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Provenance of Cretaceous sandstones in the strike-slip Yongdong Basin, Korea: CHIME geochronology of detrital monazites

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CHIME (Chemical Th-U-total Pb isochron method) ages were determined on detrital monazites in Cretaceous sandstones, southeastern part of the Yongdong Basin and in granitic gneiss of the Yongnam Massif, northern part of the Kimcheon area. Most detrital monazites in the sandstones are chronologically unzoned, and yield CHIME ages of about 180 and 250 Ma. Some detrital monazites show age signatures of middle Precambrian (ca. 1,200 and 1,750 Ma) and possible Silurian (420 Ma). Monazites in the granitic gneiss which is the basement rock of the basin yield an unequivocal age of 251.2Ďb3.0 Ma. The age spectrum of detrital monazites coupled with paleoflows and petrographic data suggests that clastic materials in the southeastern part of the Yongdong Basin were largely derived from the granitic and metamorphic rocks of the Yongnam Massif in the Sangju-Kimcheon-Kochang area, which are located in the southern and eastern part of the basin. The relative frequency of detrital monazites of each age shows distinct variation in several stratigraphic positions of the basin-fill successions, which may be attributed to the rejuvenation of strike-slip movement along the basin margin.