XXIX. NWA 1669 (ver. 2003)

basalt
35.85 grams

Figure XXIX- 1. *Photograph of NWA 1669 by Bruno Fectay and Carine Bidaut.*

Introduction

NWA 1669 was purchased in Erfoud, Morroco, January 2001 by Bruno Fectay and Carine Bidaut and has been referred to as "Al Mala'ika" (Russell *et al.* 2003). It is covered with desert varnish and has only a few patches of fusion crust.

Petrography

Jambon *et al.* (2003) report that NWA 1669 is a fine-grained basaltic rock with two closely "intricated" pyroxenes (pigeonite and augite) with plagioclase that has been converted into maskelynite. Texture is that of a basalt (figure XXIX-2). Accessory minerals include merrilite, Cl-apatite, pyrrotite, ulvöspinel, ilmenite, silica and baddeleyite.

Mineral Chemistry

Pyroxenes: Pigeonite Wo_{9-19} En_{58-25} Fs_{32-61}.
Augite Wo_{39-24} En_{47-19} Fs_{54-18}.
FeO/MnO = 34.

Maskelynite: Ab_{41-53} Or_{1-6} An_{58-42}.

Whole-rock Composition

See figure XXIX-3.

Terrestrial calcite (calichi) is present as veins cross-cutting the meteorite (Russell *et al.* 2003).

Other Isotopes

Oxygen isotopes have been reported by Jambon *et al.* (2003) ($\Delta^{17}O$= 0.30‰, $\delta^{17}O$= 2.85‰ and $\delta^{18}O$= 4.91‰).

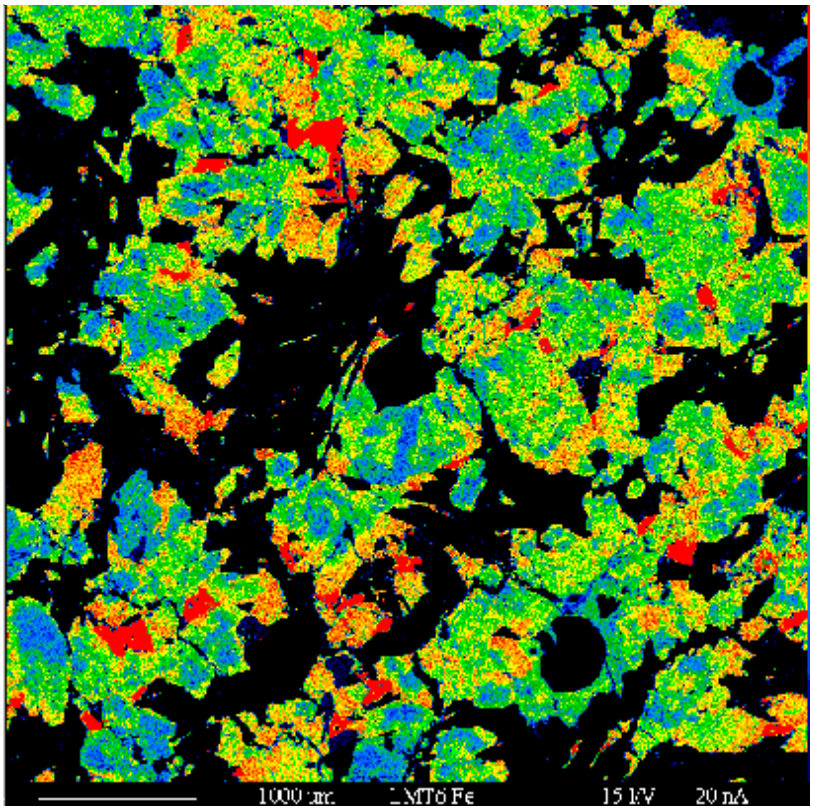

Figure XXIX-2: *X-ray map (Fe) of large area (4 mm field of view) of NWA1669 kindly provided by Jean-Alix Barrat and Marcel Bohn, showing intergrown maskeylnite (black), and two pyroxenes (colors).*

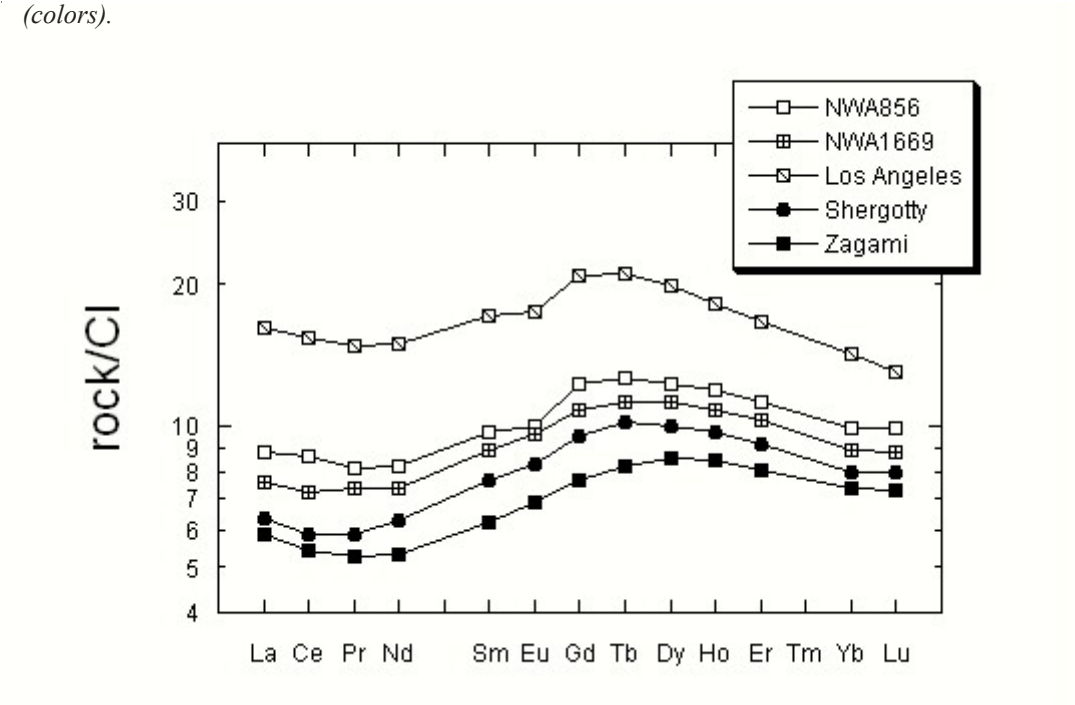

Figure XXIX-3: *REE diagram kindly provided by J-A Barrat, comparing NWA1669 with other basaltic shergottites.*