

Relationship between seismicity of the 2016 the Central Tottori Earthquake and fault distribution in the aftershock area

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The 2016 Central Tottori Earthquake (M6.6) occurred on October 21. The epicenter was Central Tottori and depth of hypocenter was 11 km. Earthquake source fault was determined to be left-lateral strike fault developed NNW-SSE direction with WNW-ESE directional maximum principal stress axis. In the region, active fault related to the earthquake was not recognized. Although clarification of the occurrence of faults such strain concentration zone is important, there are no reports about detail field outcrop investigation in the area of this earthquake.

The aim of this study is to reveal relationship between seismicity of the 2016 Central Tottori Earthquake and fault distribution in the aftershock area based on field investigation and description of microstructure of the faults.

In this study area, late Cretaceous-early Paleogene medium-coarse-grained biotite granite is mainly distributed.

As a result of this study, total of 190 faults were observed in the aftershock area. Orientation of faults developed in NNW trending aftershock area were concentrated in NNW. On the other hand, faults in eastern part of aftershock area shows N-S~NE trend. Three-directional striation on the fault plane was observed in the aftershock area and only cataclasite was developed. The fault (strikes NNW) had horizontal striation was confirmed. P-foliation was observed in this fault rocks under the microscopic observation and indicated left-lateral strike slip.

The fault that had experienced strike slip, and shear sense consistent with earthquake source fault was confirmed. This result indicates that this fault had moved in the present stress field. According to previous study related to 2000 Western Tottori Earthquake, it is suggested that NNW trending fault system developed in southern part of the aftershock area was weaker than the surrounding area. With comparing these result, fault system in aftershock area of the 2016 Central Tottori Earthquake also might be weaker faults due to the orientation of faults correspond with the Y surface of the earthquake source fault.