

Nonbrittle lateral deformation of ground surface during strike-slip faulting -insights from sandbox experiments

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Sandbox experiments were performed to investigate nonbrittle lateral deformation of ground surface during strike-slip faulting. A 1200 mm long, 310 mm wide, and 55 mm high sandbox were used in a strike-slip fault model test. The deformation of the sandpack surface was analyzed with photogrammetric techniques to obtain quantitative information on strain patterns in evolving the physical model.

The width of nonbrittle lateral deformation zone strongly depends on the distribution of active Riedel shears at early stage in evolution of strike-slip fault systems. With increasing basement displacement, the width of nonbrittle lateral deformation zone basically decreases and the strain is concentrated on the central throughgoing faults. However reactivation of a part of Riedel shear is observed at later stage in evolution of strike-slip fault systems.