

## Preliminary report of the drilling core of the Kumano acidic rocks, Southwest Japan (I) Overview

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A 580m all-core drilling penetrated Miocene Kumano Acidic Rocks (KAR) in Southwest Japan. KAR are exposed in a large area of 20km x 60km at the southeastern Kii Peninsula. It is one of the largest Miocene igneous complexes in Japanese Islands.

The drilling was carried out in the seismic underground water project by the Geological Survey of Japan, AIST. The drilling site is located at the southernmost part of the Northern massif of the KAR. The elevation is approximately 35m ASL.

The drilling was done in all-core base along with some bore-hole in situ measurements. The recovery of the core was nearly 100%. It is hardly weathered nor altered except near surface above 40m BGL.

KAR is known to be composed of rhyolite lava, crystal tuff and granite porphyry from bottom to top (Aramaki and Hada, 1965; MITI, 1979) and they all rest on the Miocene forearc basin sediment (Kumano group) and the underlying Cretaceous to Paleogene accretionary complex (Shimanto supergroup).

The drilling core consists of granite porphyry (GL - 464m) and tuff (464m - 580m) with a boundary of intrusive contact. The granite porphyry has a chilled margin with fine-grained groundmass near the boundary. The field occurrence and areal distribution of the granite porphyry shows that it is likely to be a sill-like intrusive body. The thickness of the granite porphyry is not well estimated because of no exposure of the overlying unit. Considering the 464m thickness in the drilling core and 400-500m thicknesses of hills nearby composed of the same rock, total thickness of the granite porphyry may be up to 1,000m or maybe more. The thickness of the underlying tuff is more than 115m.

Both of the granite porphyry and tuff has low magnetic susceptibility of  $3 - 12 \times 10^{-4}$  S.I.unit, indicating ilmenite series.

The granite porphyry is rather homogeneous except chilled margin near the intrusive boundary. The phenocrysts are quartz, plagioclase, K-feldspar, orthopyroxene and biotite. Ubiquitous tiny druse-like voids may indicate high-level intrusion. Igneous enclaves are irregular-shaped porphyritic rocks and microtonalites, while metamorphic enclaves are mainly cordierite-biotite gneisses and hornfelses. Cordierites and andalusites xenocrysts are ubiquitous.

The tuff is massive crystal tuff. It is nearly homogeneous except some pumice-bearing strongly welded parts and tuffs with horizontal lamination, potentially indicating multiple flow units (Geshi et al., this session).

This drilling core shows us a continuous vertical cross section for 580m of KAR, which will give us a lot of information of the Miocene magmatism of the Southwest Japan. We have started various kind of works using this KAR core samples.