Graves Nunataks 06157

Anorthositic breccia

0.8 g

Figure 1: Image taken of GRA 06157 as found in the field in the Trans Antarctic Mountains (photo courtesy of ANSMET).

Introduction

Grave Nunataks (GRA) 06157 is a very small meteorite (Fig. 1) found in the Transantarctic Mountains by the 2006-2007 ANSMET search team (Fig. 2). The exterior has no fusion crust and is a gray color with white and cream colored clasts. The interior is a gray matrix with white clasts throughout (Fig. 3).

Petrography

Thin sections show a groundmass of comminuted pyroxene, olivine and plagioclase with grain sizes up to 1 mm (Fig. 4). One-half of the section exhibits a darkened matrix. Olivine is $Fa_{7\text{-}54}$, pyroxene ranges from $Fs_{19\text{-}66}Wo_{2\text{-}45}$ (Fe/Mn ~ 60), and plagioclase $An_{94\text{-}97}$. The mineralogy and Fe/Mn ratios are consistent with this sample being an anorthositic regolith breccia (AMN, 30).

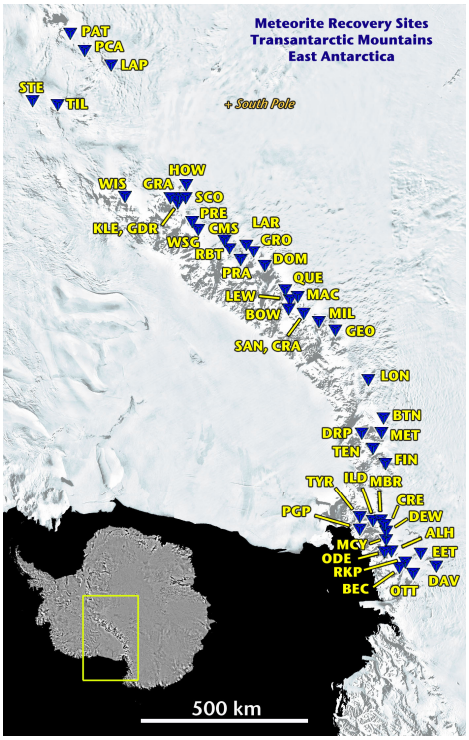

Figure 2: Location map of ANSMET regions, showing GRA at the northern end of the Trans Antarctic Mtns.

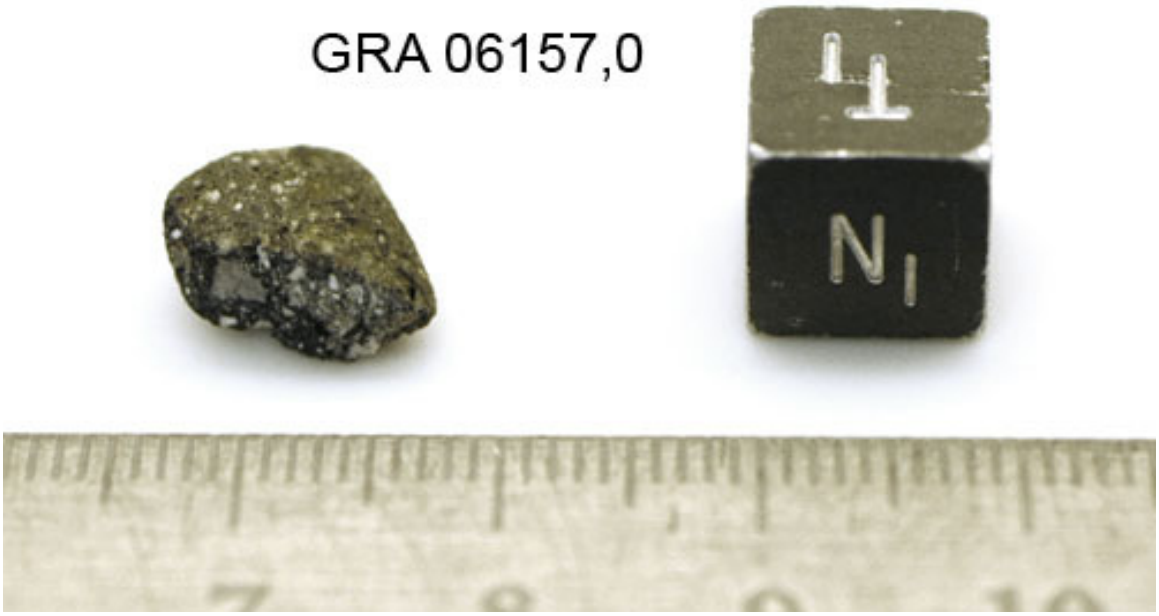

Fig. 3: JSC lab photo of GRA 06157 with 1 cm cube and scale bars below.

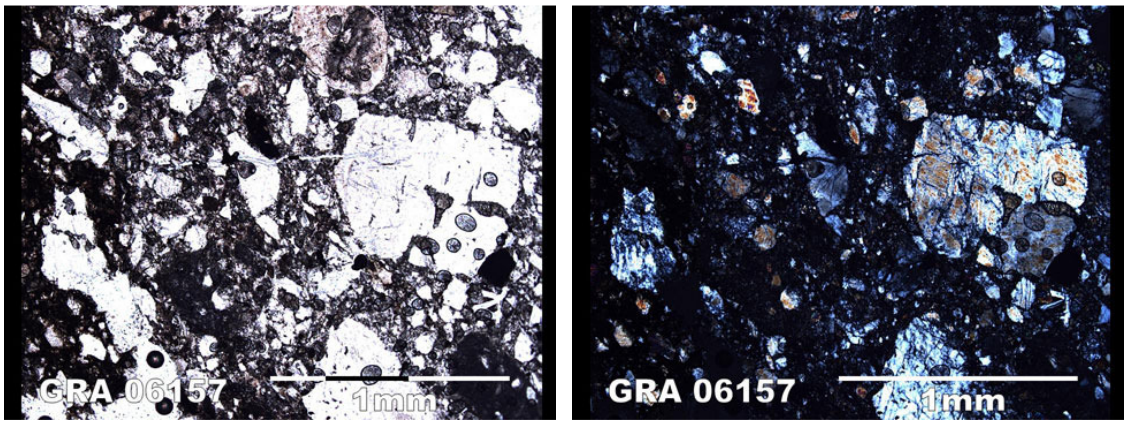

Figure 4: Plane polarized light (left) and crossed nicols (right) photomicrographs of GRA 06157.

Chemistry

INAA analysis of GRA 06157 has revealed that this sample is at the low FeO and low Sm end of the compositional range for feldspathic lunar meteorites. It is most similar to NWA 482, but has a very different texture (Korotev et al., 2008).

Radiogenic age dating

None yet reported.

Cosmogenic isotopes and exposure ages

None yet reported.