

71588
Ilmenite Basalt
49 grams



Figure 1: Photo of 71588 with mm scale. S73-33432

Introduction

71588 is an olivine-microporphyrritic ilmenite basalt similar to 77516 (Warner et al. 1978). It has a smooth rounded surface with micrometeorite pits including one large pit that nearly broke the sample (figure 1).

71525 - 71596 etc. are rake samples collected as part of a comprehensive sample at station 1, taken near Steno Crater, Apollo 17.

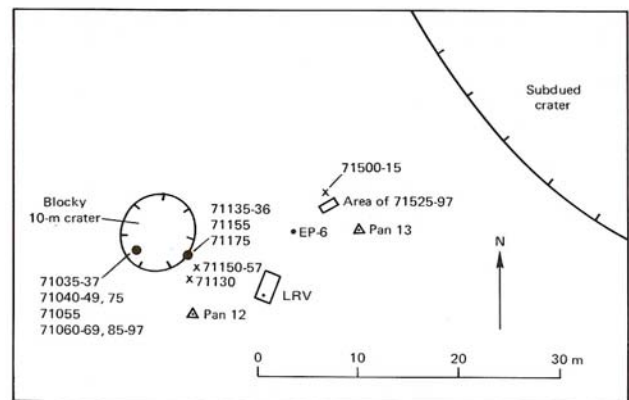


Figure 2: Map of station 1 showing location of rake samples.

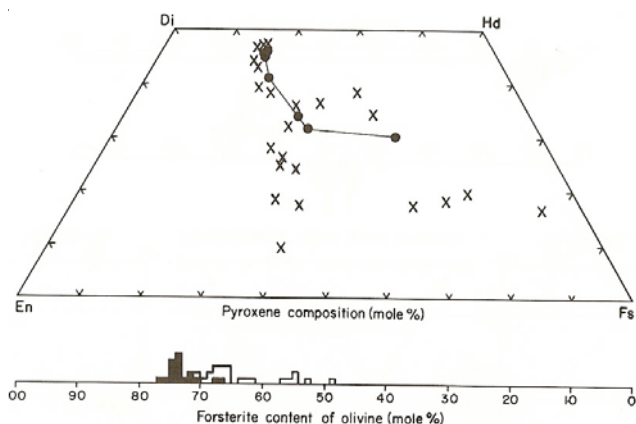


Figure 3: Composition of olivine and pyroxene in 71588. Core olivine is Mg-rich, and pyroxene zone to Fe-rich (Warner et al. 1978).

Petrography

71588 is medium-grained with texture gradational from granular to variolitic. It has large (2 mm) olivine phenocrysts with large chromite-ulvospinel inclusions. Pyroxene is sector-zoned with high Fe enrichment (Warner et al. 1976). It also has silica, armalcolite and metallic iron (Warner et al. 1976).

Chemistry

Warner et al. (1975) give an analysis (table 1, figures 5 and 6). Neal and Taylor (1993) classify 71588 as a type B2 Apollo 17 basalt by trace elements.

Radiogenic age dating

none

Processing

There is only one thin section.

References for 71588

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Warner R.D., Keil K., Prinz M., Laul J.C., Murali A.V. and Schmitt R.A. (1975b) Mineralogy, petrology, and chemistry of mare basalts from Apollo 17 rake samples. *Proc. 6th Lunar Sci. Conf.* 193-220.

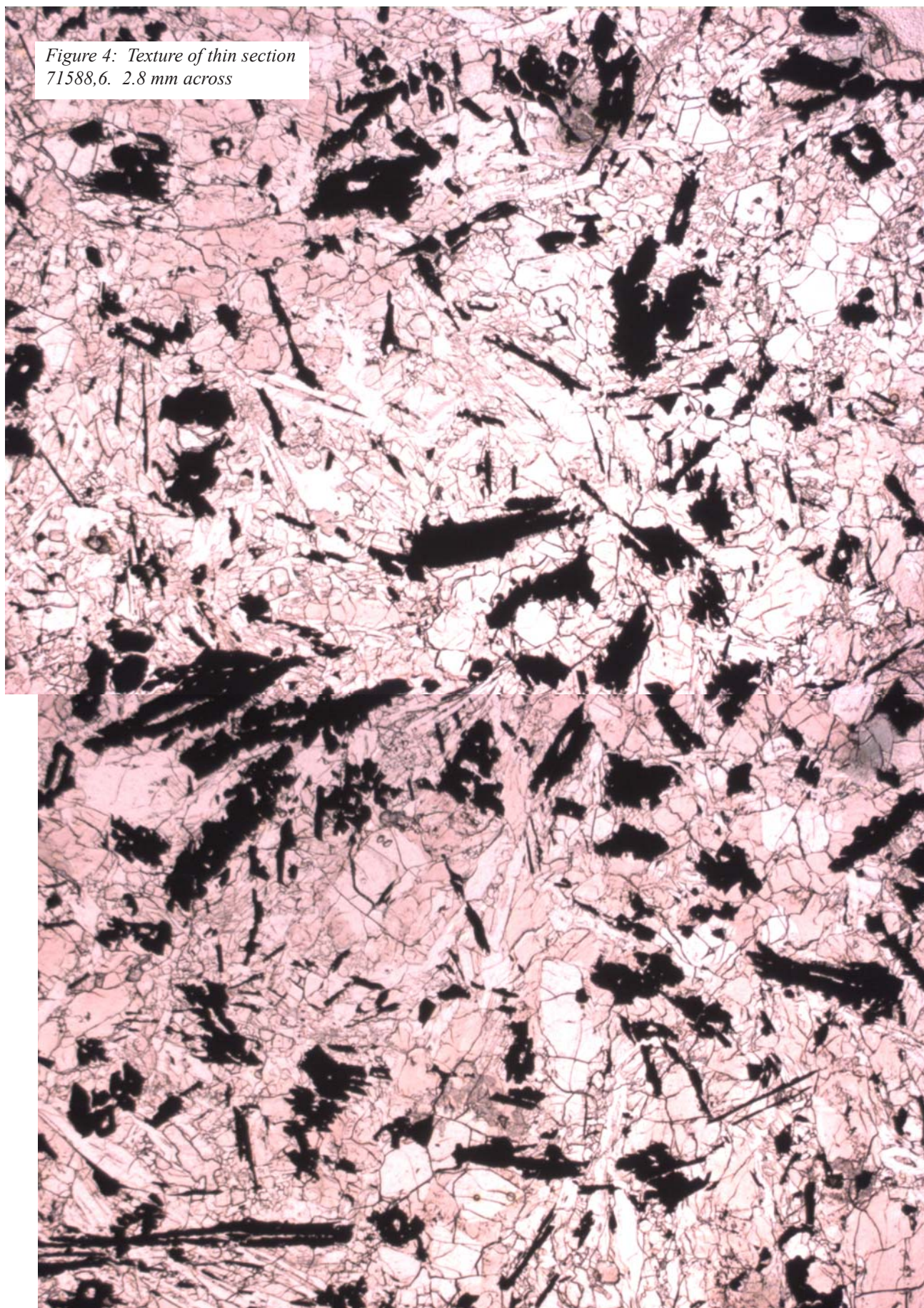
Warner R.D., Warren R.G., Mansker W.L., Berkley J.L. and Keil K. (1976a) Electron microprobe analyses of olivine, pyroxene and plagioclase from Apollo 17 rake sample mare basalts. Spec. Publ. # 15, UNM Institute of Meteoritics, Albuquerque. 158 pp.

Warner R.D., Berkley J.L., Mansker W.L., Warren R.G. and Keil K. (1976b) Electron microprobe analyses of spinel, Fe-Ti oxides and metal from Apollo 17 rake sample mare basalts. Spec. Publ. #16, UNM Institute of Meteoritics, Albuquerque. 114 pp.

Warner R.D., Keil K., Nehru C.E. and Taylor G.J. (1978) Catalogue of Apollo 17 rake samples from Stations 1a, 2, 7, and 8. Spec. Publ. #18, UNM Institute of Meteoritics, Albuquerque. 88 pp.

Warner R.D., Nehru C.E. and Keil K. (1978g) Opaque oxide mineral crystallization in lunar high-titanium basalts. *Am.*

*Figure 4: Texture of thin section
71588,6. 2.8 mm across*



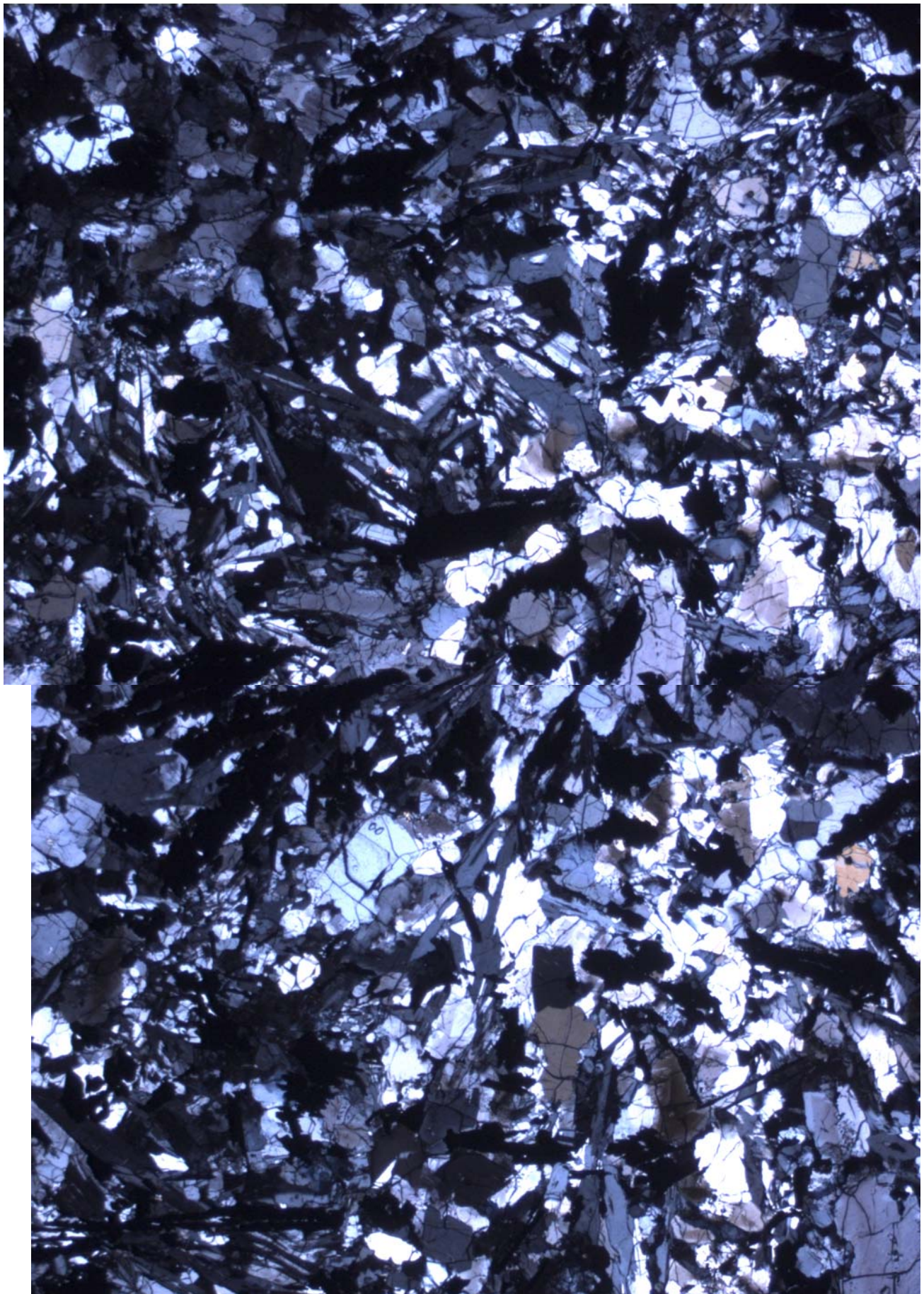


Table 1. Chemical composition of 71588.

reference	Warner78	
weight	Warner75	
SiO ₂ %		
TiO ₂	12	(a)
Al ₂ O ₃	8.4	(a)
FeO	19.9	(a)
MnO	0.244	(a)
MgO	8	(a)
CaO	10.1	(a)
Na ₂ O	0.35	(a)
K ₂ O	0.04	(a)
P ₂ O ₅		
S %		
sum		
Sc ppm	79	(a)
V	110	(a)
Cr	2874	(a)
Co	23.1	(a)
Ni		
Cu		
Zn		
Ga		
Ge ppb		
As		
Se		
Rb		
Sr		
Y		
Zr		
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb		
In ppb		
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm		
Ba		
La	4.9	(a)
Ce	18	(a)
Pr		
Nd		
Sm	6.1	(a)
Eu	1.3	(a)
Gd		
Tb	1.7	(a)
Dy	11	(a)
Ho		
Er		
Tm		
Yb	6.2	(a)
Lu	0.91	(a)
Hf	6	(a)
Ta	1.4	(a)
W ppb		
Re ppb		
Os ppb		
Ir ppb		
Pt ppb		
Au ppb		
Th ppm		
U ppm		
technique:	(a) INAA	

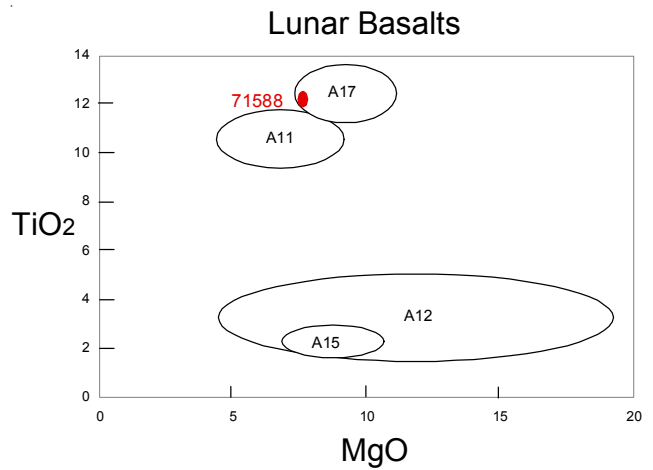


Figure 5: Composition of 71588 compared with other lunar basalts.

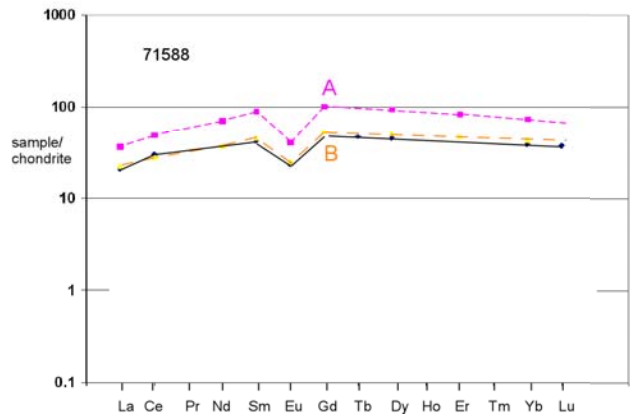


Figure 6: Normalized rare-earth-element diagram for 71588 and type A and B basalts.

