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# Ancient braiching Out-of-sequence thrust in the Shimanto accretionary complex, southwest Japan

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The out-of-sequence thrust (OST) plays a great role in thickening of an accretionary prism, formation of a forearc basin and tsunami generation in subduction zone. Ancient fault rock of seismogenic OST was discovered in Shimanto accretionary complex, southwest Japan based on the detailed geologic structure and paleo-geothermal structural analysis. This OST, consists map scaled echelon fault system, developed at late stage of accretion with much higher cumulative displacement than the other faults in the Shimanto accretionary complex. Pressure-temperature analysis reveals that the OST was formed at 3-5km in depth with 150°C in temperature. Such a pressure-temperature condition similar to the condition of seismogenic region in present subduction zone.
The most of faults among the echelon fault system suffered repeated brittle failure, and one of the fault has typical seismogenic fault rock of the pseudotachylyte. This is the first report to find the pseudotachylyte in OST as the evidence for rapid slip. This is comparable fault rock with present OST which will be approached by Integrated Ocean Drilling Program in seismogenic region of subduction zone.