Transition of failure modes viewed from thickness and displacement of faults

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Thickness (W) vs displacement (net slip: D) relations were investigated on mesoscale faults in the middle reaches of the Shinano River, Niigata Prefecture (around active faults: Yukyuzan and Katakai faults); and on mesoscale faults around the epicentral area of the 2000 Tottori-ken Seibu earthquake. The results (Yukyuzan: D = 7.9 * W^0.67, Tottori: D = 0.39 * W^0.17) are different from general relation (D = 10~1000 * W^1) in power values. Surpassed thickness is characteristic of the investigated faults (Yukyuzan and Tottori). They may have formed by hybrid failures. In contrast, the result of the Katakai fault resembles general one. It may have formed by shear failure. In conclusion, the transition from hybrid to shear failure mode may have occurred on the faults.