

Cape Verde ホットスポットとマントルプルーム Seismic evidence for a mantle plume beneath the Cape Verde hotspot

Liu Xin¹; 趙 大鵬^{1*}
LIU, Xin¹; ZHAO, Dapeng^{1*}

¹ 東北大学大学院理学研究科
¹Tohoku University, Department of Geophysics

The Cape Verde hotspot is located in the African plate, about 2000 km east of the nearest plate boundary. It is composed of a group of late Cenozoic oceanic islands resting on a broad bathymetric swell on mature (>110 Ma) oceanic lithosphere. This hotspot has a positive surface heat flow, high geoid anomaly, and long-term volcanism. The last known volcanic eruption occurred at Fogo volcano in 1995.

We determined P- and S-wave tomography of the upper mantle beneath the Cape Verde hotspot using arrival-time data measured precisely from three-component seismograms of 106 distant earthquakes recorded by a local seismic network. Our results show a prominent low-velocity anomaly imaged as a continuous column <100 km wide from the uppermost mantle down to about 500 km beneath Cape Verde, especially below the Fogo active volcano, which erupted in 1995. The low-velocity anomaly may reflect a hot mantle plume feeding the Cape Verde hotspot.

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