Dhofar 733

Anorthositic granulitic breccia

98 g

Figure 1: Dhofar 733 as found in the Dhofar region of Oman in 2002 (photo from Classen). Scale at right is in cm.

Introduction

Dhofar 733 (Fig. 1) was found in the Dhofar region of Oman in November 2002 (Figs. 2 and 3). The meteorite is a brownish grey stone without fusion crust, and exhibits moderate weathering with gypsum, smectite and Fe hydroxides present on the outside and along fractures (Russell et al., 2003).

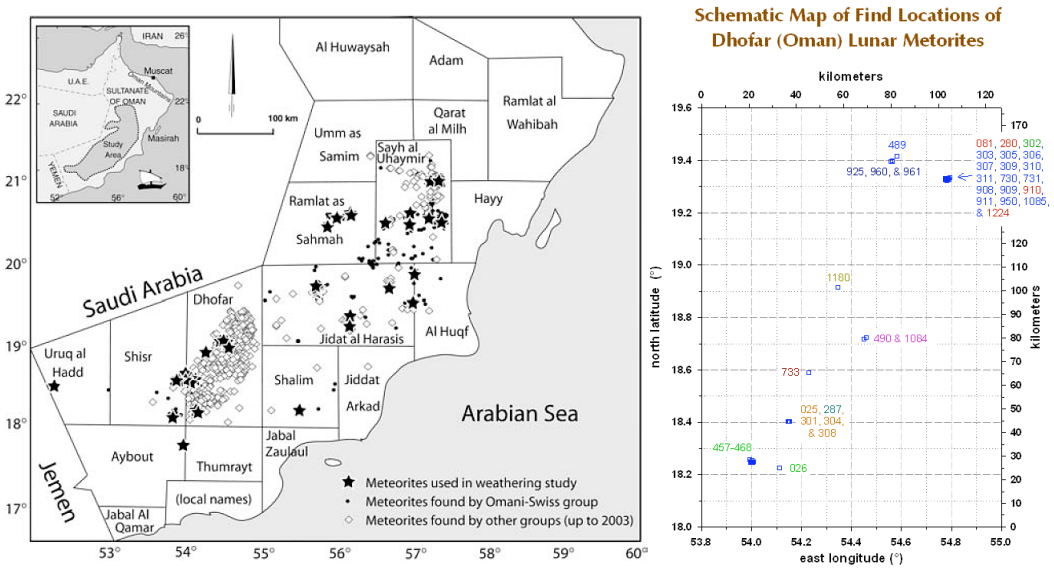

Figure 2 and 3: Location maps of the Dhofar region in Oman (from Al-Kathiri et al., 2005) and the specific coordinates for Dhofar 733 (purple just below center).

Petrography, mineralogy, and chemistry

This sample is fine grained and exhibits a granoblastic or poikiloblastic texture (Fig. 4) that includes lithologies such as anorthosite, troctolite, and gabbro-norite. Accessory phases include armalcolite, ilmenite, Al chromite, Ca phosphate, troilite and FeNi metal. Its high Al_2O_3 and low FeO and Th contents (R. Korotev, Lunar Meteorite website) indicate that Dhofar 733 is a feldspathic highlands breccia without basaltic or KREEP components as also indicated by its feldspathic mineralogy. A distinctive feature of this meteorite is it's ~2x higher Na and Eu than normal feldspathic meteorites (Korotev, 2007), consistent with its more albitic feldspar (An_{92}).

Figure 4: Cut slab face of Dhofar 733 illustrating its fine grained texture. Image from R. Korotev. Scale divisions are 1 mm.

Radiometric age dating

There are no known studies.

Cosmogenic exposure ages

There are no known studies.