NWA4222 - 16.55 grams

DRAFT

Olivine-phyric Shergottite

Figure 1: *Photo of sawn surface of NWA 4222(by Matteo).*

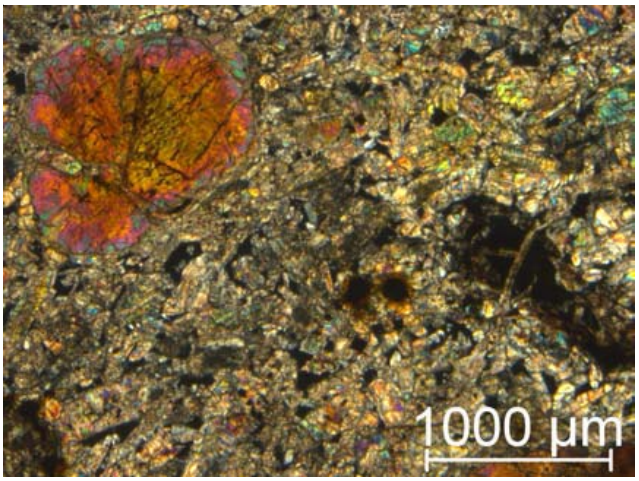

Figure 2: *Thin section photo for NWA 4222 - large grain is olivine (from Moggi-Cecchi et al. 2009).*

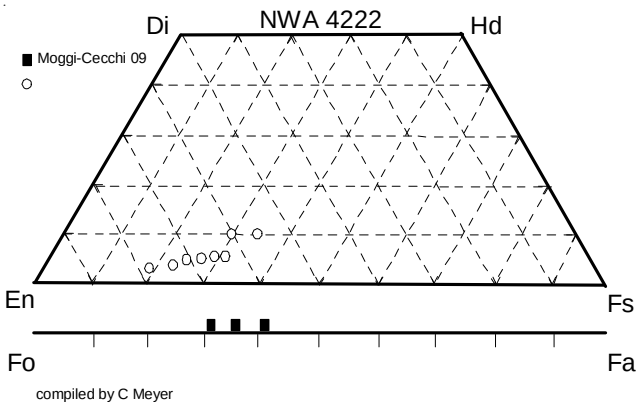

Figure 3: Composition of mafic phases in NWA 4222.

Introduction

NWA 4222 was purchased in Erfoud, Morocco in 2006 (figure 1). Oxygen isotopes prove it is martian in origin, but not much else is known.

Petrography

Moggi-Cecchi et al. (2009) gave the following description of NWA4222: *"NWA 4222 shows a cumulitic fine-grained texture consisting of very large rounded phenocrysts of brown olivine set in a fine grained basaltic groundmass of twinned tabular pyroxene crystals surrounded by interstitial glassy matrix (figure 2)"*. Opaque phase include chromite, titanium chromite and ilmenite. Merrillite and pyrrhotite are also reported. Evidence for shock includes strong mosaicism, planer features in olivine, glassy plagioclase and glass "fringes" around mafic phases.

Chemistry

Not yet

Radiogenic age dating

Not yet

Cosmogenic isotopes and exposure ages

Not yet

Other Studies

Oxygen isotopes were determined by Franchi and reported in Moggi-Cecchi et al. (2009). Delta ^{17}O is 0.3 ‰.

References for NWA 4222

Moggi-Cecchi V., Pratesi G., Fanchi I.A. and Greenwood R.C. (2009) Textural and compositional features of NWA 4222, a new Martian meteorite (abs#1387). *Lunar Planet. Sci.* **XL**, Lunar Planetary Institute @ The Woodlands.

Weisberg M.K. et al. (2008a) Met. Bull. #94. *Meteorit. & Planet. Sci.* **43**, 1551-1588.