

## Kilo-years, time-space linkage of Holocene faulting events in the Tohoku district, North-east Japan.

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Northeast Japan is one of the most typical island arc-trench systems. Principal thrust faults extending parallel to the direction of the arc delineate the topographic boundary between mountains and basins in the Tohoku district. Almost all the faults constituting major fault zone have been active during the late Pleistocene and have a high potentiality of future reactivation. If the history of activation in the Holocene time is known, we can estimate their future events, but we have not precise data except for 1986 Rikuu earthquake. Besides, ground ruptures resulting from Holocene faulting have not been studied in detail, so that fault activity in this area and their correlations in time-space are poorly known.

This study, therefore, focuses on Holocene faulting events based on geomorphic observation for terraces deformed by faults. Holocene terraces are distinguished into three in age, they are well developed in Yokote Basin, Kitakami lowland, Shonai plain, Yamagata basin, Sendai plain, Fukushima basin, Nagai and Yonezawa basin whose margin are bounded by active faults from adjacent mountain or hilly regions. Displacement per single event of the faults is from 1.5 to 2.0m(at most 3.5m) in vertical component and recurrence intervals of them are 3ka on average.

Two fault zones at the both side of Ou backbone range have been ruptured alternatively in Holocene time by comparison with ages of the events and recurrence intervals. In contrast, Nagamachi-Rihu fault and the faults in Fukushima basin have the same tendency on the Holocene activity, suggesting that discontinuous traces of the faults have moved in the same period. Similarly, in Yamagata and Nagai-Yonezawa basin, though each fault zone has little difference on recurrence interval of faulting, periods of the faulting events are almost the same time.

These facts lead to the conclusion that there might be at least two patterns of Holocene faulting linkage among the fault zones in this area such as alternative faulting and faulting around the same time.