Reference List

NWA7034 - 320 grams
Brecciated Shergottite

Draft

Figure 1: *Photo of sawn surface of NWA7034(from Agee et al. 2012).*

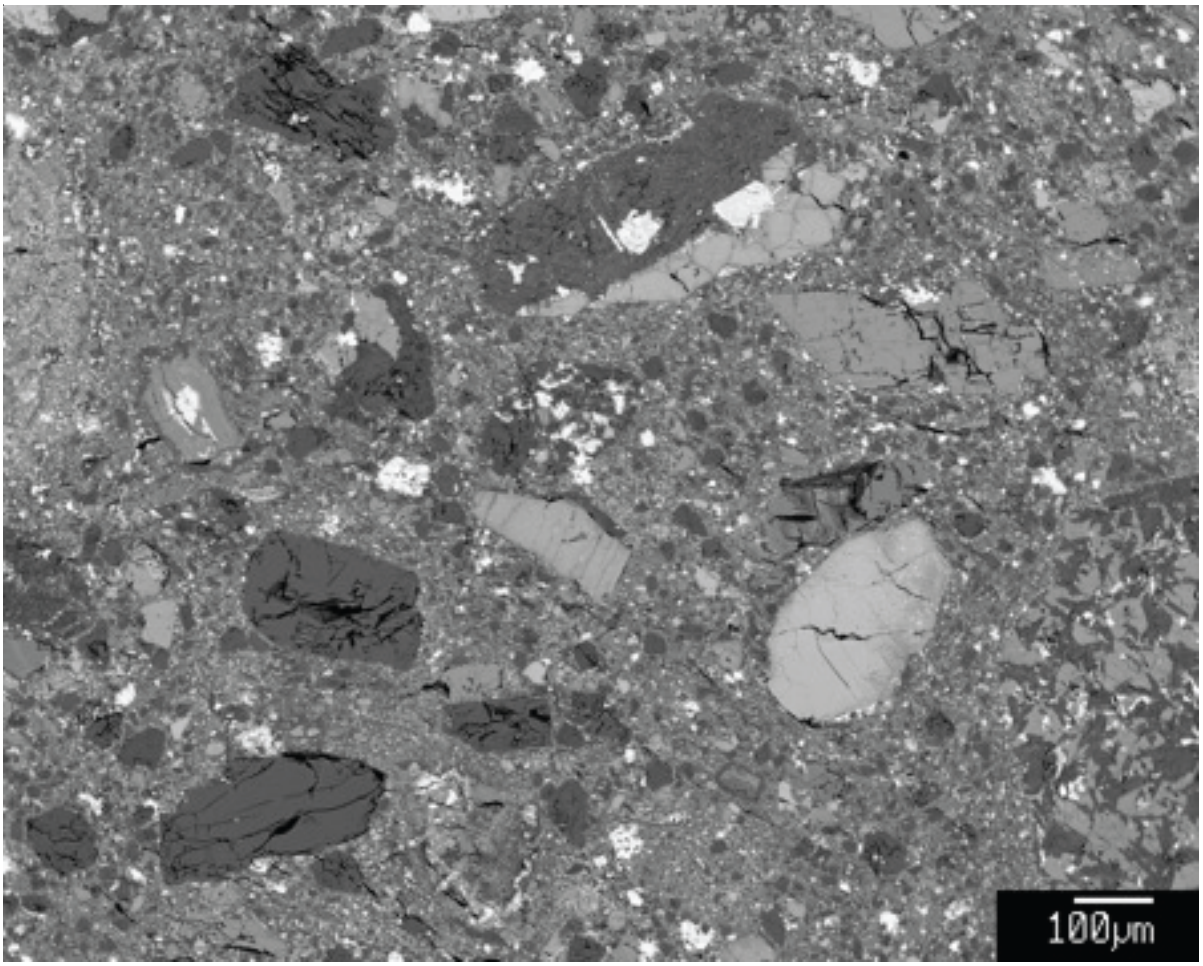

Figure 2: *BSE imageof thin section of NWA7034showing clastic texture (from Agee et al. 2012). Note the fine-grain matrix.*

Introduction

NWA7034 is a water-rich breccia from Mars (Agee *et al.* 2012). It has unusually high, fractionated oxygen isotope ratios. It has a smooth surface (figure 1) and a clastic interior (figure 2).

Petrography

Agee et al. (2012) described NWA7034 as a "porphyritic basaltic breccia with phenocrysts of dominant andesine, low-Ca pyroxene, pigeonite and augite set in a very fine-grained, clastic to plumose, groundmass with abundant magnetite". It also has "accessory sanidine, anorthoclase, apatite, chromite, ilmenite and pyrite".

Clast varieties include "gabbros, apatite-ilmenite-Kspar clusters, quenched melts, and magnetite-rich reaction spherules". (It is something else!)

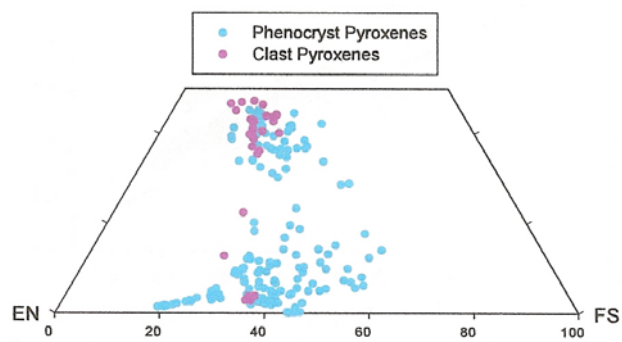

Figure 3: *Composition of pyroxene in NWA7034 (from Agee et al. 2012).*

All kinds of pyroxene are reported (figure 3). Mn/Fe ratios verify Martian origin.

References for NWA7034

Figure 4*: Photo of NWA7034 after first slice removed. Cm cube for scale (and orientation).*