Viscous flow of pelitic schist and brittle deformation of silicified pelitic schist in the Iwakuni-Yanai area of the Ryoke belt.

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Behavior of rocks under the brittle-plastic transition zone is not well known but very important because of its close relation to the occurrence of large inland earthquakes. We found natural geological evidence for brittle-plastic transition in the low-P/T metamorphic rocks in the Ryoke belt. Silicified rock layers are distributed between the structural upper biotite schist unit and the lower biotite gneiss unit. Brittle cracks filled by quartz were abundantly developed in the silicified rock layers, but only the foliation-parallel quartz veins, some of which underwent viscous flow, were observed in the lower unit. This indicates that the silicification had a critical role in the transition of deformation regimes.