Magmatic activities, Hf isotope and tectonic implications of the Yao Shan massif, Southeast Tibet

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The Ailao Shan-Red River belt (ASRR) is the boundary between the Indochina and South China blocks. Four massifs, Xuelong Shan, Diancang Shan, Ailao Shan and Yao Shan-Day Nui Con Voi are exposed along this belt. Many previous studies have focus on the magmatic events in the Diancang Shan and Ailao Shan to reveal the magmatism evolution or to reveal the shearing age, but there is very little research has been done on the Yao Shan massif, lack of systematic study. In addition, Yao Shan is located in the boundary between the southwest of South China block and Indochina block, so that it provides a good condition to compare the magmatic events between these two blocks. In this paper, we present new results of LA-ICP-MS U-Pb and Hf isotopic dating of zircons from granitic plutons and dykes at the Yao Shan massif. The data presented could allow us to establish the magmatic activities in the Yao Shan massif and the associated tectonic environment. According to our results, Yao Shan massif has experienced four stages of magmatic events, i.e., Neoproterozoic granitic magmatism due to the subduction of old ocean towards the South China block, Late Cretaceous intraplate magmatism due to Pacific plate subduction, Eocene-Oligocene magmatism and metamorphism due to intraplate extension of the Indochina Block, and Oligocene-Miocene magmatism during shearing of the ASRR.