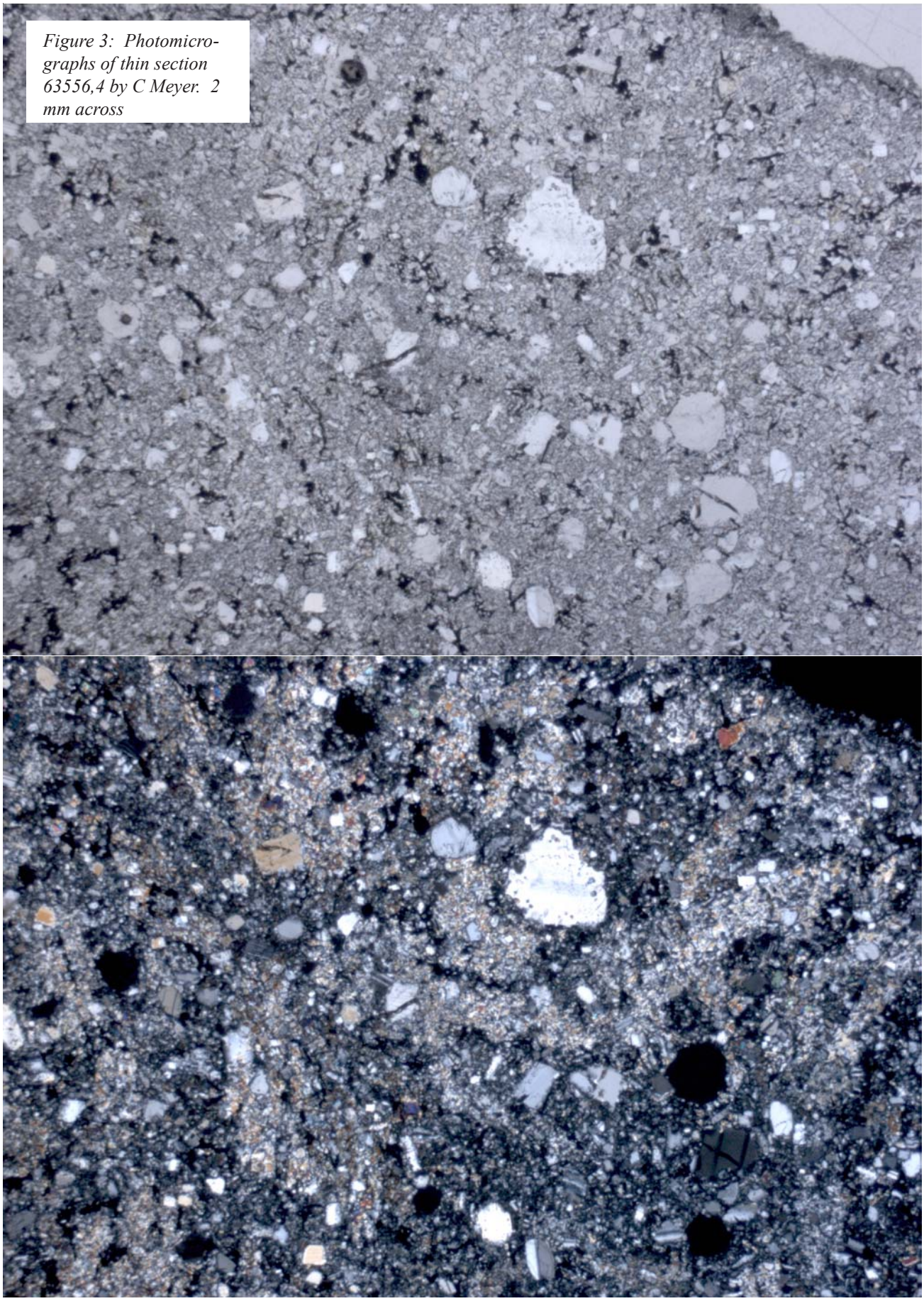

Figure 3: Photomicrographs of thin section 63556,4 by C Meyer. 2 mm across

Table 1. Chemical composition of 63556

reference	Stoffler85		Wasson77		
weight					
SiO2 %	47.2	(b)			
TiO2	0.65	(b)	1.17	1.2	(a)
Al2O3	23.4	(b)	19.6	19.6	(a)
FeO	5.3	(b)	8.2	8.7	(a)
MnO	0.06	(b)	0.1	0.1	(a)
MgO	7.2	(b)	10.3	10.3	(a)
CaO	14.6	(b)	12	11.7	(a)
Na2O	0.57	(b)	0.59	0.58	(a)
K2O	0.44	(b)	0.34	0.37	(a)
P2O5	0.35	(b)			
S %					
sum					
Sc ppm			15.7	15	(a)
V			35	34	(a)
Cr			1250	1190	(a)
Co			26.7	55	(a)
Ni			346	730	(a)
Cu					
Zn					
Ga			4.7		(a)
Ge ppb			850		(a)
As					
Se					
Rb					
Sr					
Y					
Zr			800	720	(a)
Nb					
Mo					
Ru			43		(a)
Rh					
Pd ppb					
Ag ppb					
Cd ppb					
In ppb			0.12		(a)
Sn ppb					
Sb ppb					
Te ppb					
Cs ppm					
Ba			550	500	(a)
La			55.1	51.6	(a)
Ce			128	128	(a)
Pr					
Nd			80	77	(a)
Sm			23.1	22.3	(a)
Eu			2.01	1.86	(a)
Gd					
Tb			4.6	4.5	(a)
Dy			30	27	(a)
Ho					
Er					
Tm					
Yb			16.4	15.5	(a)
Lu			2.28	2.18	(a)
Hf			17.4	17.2	(a)
Ta			1.8	1.8	(a)
W ppb					
Re ppb					
Os ppb					
Ir ppb			13	20	(a)
Pt ppb					
Au ppb			5.5	13	(a)
Th ppm			8.3	8.2	(a)
U ppm			2.2	2	(a)

technique: (a) INAA+RNAA, (b) broad-beam elec. Probe

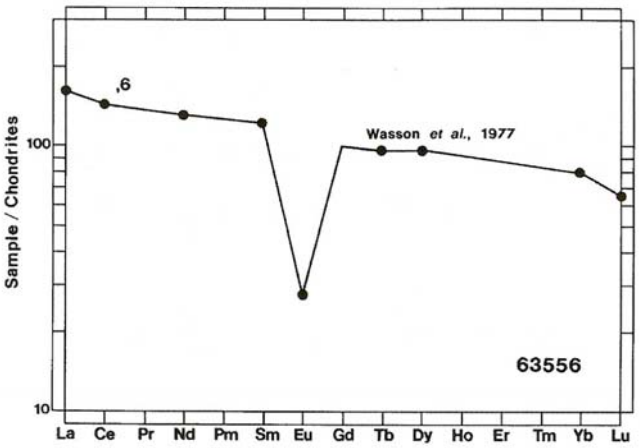

Figure 4: Normalized rare-earth-element diagram for 63556 (from Ryder and Noram 1980).

Radiogenic age dating

Borchardt et al. (1986) reported an Ar/Ar plateau age of 2.15 b.y. (generally samples of this type are 3.9 b.y.).

Cosmogenic isotopes and exposure ages

Borchardt et al. (1986) reported an ^{38}Ar exposure age of 9 m.y.

Processing

There are two thin sections of 63556.

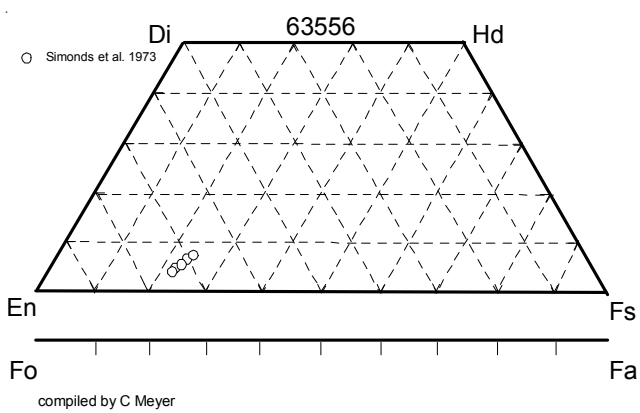

Figure 5: Composition diagram for pyroxene in 63556 (data from Simonds et al. 1973).

References for 63556

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