

Early J₂ basalts in SE China: The incipience of large-scale late Mesozoic magmatism

XIN XIE¹, XISHENG XU¹, HAIBO ZOU², SHAOYONG JIANG¹, MING ZHANG³ AND JIANSHEG QIU¹

¹State Key Laboratory of Mineral Deposit Research, Department of Earth Sciences, Nanjing University, Nanjing, 210093, China (xxie@eyou.com)

²Department of Earth and Space Sciences, University of California at Los Angeles, Los Angeles, CA90095-1567, USA.

³GEMOC ARC National Key Centre, Department of Earth and Planetary Sciences, Macquarie University, Sydney, N.S.W. 2109, Australia

Magmatism in SE China was dormant during 204~180 Ma, but was reactivated in 180~170 Ma (early J₂), and then became more and more intensive towards the end of early Cretaceous. The small-scale early J₂ magmatism is the incipience to long term and large-scale magmatism in this region. A near east-west (EW) trend volcanic belt distributed across south Hunan, south Jiangxi and southwest Fujian was formed during early J₂ time. Along this belt from inland toward coast, the lithology of basalts changes from alkali into tholeiite, and the amount of erupted volcanic rocks and the proportions of rhyolites coexisting with the basalts increase. On the basis of geochemical characteristics of these basalts, we infer that the melting degree of source rocks and the extent of fractional crystallization and crustal contamination all increased whereas the depth of mantle source decreased from inland to coast, which led to the variations of geological characteristics of the volcanic belt. In early J₂, the western spreading Pacific plate began to subduct underneath SE China continental block, reactivating near EW trend deep fault that was originally formed during Indosinian event. The stress of the western spreading Pacific plate and the extent of asthenosphere upwelling increased from inland to the coast, which is consistent with the generation and evolution of early J₂ basalts.

References

- Zhou X M and Li W X, (2000), *Tectonophysics*, 326, 269-287.
Jung S and Masberg P, (1998), *J. Vol. and Geol. Res.*, 86, 151-177.