

14309
Regolith Breccia
42.4 grams



Figure 1: Two views of 14309. Sample is 5 cm long. Photos copied from Polaroids.

Introduction

14309 is a grab sample, collected somewhere along the traverse to Cone Crater (location unknown). It is a rounded vitric matrix breccia and has not been studied. There are glass-lined impact pits on the surface (figure 1).

Petrography

Thin sections show the matrix of 14309 is cemented by vesicular glass (figure 2). Chao et al. (1972) and Simonds et al. (1977) would consider this a glass-matrix regolith breccia.

Vaniman et al. (1981) found the glass had the composition of medium KREEP.

Chemistry

None

Processing

Sample 14309 was returned in weigh bag 1031 with other grab samples from EVA2.

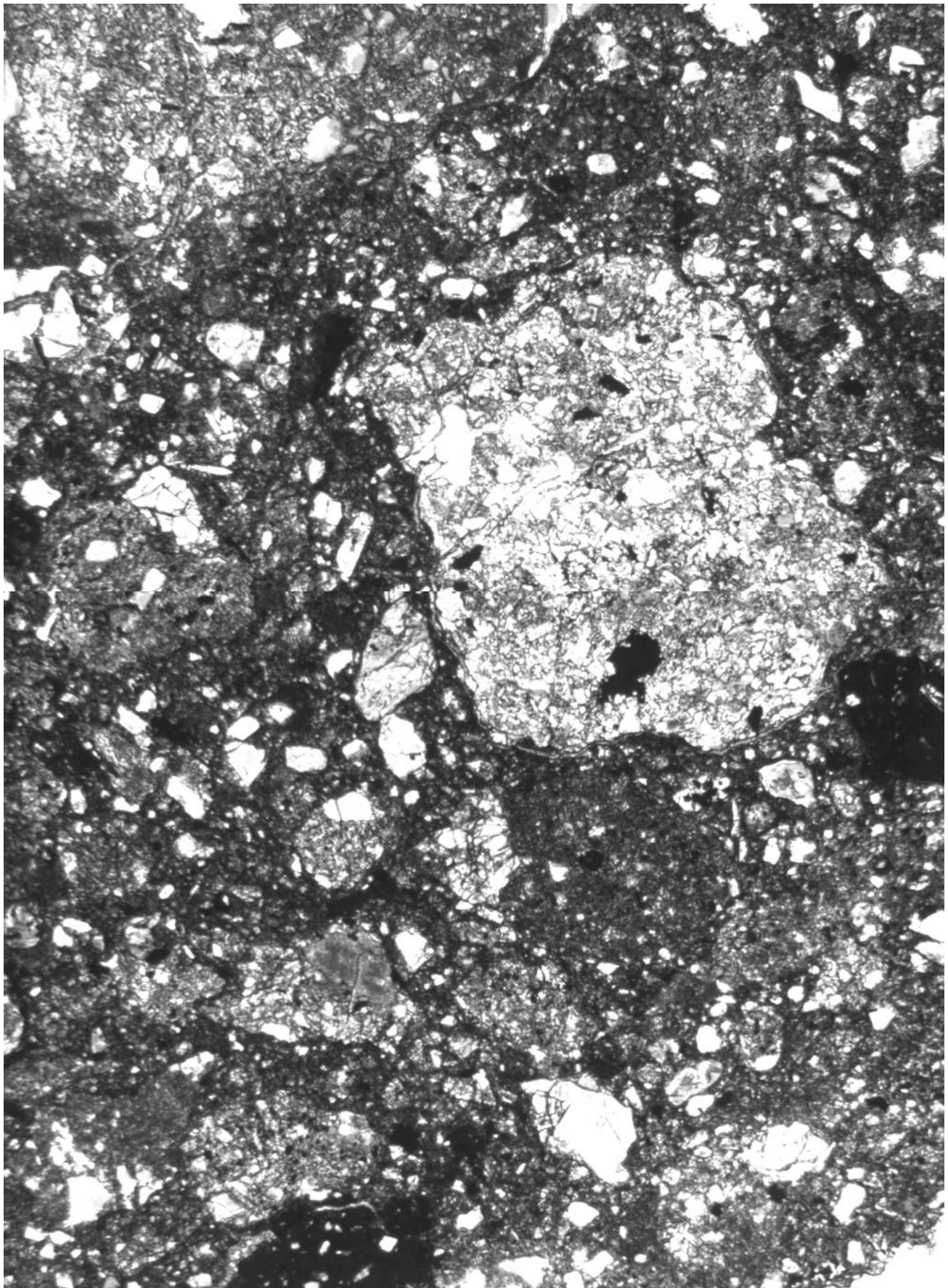
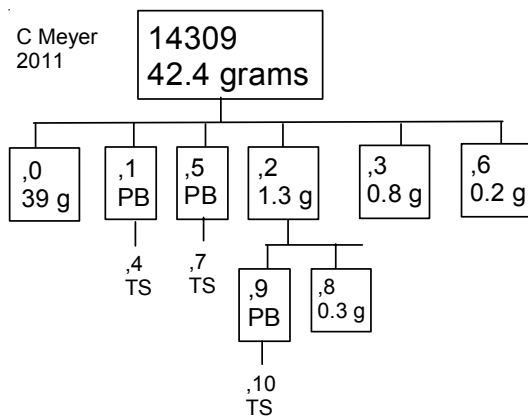


Figure 2: Photomicrograph of thin section 14309,7. Scale = 2.8 mm across. Photo by C Meyer



References for 14309

Carlson I.C. and Walton W.J.A. (1978) **Apollo 14 Rock Samples**. Curators Office. JSC 14240

Chao E.C.T., Minkin J.A. and Best J.B. (1972) Apollo 14 breccias: General characteristics and classification. *Proc. 3rd Lunar Sci. Conf.* 645-659.

Jerde E.A., Morris R.V. and Warren P.H. (1990) In quest of lunar regolith breccias of exotic provenance: a uniquely anorthositic sample from the Fra Mauro (Apollo 14) highlands. *Earth Planet. Sci. Lett.* **98**, 90-108.

LSPET (1971) Preliminary examination of lunar samples from Apollo 14. *Science* **173**, 681-693.

Simonds C.H., Phinney W.C., Warner J.L., McGee P.E., Geeslin J., Brown R.W. and Rhodes J.M. (1977) Apollo 14 revisited, or breccias aren't so bad after all. *Proc. 8th Lunar Sci. Conf.* 1869-1893.

Sutton R.L., Hait M.H. and Swann G.A. (1972) Geology of the Apollo 14 landing site. *Proc. 3rd Lunar Sci. Conf.* 27-38.

Swann G.A., Trask N.J., Hait M.H. and Sutton R.L. (1971a) Geologic setting of the Apollo 14 samples. *Science* **173**, 716-719.

Swann G.A., Bailey N.G., Batson R.M., Eggleton R.E., Hait M.H., Holt H.E., Larson K.B., Reed V.S., Schaber G.G., Sutton R.L., Trask N.J., Ulrich G.E. and Wilshire H.G. (1977) Geology of the Apollo 14 landing site in the Fra Mauro Highlands. U.S.G.S. Prof. Paper 880.

Swann G.A., Bailey N.G., Batson R.M., Eggleton R.E., Hait M.H., Holt H.E., Larson K.B., McEwen M.C., Mitchell E.D., Schaber G.G., Schafer J.P., Shepard A.B., Sutton R.L., Trask N.J., Ulrich G.E., Wilshire H.G. and Wolfe E.W. (1972) 3. Preliminary Geologic Investigation of the Apollo 14 landing site. *In* Apollo 14 Preliminary Science Rpt. NASA SP-272. pages 39-85.

Twedell D., Feight S., Carlson I. and Meyer C. (1978) **Lithologic maps of selected Apollo 14 breccia samples**. Curators Office. JSC 13842

Vaniman D.T. (1990) Glass variants and multiple HASP trends in Apollo 14 regolith breccias. *Proc. 20th Lunar Planet. Sci. Conf.* 209-217.

Warner J.L. (1972) Metamorphism of Apollo 14 breccias. *Proc. 3rd Lunar Sci. Conf.* 623-643.

Williams R.J. (1972) The lithification of metamorphism of lunar breccias. *Earth Planet. Sci. Lett.* **16**, 250-256.

Wilshire H.G. and Jackson E.D. (1972) Petrology and stratigraphy of the Fra Mauro Formation at the Apollo 14 site. U.S. Geol. Survey Prof. Paper 785.