

# GEOCHEMICAL EVIDENCE FOR CENOZOIC MANTLE PLUME IN THE SOUTH CHINA

Mao, J.R., Tao, K.Y., Xing, G.F., Zhao, Y., and Yang, Z.L. Nanjing Institute of Geology and Mineral Resources, 534 East Zhongshan Road, Nanjing, P.R.China, Email:nigmr@public1.ptt.js.cn

The authors discuss the geochemical characteristics of Cenozoic basaltic rocks in the South China Sea basin, Hainan Island, Leizhou Peninsula and Longhai-Mingxi in Fujian Province. They may be divided mainly into two periods: mid-Miocene (20-10Ma) and Pliocene-Pleistocene(<5Ma). These basalts are almost consistent with OIB which are more enriched in HFSE, especially in Nb, Ta, U. It is considered that the Polynesian basalts are probably formed by upwelling from the core-mantle boundary superplume, and the Hawaiian basalts are probably formed by the low-velocity column of the upper mantle. The occurrence of both the Polynesian-type and the Hawaiian or MORB-type lavas in the South China Sea basin may imply that OIB may be produced on an oceanic ridge and that entrainment of upper mantle material may be caused by a rising superplume of lower-mantle origin. The basalts in Hainan Island and Leizhou Peninsula may have a similar origin. The withinplate basalts about same contemporaneity in Longhai-Mingxi have high  $\Delta 7/4\text{Pb}$ ,  $\Delta 8/4\text{Pb}$  and Nb/Zr ratios, showing they are totally Polynesian-type basalt. The special geochemistry of Cenozoic basalts may indicate the speciality of mantle source-“quasi-OIB-type” enriched mantle. The origin of the basalts may be attributed to (1) the eclogite residue after the partial melting of old basaltic oceanic crust and its subduction into the lower-mantle; (2) the continental crust contribution through delamination of the lithosphere (including the lower crust); (3) the upwelling of a deep-mantle superplume.