

Miocene tectonics of NE Japan as inferred from the Arakawa Group, eastern Tochigi Prefecture

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In northern Kanto distinct, faulting and folding differ bordering on about 15 Ma. Since the map scale faults and folds of Miocene Arakawa Group (Kobanawa, Ogane, Tanokura and Irieno Formations) lack in the Karasuyama area of the eastern Tochigi Prefecture, the vigorous faulting and folding ended ca 15 Ma. The region remained comparatively stable since 15 Ma.

In order to clarify the diastrophism in the Karasuyama area since 15 Ma, we used two kinds of data sources, i.e., meso-scale faults observed at outcrops and shear fractures in borehole core. The meso-scale faults were observed in the Ogane Formation and Tanokura Formation exposed along the Arakawa River. More than 30 faults were found in the field, while the author obtained about 25 fault-slip data in the field. The core samples obtained from the unit of Tanokura Formation and Irieno Formation in Karasuyama area have many shear planes. The meso-scale faults and shear planes indicate faults generated during a number of different tectonic phases.

We apply the latest stress tensor inversion method to the fractures to separate stresses from heterogeneous fault data. The results show;

Outcrops;

- a) Strike-slip faulting regime of stress with NE-SW trending compression
- b) Normal faulting regime of stress with NW-SE trending extension
- c) Normal faulting regime of stress with NE-SW trending extension

Core;

- d) Normal faulting regime of stress with NW-SE trending extension
- e) Normal faulting regime of stress with NE-SW trending extension

These results indicate that the compressional stress field until depositing the Ogane Formation. The stress transition shows tectonics from 15 Ma to 9 Ma in the northeastern Kanto distinct.