

**Mineralogical and petrological
observation of core samples drilled
from an ophiolite mantle section:
Oman Drilling Project Holes BA1B,
BA3A, and BA4A**

YUJI ICHIJAMA AND OMAN DRILLING PROJECT PHASE 2
SCIENCE PARTY

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The Oman ophiolite is the world's largest ophiolite and will provide us with the information on the crustal formation, mantle processes, and evolution and modification of the oceanic lithosphere through the time. The scientific drillings of the crust-mantle boundaries and mantle sections were operated during the Oman Drilling Project Phase 2. We report the preliminary results of the mineralogical and petrological observation of the drilling samples from the mantle sections in the Phase 2 Holes BA1B, BA3A, and BA4A.

The Hole BA1B is composed of upper dunite and lower harzburgite associated with mafic dikes and veins. The Hole BA3A is dominated mainly by harzburgite and also contains a minor amount of thin dunitic layers and mafic dikes and veins. The Hole BA4A consists of alternation of dunite and harzburgite with abundant mafic dikes. The mafic dikes observed in each hole are gabbro to olivine gabbro with brown to pale brown hornblende. Chromian spinel in mafic dikes and veins is characterized by high $Fe^{3+}/(Cr + Al + Fe^{3+})$ ratio (up to 0.3) and restricted TiO_2 content (<2 wt.%), which are comparable with those in island arc basalts. The harzburgite contains hydrous silicate minerals, which occur as inclusions in chromian spinel and replacements of pyroxene. The harzburgite probably experienced the penetration of metasomatic fluids.