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# Zircon U–Pb geochronology of the Plio-Pleistocene volcanogenic and orogenic sedimentary rocks from the Coastal Range, eastern Taiwan

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Taiwan is an active orogen that started forming since ∼6 Ma by the collision between the northern Luzon arc and the Eurasian continental margin. In eastern Taiwan, the Coastal Range that represents the northern part of the Luzon arc is composed largely of volcanic and sedimentary sequences produced during the Middle Miocene and Plio-Pleistocene. Here we report new zircon U-Pb age data of the volcanogenic and sedimentary rocks from the Tong-He section, the Coastal Range. Three types of such rocks were analyzed and the results are as follows: (1) an epiclastic sample yielded two zircon age peaks at 8.6±0.4 Ma and 4.2±0.3 Ma, which correspond to the zircon U-Pb ages (∼9-4 Ma) obtained from the volcanic rocks, suggesting a main source provenance from the arc volcanics of the Coastal Range; (2) detrital zircons from three samples of the Paliwan Formation yielded old, multiple age populations around 2.6-2.4 Ga (Wutai Orogeny), 1.9-1.7 Ga (Luliang Orogeny), 850–700 Ma (Jinning Orogeny), 250–200 Ma (Indochina Orogeny), 200–145 Ma (Early Yanshan Orogeny) and 145–100 Ma (Late Yanshan Orogeny), suggesting source provenance from the Miocene strata of the Taiwan orogenic belt that exposed and began providing detritus to the collisional basin in the Coastal Range during the Pleistocene; (3) zircons from a tuffaceous layer in the upper sedimentary sequence yielded U-Pb age at 1.6±0.1 Ma, which is the youngest volcanic age obtained from the Coastal Range and broadly coeval to the volcanic eruptions in the Lutao volcano off southeastern Taiwan.