

Tempo-Spatial Variation in Fluid Migration Processes Near Atera Fault Based on Core Analyses

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Main object of this study is to understand processes and mechanisms of fault-strength recovery of an active fault from a viewpoint of fluid migration in a shear zone. National Research Institute for Earth Science and Disaster Prevention (NIED) has been conducting 'fault zone drilling' to reveal structures, mineral and chemical compositions, and physical properties of major active faults in central Japan. In this study, we will discuss a variation in origin and its migration processes of fluid flow in a shear zone of Atera fault, particularly in terms of seismic cycle. Atera fault zone is located at a boundary between Atera mountain range and Mino high land in central Japan. It extends about 70 km, NW-SE in general trend with left-lateral sense of movement. The latest activity of the fault is associated with 1586 Tensho earthquake in the southern part of the fault zone. NIED had conducted the 'fault-zone drilling,' including rock-coring and logging surveys at two sites, Tsukechi and Kawaue, along the fault, and three across the fault, i.e., Hatajiri, Fukuoka, and Ueno. Results of the logging surveys and core analyses (mineral compositions, major-, and trace-elements) indicate that all the obtained rock samples in Kawaue site belong to the shear zone, i.e., 'damage' zone of Atera fault. We will discuss detailed occurrences and chemical components of the fault-related rocks of the Atera fault core samples.