

Paleoseismic trench investigation across the surface rupture associated with the 2008 Iwate-Miyagi Nairiku, Japan, earthquake

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To reveal the repeatability of the surface-rupturing earthquakes along the surface ruptures of the $M_w=6.9$ 2008 Iwate-Miyagi Nairiku earthquake, we excavated paleoseismic trenches across the rupture zone. Despite six trenches in total at four separated locations, we narrowly found the penultimate event with a two-meter throw of a gravel layer at only one site (Okayama district, Genbi Town, Ichinoseki City). The other trenches only exposed deformed sediment layers associated with the 2008 event but imply minimum recurrence interval of the faulting yielding radiocarbon ages of ~ 5 ka. We provisionally conclude that the 2008 fault zone is appropriate to define as an active fault but the activity has not been fast enough to leave continuous and distinctive fault traces.