Characteristic geometry of fault and shaer zone; its seismological implications.

Kenshiro Otsuki [1]

[1] Earth Sci., Tohoku Univ.

Characteristic minimum faults grow into a large fault through repeating the fault tip bending outward against maximum compressive stress axis and connecting with neighboring faults. The structures at the connections are gradually incorporated into shear zone as Riedel shears, and the connected several faults revive as a new and larger unit segment. Every fault at any evolutionary stage keeps geometrical similarity. Initial slip is nucleated on Riedel shear and earthquake size will be limited by the size of pre-existing fault. Stress drop will depend on the internal structure of shear zone. Jog is an important structure controlling the earthquake size, and the number density of jogs can be correctly measured only when the evolution of fault geometry is taken into consideration.