

Detrital zircon U-Pb age perspective on sediment provenance in the Lamandau region, SW Borneo, Indonesia

SHUANG LI¹

¹ Guangxi Key Laboratory of Hidden Metallic Ore Deposits
Exploration, College of Earth Science, Guilin University
of Technology, Guilin 541004, China;
(sgli@mail.ustc.edu.cn)

The Lamandau region with Ketapang complex distributed is located at SW Borneo, belonging to Sundaland. The Ketapang complex formed from Middle Jurassic to Late Cretaceous, composed by siliceous rock, siltstone, sandstone and shale. The U-Pb isotopic dating ages of 113 detrital zircons from sandstone of the Ketapang complex range from 3298 Ma to 78 Ma, with 6 age populations of 187–78 Ma (15 grains; Jurassic to Cretaceous), 262–210 Ma (15 grains; Middle Permian to Late Triassic), 455–406 Ma (15 grains; Late Ordovician to Early Devonian), 1296–759 Ma (25 grains; Mid-Mesoproterozoic to Mid-Neoproterozoic), 2016–1831 Ma (17 grains; Paleoproterozoic), and 2646–2344 Ma (10 grains; Neoproterozoic to Late Paleoproterozoic). The youngest age of these detrital zircons is 78 Ma, suggesting the sediments were deposited at Campanian and Maastrichtian. The Schwaner mountains in SW Borneo are the major source for the Jurassic and Cretaceous zircons from the Ketapang complex. The Tin belt granitoids in the Thai-Malay Peninsula and Indonesia are the major source for the Permian and Triassic zircons from the Ketapang complex. Since the SW Borneo was rifting from the northern margin of Australia since ca. 185 Ma, detrital zircons with ages older than 311 Ma are attributed to “Pan-Gondwana” assembly. The Alice Springs orogen in Central Australia could be a potential source for the Ordovician to Carboniferous zircons. Age densities between 1296 to 759 Ma could be linked to Paterson Orogen in Western Australia and Rodinia related magmatism in Western Central Australia. The Halls creek orogen in Northern Australia could be the source for Paleoproterozoic zircons between 2016 to 1831 Ma. Age densities between 2646 to 2344 Ma could be linked to Paterson Orogen and North-Australian Pine Creek orogen.

Acknowledgments: Funding was provided by the National Natural Science Foundation of China (No. 41803038) and Jointly Funded Cultivation project of Guangxi Natural Science Foundation (No. 2018GXNSFAA138193).