

# The origin of garnetite xenolith from Malaita, Southwest Pacific

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## 1.Introduction

It has been reported that high pressure minerals (i.e. majorite and perovskite) were included in garnetite xenoliths discovered on Malaita island, Southwest Pacific (Collerson et al., 2000). These xenoliths were transported by volatile rich magma, the alnoite magma. Because there is little report about majorite in xenolith discovered in the world, it is important to examine this xenolith to clarify the petrological image of mantle transition zone.

## 2.Methods

In this study garnetite xenolith (KC-99-M5) has been investigated using electron probe microanalyser and micro Raman spectroscopy techniques.

KC-99-M5 is the xenolith which was reported by Collerson et al. (2000) as majorite bearing xenolith.

## 3.Results and discussion

The most part of the xenolith consists of large garnet, which is enriched in pyrope component and there are inclusions in some places. Pyropic garnets were fractured and veins radiated from inclusions.

Identified phases in the veins and the inclusions with the micro Raman spectroscopy are orthopyroxene, clinopyroxene, Ti-rich calcic amphibole (kaersutite) Fe-rich spinel and plagioclase. There is no high pressure minerals such as majorite and perovskite.

The equilibrium pressure and temperature was estimated with some geothermobarometer from the compositions of minerals in the veins and the inclusions. The equilibrium temperature is 1000C-1100C and the equilibrium pressure is 1.0GPa-1.5GPa.

These data shows the minerals in the veins and inclusions record the information in the final stage in the process of rising with the alnoite magma.