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# Detrital thermochronometry and two stage collision – a case study from Taiwan

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Detrital Plio-Pleistocene sediments from the Coastal Range have been dated using multiple thermochronometers (zircon fission track, zircon (U-Th)/He and U/Pb dating) to reveal changes in erosion rate through time. These changes that are preserved in the detrital sedimentary record of eastern Taiwan clearly indicate an increase in erosion rate at ∼3 Ma that is first detected in sediments deposited at ∼1.9 Ma. Based on both the detrital thermochronometry record and the metamorphic history of basement from the Central Range we propose an interpretation whereby Taiwan developed during a two-stage collision process. Initial collision of an exotic continental sliver with the passive continental margin potentially occurred during the Miocene (<14 Ma) and, collision of the Luzon arc with proto-Taiwan occurred in the Pliocene, pre-3 Ma.