

## The SEM observation on the latest active fault plane - the Atera Fault, Tase, Gifu prefecture-

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To evaluate of seismic activity of fault, we performed mineralogical and morphological studies by SEM on the latest fault plane of the Atera fault. On the results of SEM observation, authigenic minerals do not crystallize on the whole shear planes including the latest active fault plane.

Study area is outcrop along the Tase path, Gifu prefecture (Toda et al., 1994). Granitic rock (hanging wall) is thrust on the late Quaternary sandy formation including a lot of conglomerate and humus soil layer. The Atera fault consists on gouge: 3 - 20 cm thickness.

There are two light grayish green gouge zones: 3 - 10 cm width each, including dark brownish gouge: about 3mm width. The sharpest shear zone, which is straightly brownish gouge, distributes in the gouge of hanging wall side. This gouge continues under the humus soil (440y B.P. Toda et al., 1994). This sharp zone was confirmed by X ray CT observation collected mass samples from the outcrop. Another dark brownish gouge zone runs parallel in the light grayish green gouge zone distributed the footwall side, converged into the sharpest shear zone at the central parts of the outcrop. At the footwall side, clayish sandy sediments were intruded into the light grayish green gouge with ductile deformation toward the left direction.

SEM observation was performed for the whole shear planes to be able to identify. For the dark brownish gouge zone, the observation was performed for the bottom, top, and sharp plane. On the results, authigenic minerals do not crystallize on the whole planes. Clay mineral (smectite) aggregates to form small clay ball (0.2 micron diameter), which covered the small particles as the paste (Kamachi et al., 2014).

Column shape? minerals (halloysite?) only coexist with Mn, Fe elements in the brackish lens zone including rhyolite and hexagonal biotite originating the foundation rock mass of the footwall side.

The results of this study show that authigenic minerals crystallized under the a few hundred degrees (clay and zeolite) do not confirm on the Atera fault plane to active after about 8400y B.P.

Reference; Toda et al.,(1994)Zisin,47,(1994),73-77. Kamachi et al.,(2014)JpGU2014.

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