

67747
Highland Basalt
 6.3 grams



Figure 1: Photo of 67747. mm scale. S72-49576

Mineralogical Mode 67747

	Reimold et al. 1985
Plagioclase	67.2
Pyroxene	8
Olivine	16.3
Opaque	1.5

Introduction

67747 is a rake sample collected from the rim of North Ray Crater – see section on 67701. It is a small aluminous basalt with measured age of 3.86 b.y. (Imbrium ?). It has a KREEP-like REE pattern. Vesicles and zap pits can be seen in figure 1.

Petrography

Reimold et al. (1985) and Stoffler et al. (1985) studied this small basalt. Elongate plagioclase and pyroxene laths are poikilitically enclosed in large olivine. Glassy mesostasis is found adjacent to pyroxene. Mineral analyses were reported by Steele and Smith (1973).

Chemistry

Stoffler et al. (1985) reported a major element analysis and the REE diagram for 67747 (figure 5). Reimold et al. (1986) also reported Rb, Sr, Sm and Nd.



Figure 2a: Thin section photo (crossed-nicols) of 67747,1,

Summary of Age Data for 67747

	Rb/Sr	Sm-Nd
Reimold et al. 1985	3.86 ± 0.05 b.y.	3.6 +/- 0.4

Caution: Changing decay constants.

Radiogenic age dating

Reimold et al. (1985) determined an age of 3.86 ± 0.05 b.y. by Rb-Sr internal isochron, but were unable to date it precisely by Sm-Nd (figure 4 a,b).

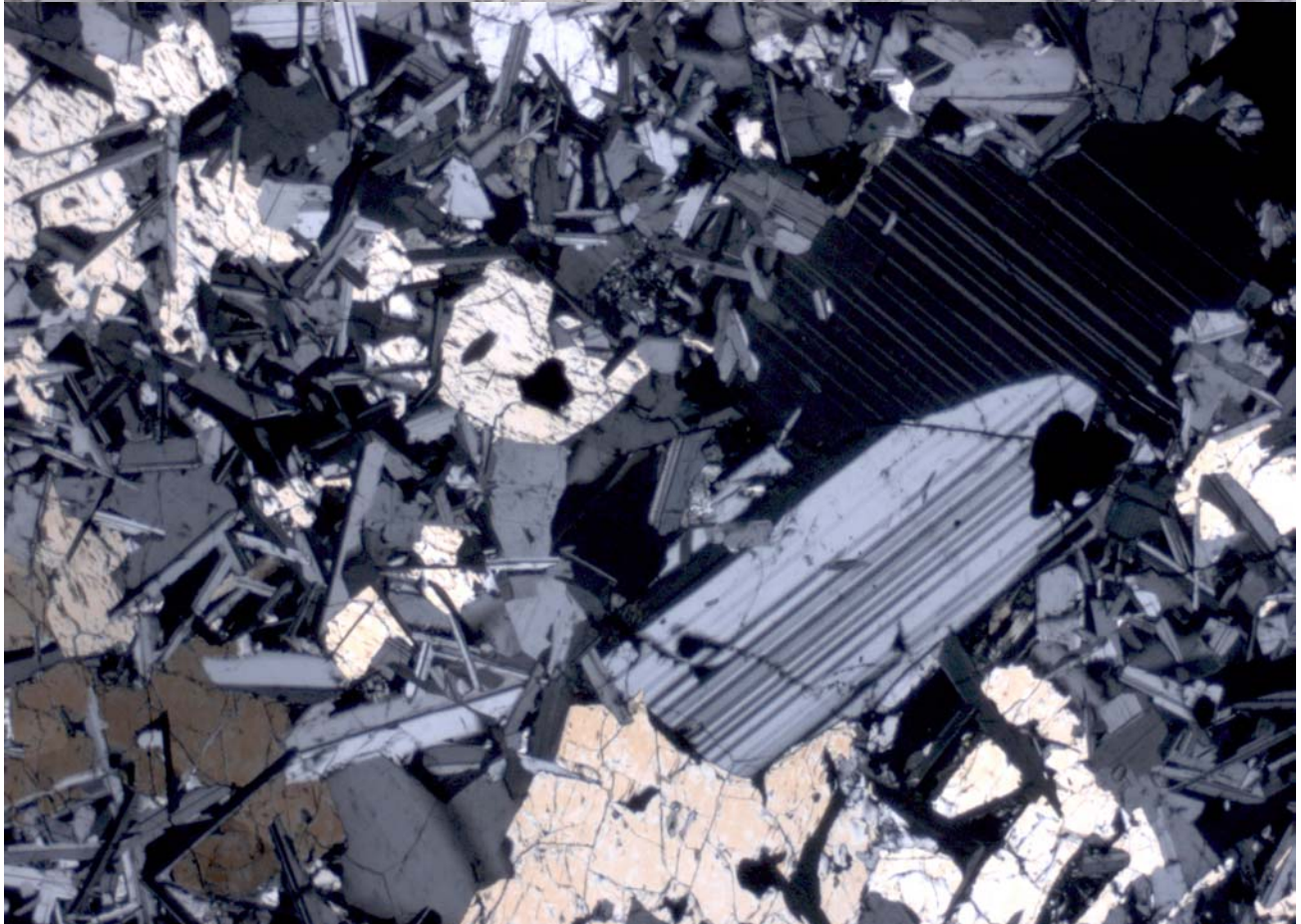
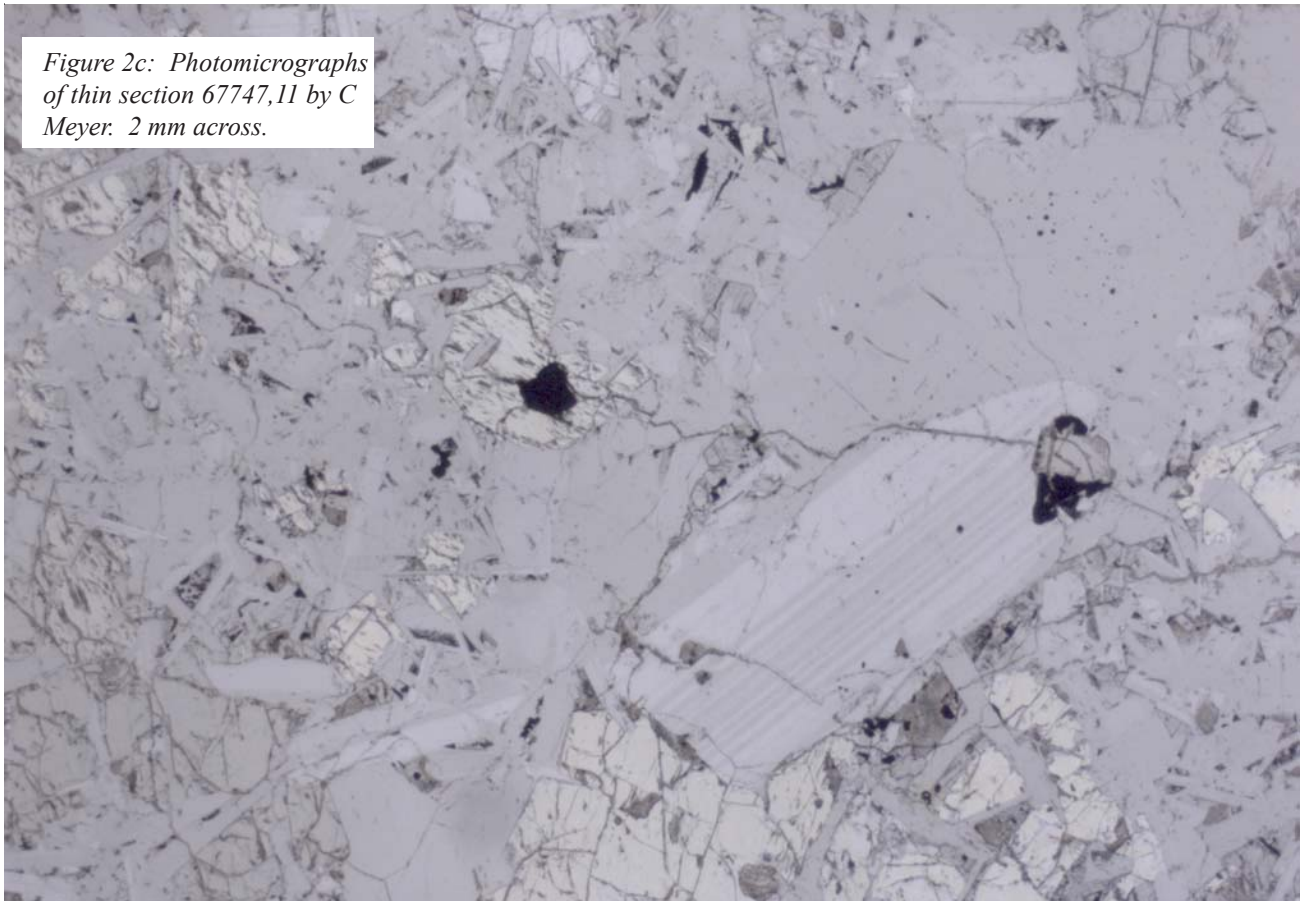
Processing

There are 3 thin sections.

Figure 2b: C Meyer managed to capture the spirit of 67747. 2 mm across



Figure 2c: Photomicrographs of thin section 67747,11 by C Meyer. 2 mm across.



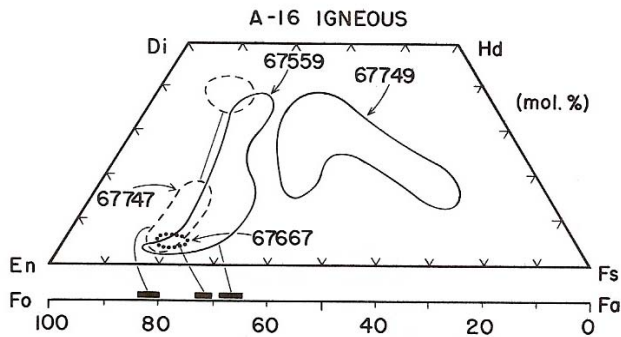


Figure 3: Composition of pyroxene and olivine in 67747 and other rake samples (Steele and Smith 1973).

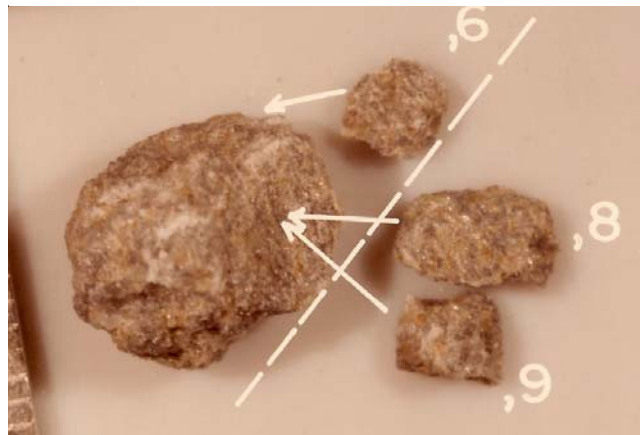


Figure 6: Processing photo of 67747.

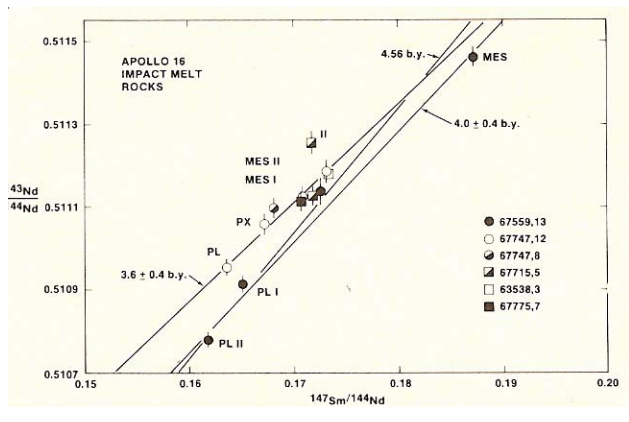
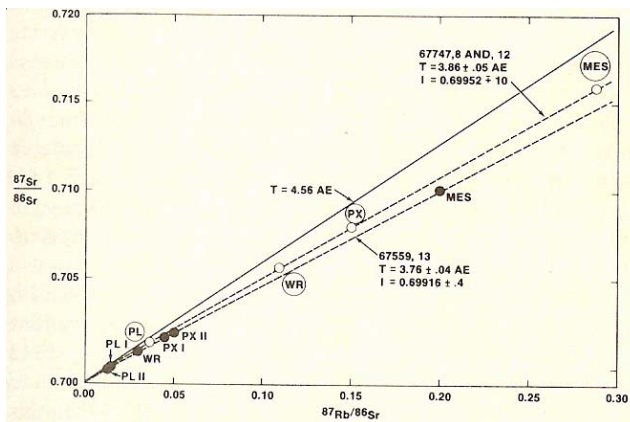


Figure 4 a, b: Rb/Sr and Sm/Nd intercal isochrons for 67747 (Reimold et al. 1985).

References for 67747

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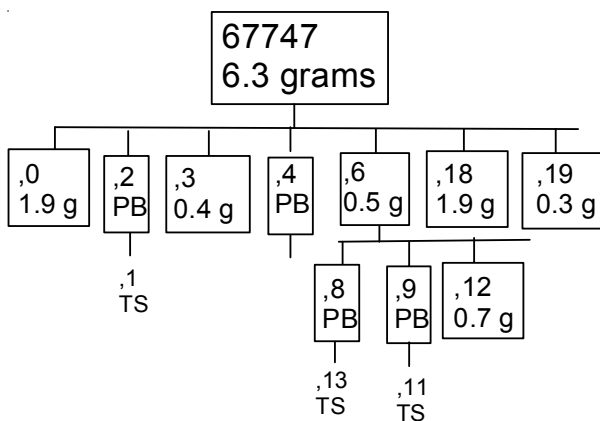


Table 1. Chemical composition of 67747.

reference weight	Stoffler85	
SiO2 %	46	46.5 (a)
TiO2	0.37	0.31 (a)
Al2O3	25.9	23.2 (a)
FeO	2.78	3.6 (a)
MnO	0.04	0.04 (a)
MgO	7.9	10.6 (a)
CaO	16	14.4 (a)
Na2O	0.58	0.69 (a)
K2O	0.39	0.36 (a)
P2O5	0.13	0.16 (a)
Sc ppm	7.79	(b)
Co	17.3	(b)
Ni	237	(b)
Ba	168	(b)
Sm	8.36	(b)
Yb	5.52	(b)

technique: (a) DBA, (b) INAA

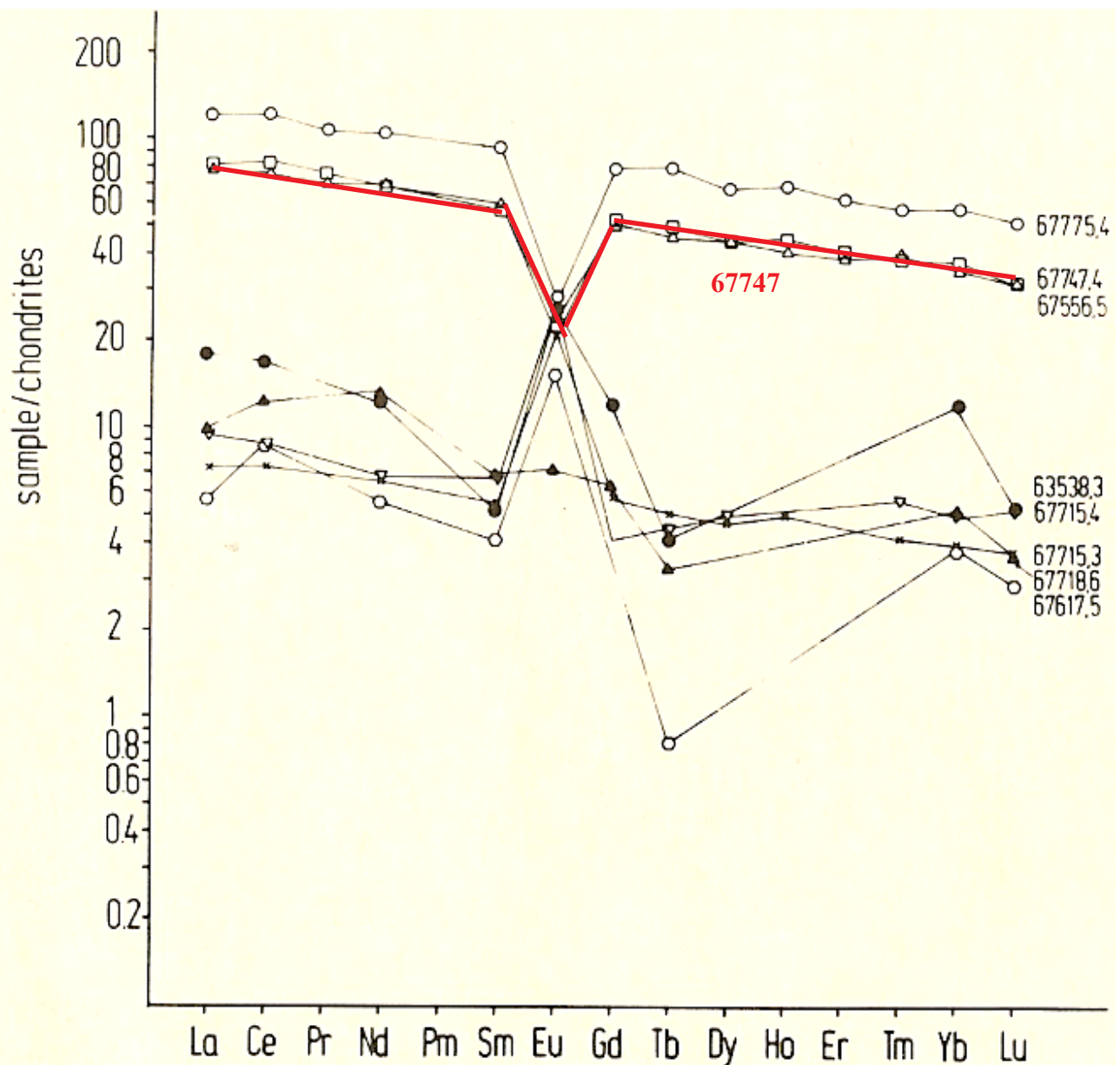


Figure 5: Normalized rare-earth-element diagram for 67747 (Stoffler et al. 1985).

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Steele I.M. and Smith J.V. (1973) Mineralogy and petrology of some Apollo 16 rocks and fines: General petrologic model of the moon. *Proc. 4th Lunar Sci. Conf.* 519-536.

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Sutton R.L. (1981) Documentation of Apollo 16 samples. In *Geology of the Apollo 16 area, central lunar highlands.* (Ulrich et al.) U.S.G.S. Prof. Paper 1048.