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THE OMAN DRILLING PROJECT: A MILESTONE IN THE "MOHOLE TO MANTLE" (M2M) PROJECT

Japanese scientists and Japan's deep-sea scientific drilling vessel *Chikyū* are deeply involved in the Oman Drilling Project (Oman DP; http://www.omandrilling.ac.uk/), which is itself part of the International Continental Scientific Drilling Program (ICDP). From December 2016 to March 2017, Phase I drilling of the southern Oman ophiolite (Fig. 1) resulted in a total of 1,500 m of hard-rock cores being recovered. Measurements of the geophysical properties and geological description of the cores will be carried out on board the *Chikyū* in the summer of 2017 by shipboard scientists who applied to be involved from all over the world. The project has been nicknamed ChikyuOman. These cores have been sent to Japan for further study.

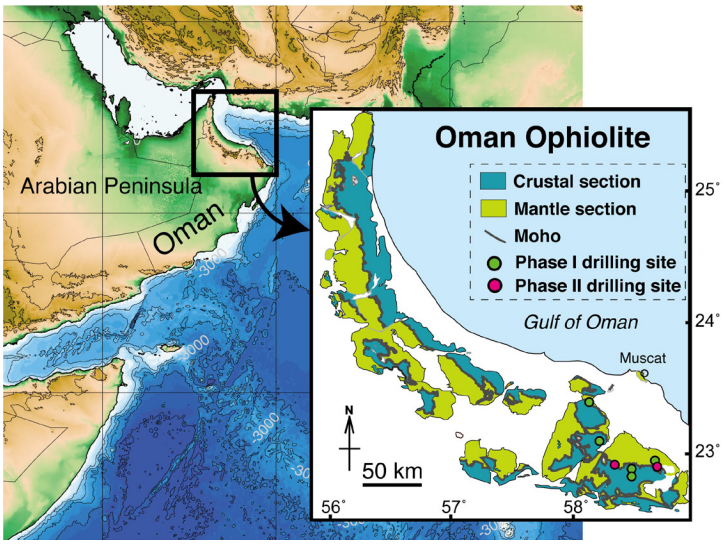

Figure 1 Simplified geologic map showing the locations of the Oman ophiolite and Oman Drilling Project drilling sites. Modified from Nicolas et al. (2000).

The crust–mantle boundary, called the Moho Transition Zone (MTZ), in this region is thought to represent an active reaction zone where melts from a mid-ocean ridge basalt (MORB) accumulated and reacted with peridotites to form dunites (e.g. Boudier and Nicolas 1995; Kelemen et al. 1997; Korenaga and Kelemen 1997; Koga et al. 2001; Akizawa et al. 2012; Nicolle et al. 2016; Rospabé et al. 2017). Drilling into the MTZ is planned as Phase II of the Oman DP, and should take place from November 2017 to March 2018 (Fig. 1). The relationship between the MTZ and the major seismic-reflection boundary that is the Mohorovičić (Moho) discontinuity is still open to debate. The cores drilled through the Oman MTZ, and the geophysical logging of the boreholes, will provide a unique opportunity to evaluate and clarify the relationship between the Moho and the MTZ. This data will be essential for any future Mohole projects – drilling from the crust down to the Moho – one of which may be part of a future International Ocean Discovery Program (IODP) drilling project. The ultimate goal of the Oman DP is to help carry out the IODP's "Mohole to Mantle" (M2M) project, which aims to drill through a complete section of oceanic crust in the Pacific Ocean and into the underlying mantle (Kelemen et al. 2013). In this regard, the Oman DP and ChikyuOman can together be regarded as a milestone in the progress towards the M2M project.

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JOURNAL OF MINERALOGICAL AND PETROLOGICAL SCIENCES

Vol. 112, No. 3, June 2017

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