

## Helium isotope anomalies in the San-in shear zone

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A concentration zone of deformation corresponding to the active zone of microseismicity has been identified in an eastern part of the San-in region. This deformed zone, called “San-in shear zone”, is more than 200 km long along the coast of the Japan Sea and accommodates right-lateral shear motion. Its width is variable, that is, less than 20 km in the eastern part of Tottori Prefecture and 50~70 km in a western part of Tottori Prefecture and the eastern part of Shimane Prefecture. Elevated  $^3\text{He}/^4\text{He}$  ratios in groundwaters sampled from hot spring and drinking water wells are observed around the shear zone, suggesting the emission of mantle-derived helium. The deformation may be attributed to the low viscosity in the crust because the concentrated supply of mantle fluids with high  $^3\text{He}/^4\text{He}$  ratios may weaken the lower crust.

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