



The velocity structure of a post-spreading volcanic seamount in the Southwest Sub-basin, South China Sea

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Post-spreading magmatism is extremely strong in the South China Sea and it is common feature for the Pacific area (e.g. Castillo et al., 2010). Such seamounts formed by the post-spreading magmatism may provide key insights into a unique mechanism of strong magmatism without mantle convection as well as the crustal emplacement (e.g. Baloga et al., 1995; Kipf et al., 2013).

We conducted a seismic refraction survey over an axial seamount (Longnan Seamount) in the Southwest Sub-basin, South China Sea in 2010. Results show that the post-spreading axial seamount is mainly formed by an extrusive process. Low upper-crustal velocities observed under the seamount are attributed to volcaniclastic rocks and high-porosity basalts. Velocity models reveal the lack of a large root and a relative high-velocity layer 3 underlying the seamount. The origin of axial seamounts is supposed to be buoyant decompression melting mechanism (Castillo et al., 2010; Meng and Zhang, 2014). This research was granted by the Natural Science Foundation of China (91028006, 91228205), the Scientific Research Fund of the Second Institute of Oceanography, SOA (JG1602) and the National Programme on Global Change and Air-Sea Interaction, SOA (GASI-GEOGE-01).

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