

ハワイ諸島玄武岩の地球化学  
Geochemistry of basaltic rocks from Hawaii islands

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本研究は、海洋科学技術センター所属の"SHINKAI 6500"を用いて深海底より採取された、ハワイ(海洋島)諸島の玄武岩類について、地質学的な位置付けをより明確にし、地球化学的な解析に役立てる事を目的としている。貴所においては、採取された岩石やビデオ映像に基づいて、ハワイ型火山の形成過程と終焉について活発な議論を行なった。その結果、これまでまったく理解されていなかった海洋島の形成過程について、多くの新知見が見出された。それらの議論は、Yokose (2001, in press)\*のなかに反映されている。以下にその要旨を示す。

\* : The submarine geology of the Nuuanu (perhaps the largest landslide in the world) and Wailau landslides was investigated during 1999, using the SHINKAI 6500 manned submersible and its mother ship, R.V. YOKOSUKA. Observations were made at eight dive sites, and about 100 in-situ rock samples were collected from the landslide deposits at depths of 2500 to 4500 m. Based on video images and rock samples, the outcrops are subdivided into three basic types, each with several facies: (1) products of volcanic eruptions, (2) coarse volcanoclastic deposits, and (3) unconsolidated and reworked epiclastic sediments. The coarse volcanoclastic deposits are thought to have originated from debris flows in alluvial-fan systems. Unconsolidated muddy gravel is abundant in submarine channels and piedmont slopes; this facies is considered to be the product of reworked sediment in submarine channel systems and small-scale slope failures. These facies comprise most of the megablocks and the apron of Oahu. The steep cliffs of many megablocks can be reasonably fitted together like a jigsaw puzzle. The megablocks can be graphically re-joined to form a huge slab that can be extrapolated back to the submarine eastern flanks of Oahu, at ocean depths of 1000 to 3000 m. Growth of the pre-failure volcanoclastic apron has been enhanced by debris supplied by subaerial erosion from the windward, rainy sides of Oahu and Molokai. Thus, the exceptional size of the landslides described here may have been influenced by heavy trade-wind rainfall.

\* : Yokose H. (2001), Landslides on the Windward Flanks of Oahu and Molokai, Hawaii: SHINKAI 6500 Submersible Investigations. "Evolution of Hawaiian Volcanoes, Recent Progress in Deep Underwater Research" edited by Drs. Takahashi, Naka, Garcia, Lipman and Aramaki, AGU monograph (in press).