

## Factors to affect coseismic fold in an overburden

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Coseismic fold induced by blind thrust fault has been found in many earthquakes and received widespread attention among geologists and geophysicists. We set up a conceptual model with a thrust fault zone and loaded by tectonic stress for studying some factors to affect the coseismic fold by finite element method. The numerical results show that the fault dip angle is the main controlling factor of the fold; the greater the dip angle is, the steeper the fold slopes. The second factor is the overburden thickness; the thicker the overburden, the lower the fold and the more difficult the fold to be identified in field survey. An easily recognized fold by naked eyes usually indicates a shallow overburden. The last factor is the mechanical parameters of the overburden; the larger the Young's modulus of the overburden is, the smaller the displacements and the more gradual the fold slopes. Strong horizontal compression and vertical extension in the overburden near the fault zone are main reason to form the coseismic fold.