

Generation mechanisms of large-scale fissures in Asodani area accompanied by 2016 Kumamoto earthquake through drilling investigation and sample analysis

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Large-scale fissures emerged in Aso-dani area accompanied with the 2016 Kumamoto earthquake. Satellite data found the regions with northern displacement on the northern side of fissures. Recent studies suggested that this was due to horizontal movement of the sediment with the thickness over 50 m but it is not sure how pore pressure supported such thick sediments.

In order to elucidate the generation mechanism of the fissures, we conducted a drilling survey in the center of one of the horizontal movement zone. As a result, the regions with northern displacement corresponded to those with thick soft sediments, and the thickness greatly changed beneath the regions with northern displacement.

X-ray photos of the cores were taken to investigate the internal structure of the sediments. They can clearly image the thin layers of sands or volcanic ash in slit-rich layers. One of the interesting features for the X-ray photos was that the dips of the thin layers changed greatly at depths of 43.5-44.5 m and 55-56 m. This suggests that the sediments deformed at these depths. We will investigate the mechanisms and ages of this deformation in the future.

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