



## **SHRIMP U-Pb zircon geochronologic constraints on the structural evolution of the Honam shear zone, SW Korea**

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The Honam shear zone is composed of several dextral ductile shear zones in and around the NE-SW-trending Ogcheon belt, south Korea. Here we present SHRIMP U-Pb zircon ages for the granitoids in the middle (Geumsansa) and southwestern (Muan) part of the shear zone in an attempt to constrain the age of deformation. In the Geumsansa area the granitoids comprises two compositionally and texturally distinct phases, which are a strongly deformed hornblende biotite granodiorite with an age of  $172.7 \pm 1.4$  Ma and an undeformed biotite granite with ages of  $169.6 \pm 1.8$  Ma and  $167.5 \pm 2.4$  Ma. The hornblende biotite granodiorite is strongly foliated by regional dextral ductile shearing. Several sets of thin (few cm wide) sinistral shear zones are superimposed on the earlier regional foliation. The undeformed biotite granite crosscuts both regional foliation and thin sinistral shear zones and contains xenoliths of the hornblende biotite granodiorite, suggesting that the biotite granite post-dated the ductile shearing deformation. Based on SHRIMP U-Pb zircon data of these two granitoids the ductile shearing deformation occurred between ca. 170 and 173 Ma in the Geumsansa area. On the contrary, in the Muan area where the mylonite zone derived from the granite protoliths attains a maximum width of around 3.5 km, the dextral ductile shearing strongly affected a hornblende granite with an age of  $165.8 \pm 2.0$  Ma as well as a biotite hornblende granodiorite with an age of  $176.3 \pm 1.7$  Ma. The  $165.8 \pm 2.0$  Ma is the youngest age from the foliated granites reported in Korea and constrains a maximum age for ductile shearing deformation. Field relationship and SHRIMP U-Pb

zircon data for the above four granitoids indicate that the evolution of the Honam shear zone is characterized by two major discrete events; (1) the first regional dextral and localized sinistral shearing between 173 –170 Ma and (2) the second dextral ductile shearing after 166 Ma.