The Western Boundary Fault System of the Echigo Plain, the whole-faults is not moved simultaneously

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The Western Boundary Fault System of the Echigo Plain is composed of active fault zones as thrust fault. These are the Kakuta-Yahiko Fault Zone, the Torigoe Fault Zone, the Kamitomioka Fault, and the Katakai Fault Zone from north (Fig.1).

Sakai et al. (2003) reported that the Torigoe Fault Zone, the Kamitomioka Fault and the Katakai Fault Zone cannot move simultaneously, based on the following two reasons depended on the seismic survey and drilling survey results.

- The Kamitomioka Fault does not exist.
- In the Torigoe Fault Zone and the Katakai Fault Zone, the structure of Green Tuff surface differs from each other at least.

In this report, in order to evaluate whether the Kakuta-Yahiko Fault Zone and the Torigoe Fault Zone move at the same time or not, we examined on the basis of P-wave or S-wave seismic reflection and drilling surveys across the fault traces.

As a result, we made it clear that the timing of faultings on these fault zones is different from each other at least recently.

The reasons are as follows: 1) In the Kakuta-Yahiko Fault Zone and the Torigoe Fault Zone, these are located at the east wing of different anticline. 2) The period of active stage differs from each other. 3) The displacement at the basement of an alluvium differs clearly; there is no displacement along the Kakuta-Yahiko Fault Zone, on the other hand the displacement of over 20m caused by the Torigoe Fault Zone.

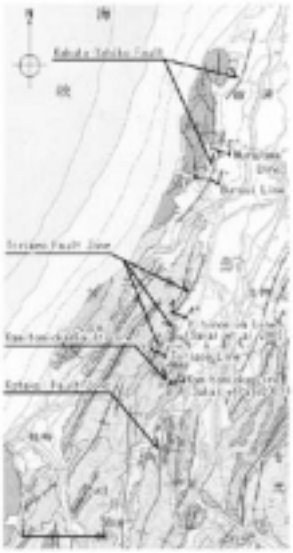

Fig.1 Localities of survey lines and active faults
Base map: Neotectonic map "Niigata"
(Geological survey of Japan, 1984)

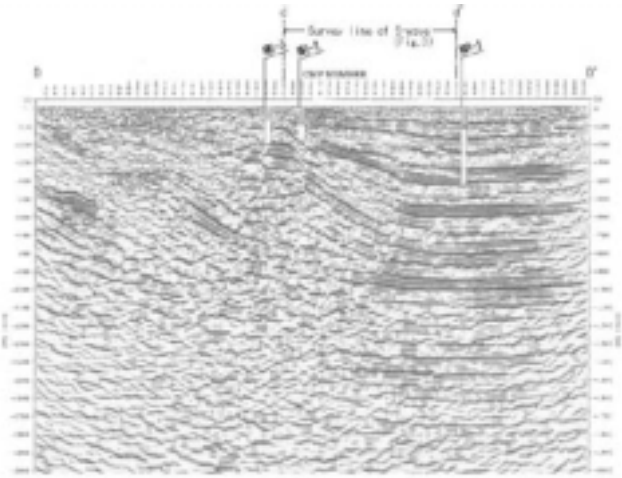

Fig.2 Results of seismic survey (P-wave) along the Murayama line

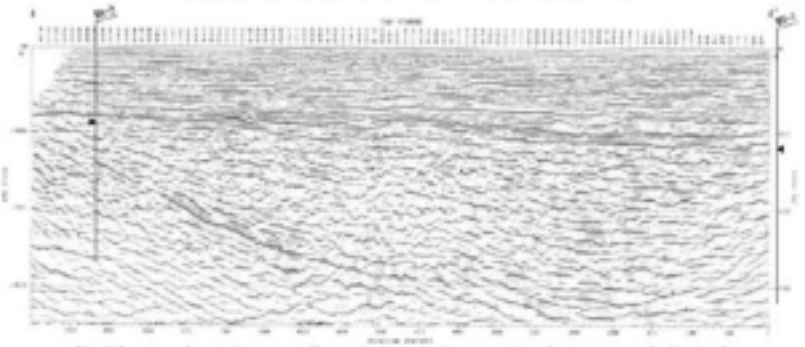

Fig.3 Results of seismic survey (S-wave) along the Murayama line (◀ :basement of alluvium)

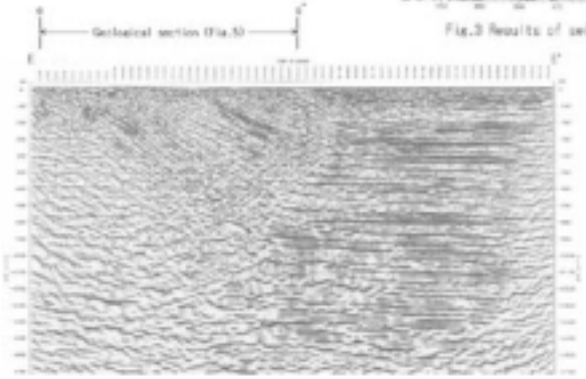

Fig.4 Results of seismic survey (P-wave) along the Bunsui line

Fig.5 Geological section along the Bunsui line (a-a' line)

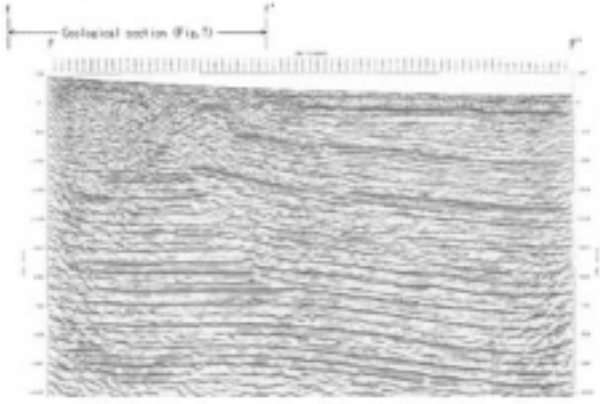

Fig.6 Results of seismic survey (P-wave) along the Torigoe line

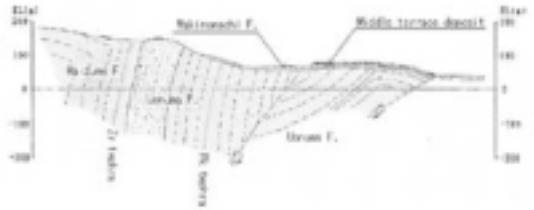

Fig.7 Geological section along the Torigoe line (f-f' line)