

Discovery of active faults in the Abukuma Mountains, northeast Japan

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The Abukuma Mountains are located on the Pacific coast of northeastern Japan, approximately 170 km north-south and 50 km east-west. Since the Abukuma Mountains have been considered as a region with gentle crustal deformation, detailed active fault surveys have rarely been conducted. Therefore, active faults are scarcely mapped except for the normal faults around Iwaki and the Futaba fault. We conducted analysis of tectonic landforms using 1/1000 aerial photographs of the 1970s, and found many (presumed) active faults. In this presentation, we will report distribution and properties of these faults.

The faults mapped in this study are mainly strike-slip faults, with a left-lateral slip in the NW-SE strike and a right-lateral slip in the NE-SW strike. Based on slip sense of these faults, we considered that these faults have been formed in east-west compression. In the April 2011 Fukushima Hamadori earthquake, earthquake faults occurred along the Yunotake Fault. These earthquake faults were formed in response to the east-west extension, and its formation mechanism is different from the active faults described in this study. This fact suggests that fault activities that are not induced by huge earthquakes on the megathrust on subduction zone could be occurred in the Abukuma Mountains. Since most of the faults mapped in this study are short, it is unlikely that all of these faults will be seismogenic faults. However, some relatively larger faults may generate M7 class earthquakes.

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