



Tectonic architecture of the Hongseong collision zone in the Korean Peninsula

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The Hongseong collision zone in the Korean Peninsula is tectonically correlated to the Chinese Qinling-Dabie-Sulu belt, and it preserves evidence of breakup-subduction-collision prior to final amalgamation of NE Asia. This study presents the tectonic domains of the Hongseong collision zone, divided primarily based on protolith age, origin, and metamorphic and structural characteristics of the constituent rock units, and their tectonic significances. Domain 1, the eastern-most part of the Hongseong collision zone, consists mainly of Paleoproterozoic basement gneiss, which was mainly affected by Neoproterozoic and Paleozoic mafic magmatic activities. Part of the Neoproterozoic metabasite preserves evidence of eclogite-facies metamorphism. Domain 2 mainly records Neoproterozoic arc magmatism, as well as Paleozoic volcanism and sedimentation that occurred in an arc-forearc setting. The volcano-sedimentary sequence contains evidence of Paleozoic high-grade metamorphism. Many serpentinite lenses are present in domain 2, including suprasubduction zone peridotite that was serpentinized during the Late Paleozoic. Domain 3 is a broad exposure of Late Paleozoic turbidite, interpreted to be a flysch derived from uplifted sedimentary or metasedimentary rock. Greenschist-facies metamorphism occurred in this domain. Geological age decreases from domain 1 to domain 3, which may indicate that the continental crust grew westward prior to the Late Paleozoic in the Hongseong area. This interpretation is concordant with the westward sequential change from basement through suprasubduction zone to flysch.