

Slip on Faults and Stress Inversion

Prithvi Thakur

Jan 30, 2019

Anderson's Theory of Faulting

- ▶ Earth's free surface cannot support shear, therefore, one of the principal stresses has to be vertical. Normal, Reverse, Strike-Slip Faulting.

Anderson's Theory of Faulting

- ▶ Limitations: Only works for intact rocks near the free surface.
- ▶ More realistic faulting style: oblique-slip faulting. These occur on pre-existing weakness planes and at a depth, therefore none of the principal stresses are truly vertical.
- ▶ **Pre-existing weakness:** Reactivated faults, bedding planes, weak layer (shale, salt), foliations, anisotropy in materials, etc.