

## Slip sense inversions on active strike-slip faults in southwest Japan

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Detailed analyses of deflected river channels, offset of basement rocks, and fault rocks reveal that the slip sense inversion occurred in major active strike-slip faults in southwest Japan such as the Yamasaki and Mitoke fault zones. Along these faults, moderate to small river channels which shallowly entrenched into mountain slopes and Quaternary terraces has been deflected sinistrally, whereas large rivers which deeply incised into the Mio-Pliocene elevated peneplains show no systematically sinistral offsets. Instead, complicated hairpin-shaped deflections of stream courses are observed where large rivers intersect the fault traces. When the sinistral offsets accumulated on the rivers are restored, the major rivers show residual dextral deflections. This dextral slip sense is consistent with that recorded in the pre-Cenozoic basement rocks. S-C fabrics of the fault gouge and breccia zones developed in the active fault zones show contemporaneous sinistral shear senses, whereas those of the foliated cataclasite indicate a dextral shear sense. These facts show that the deformation produced in the later sinistral strike-slip phase was superposed on those of the first dextral strike-slip phase. Based on the geomorphological, geological, and structural data, it is inferred that the slip sense inversion occurred during the late Tertiary and mid-Quaternary period. This slip sense inversion might occur in relation to the rearrangement of the plate configurations associated with the mid-Miocene Japan Sea opening event.