

## Characteristics and origin of sediments collected from mud volcanoes off Tanegashima

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Mud volcanoes are found to be surface elevations where light-weight sediments supplied from underground reach the ground surface and form, or are found on land or on the sea floor. In the process, gases such as hydrocarbons and methane, and substances such as pore water move, and there are few examples of research in spite of being a special phenomenon in geoscience. In this study, we will use sediment cores collected during the KH19-5 cruise on mud volcanoes off Tanegashima along the Nankai Trough, and clarify their characteristics such as age, origin, physical properties, age, and origin. The purpose was to. During the KH-19-5 cruise on the scientific research vessel "Hakuho Maru", the Navigable Sampling System (Using NSS), core samples (approximately 4 m) were collected directly on top of the sediment core mud volcano, where MV # 2 and MV # 3 of the mud volcano group off Tanegashima were numbered. The core sediment core sample is obtained by observing internal structure using X-ray CT scan, measuring gamma ray transmittance and magnetic susceptibility using Multi-Sensor Core Logger, radioisotope using accelerator mass spectrometer We analyzed <sup>10</sup>Be dating, 3D of the core using X-ray diffractometer,  $\gamma$ -ray transmittance, susceptibility, sediment age, and clay minerals. Radiometric dating using <sup>10</sup>Be in sediments was performed for dating in accelerator mass spectrometry.

The sediment cores of MV # 2 and MV # 3, including the results of X-ray CT scan and MSCL measurement, showed that many gravels were seen from the top to the bottom of the whole core, and the number of gravels increased toward the top. It was confirmed that there was no sediment covering. This indicates that pebbles are included in the sediments, which is a characteristic of mud volcanoes, and since no pelagic sediments are seen, both MV # 2 and MV # 3 are currently active mud volcanoes. It was confirmed that it was. In terms of dating by <sup>10</sup>Be dating, MV # 2 shows an old age of around 7.0 to 11.1 Ma, and MV # 3 shows an old age of around 10.3 to 11.8 Ma, which clearly indicates that it originated from sediments of that era became. As for XRD clay minerals, both MV # 2 and MV # 3 have more illite and less smectite when compared to the mud volcano off Kumano. Therefore, the peak of the illite smectite mixed layer was not observed, the count of illite was large, and the smectite was low. Therefore, this deposit experienced a temperature of 160 °C. or more and was dehydrated. The result is a higher temperature than the mud volcano off Kumano, which shows the peak of the mixed layer of illite and smectite. Based on these results, two MV # 2 and MV # 3 off Tanegashima, MV # 2 and MV # 3, of mud volcanoes, light-weight sediments from deep underground rolled up gravel from new strata of various ages. MV # 2 and MV # 3 were found to have been derived from strata of the same origin.

Keywords: Mud Volcano, X-ray CT scan, <sup>10</sup>Be, Off Tanegashima