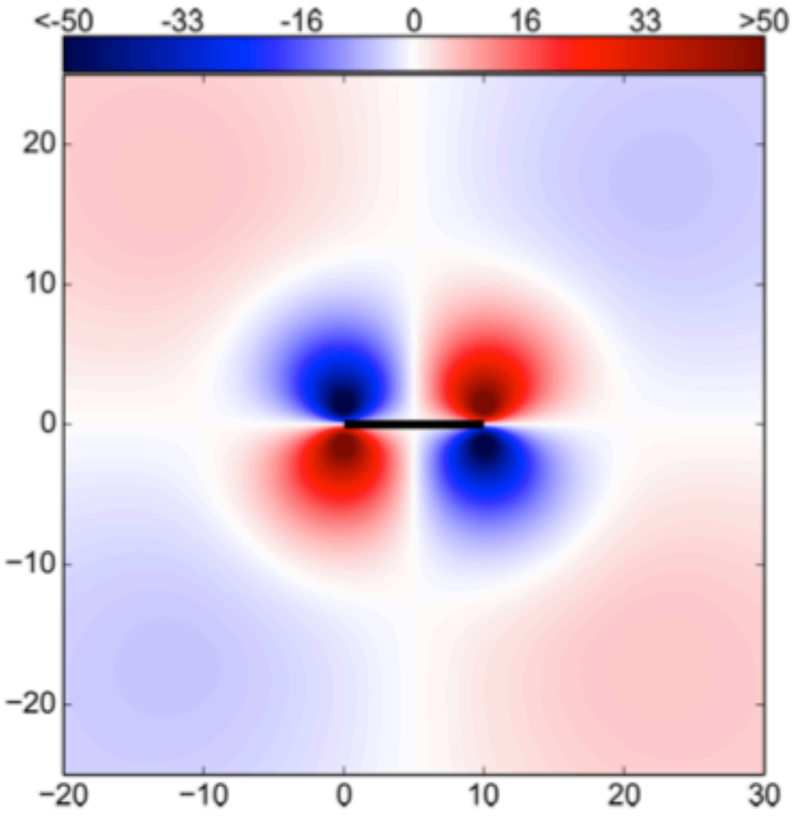
Okubo's [1992] Surface Gravity Changes

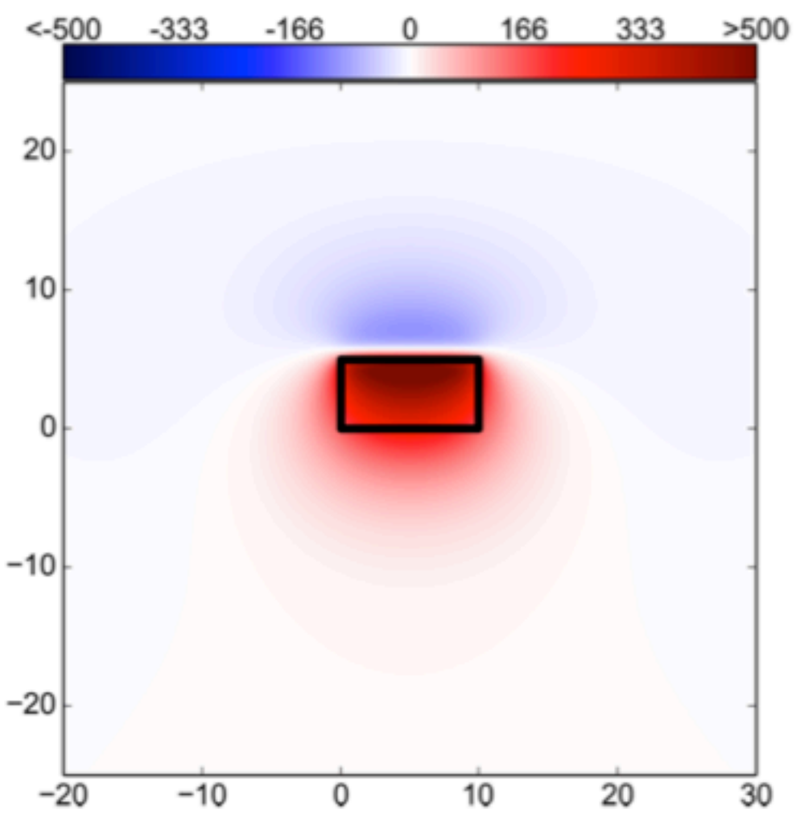
$$\Delta g(\mathbf{r},\mathbf{s}) = \{\rho G[U_1 S_g(\xi,\eta) + U_2 D_g(\xi,\eta) + U_3 T_g(\xi,\eta)]$$

$$+ \Delta\rho G U_3 C_g(\xi,\eta)\} \;||\; -\beta\Delta h(x_1,x_2)$$

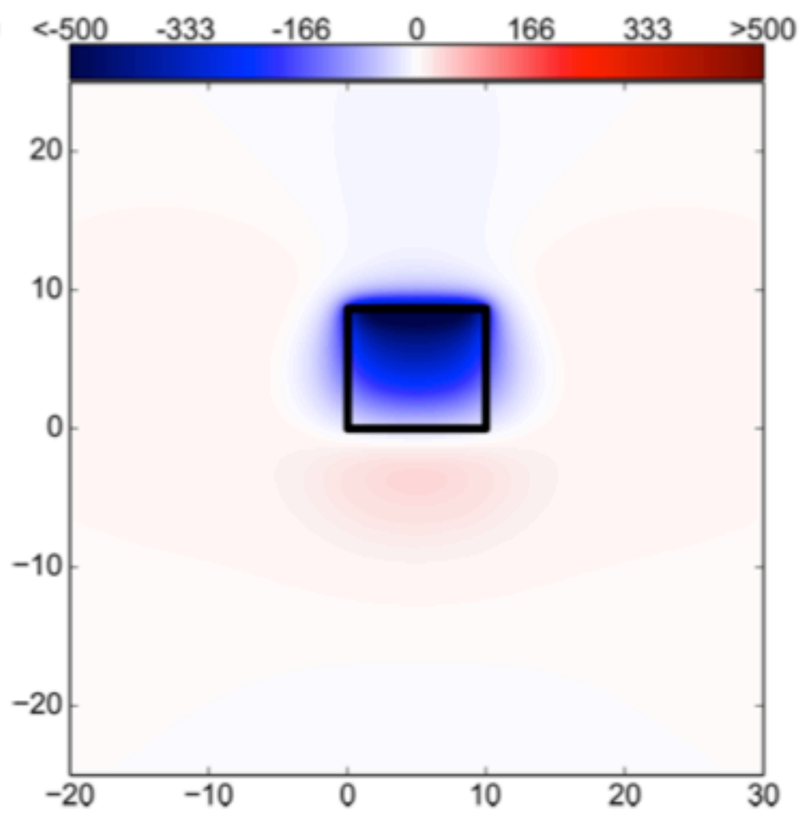
strike-slip, dip = 90°



normal, dip = 30°



thrust, dip = 60°



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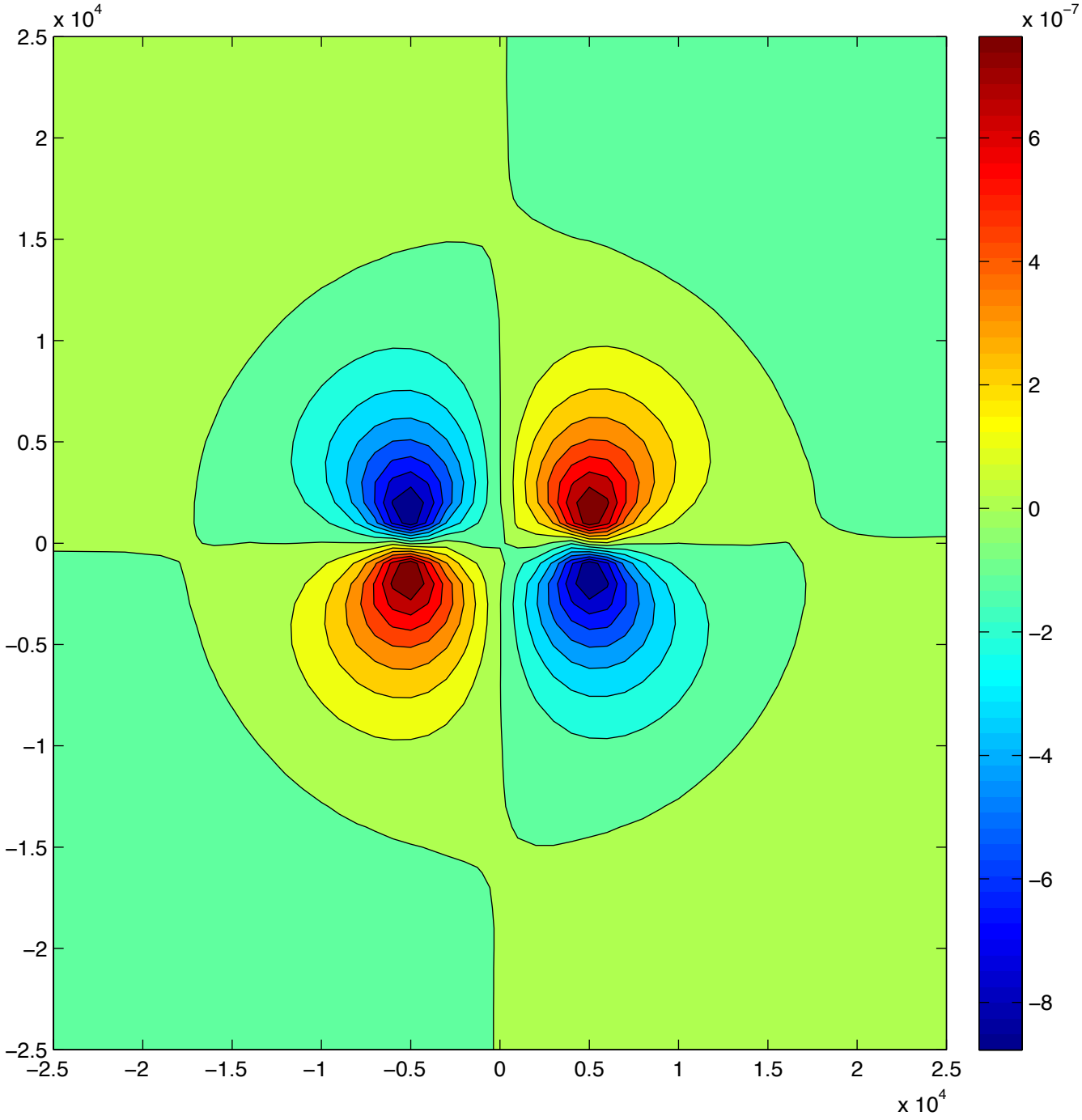
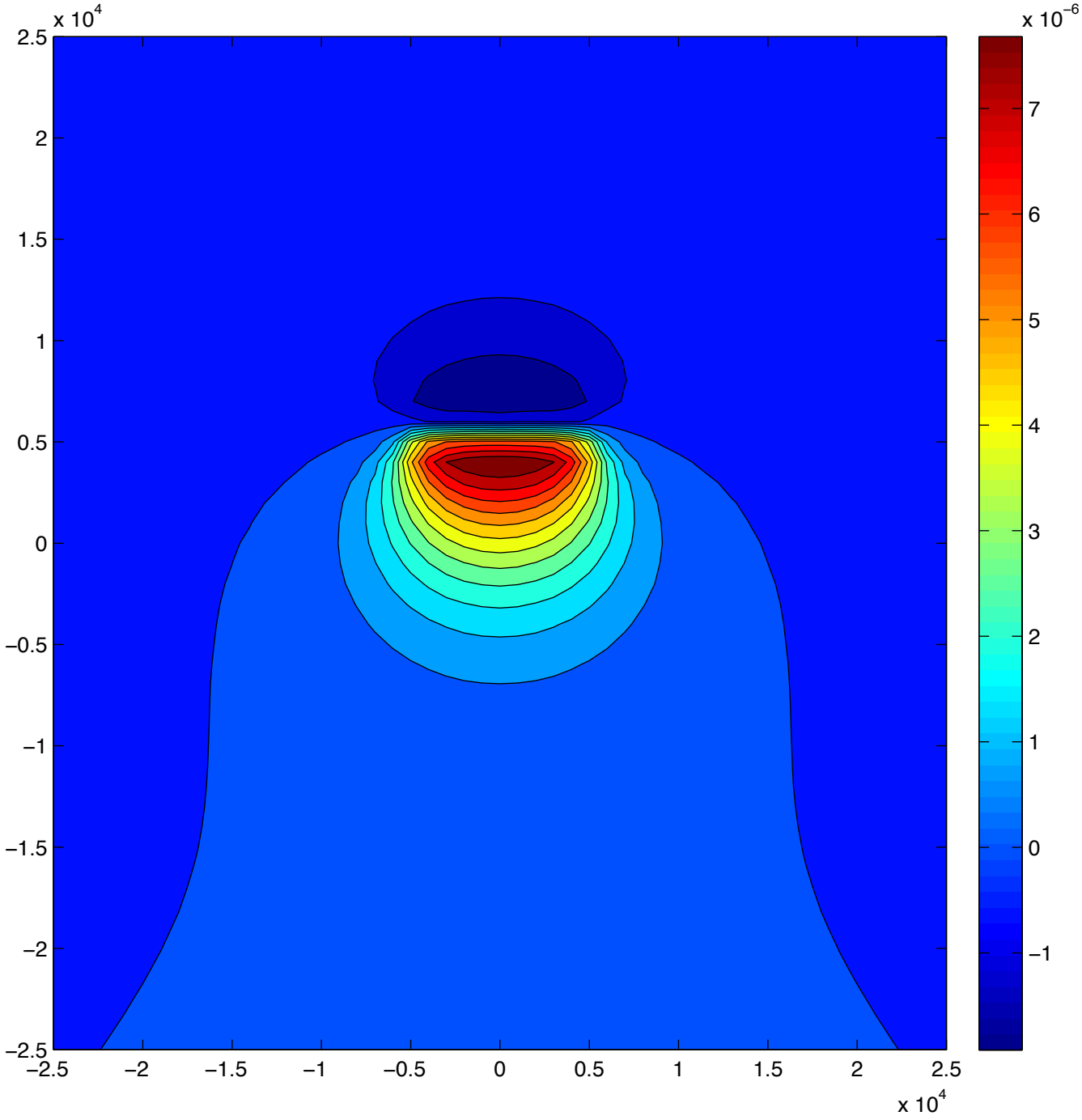
Fault parameters: element size10km by 10km, 5m slip, depth to top of fault is 1km, density is 2670 kg/m^3, Poisson's ratio **ν** = 0.258

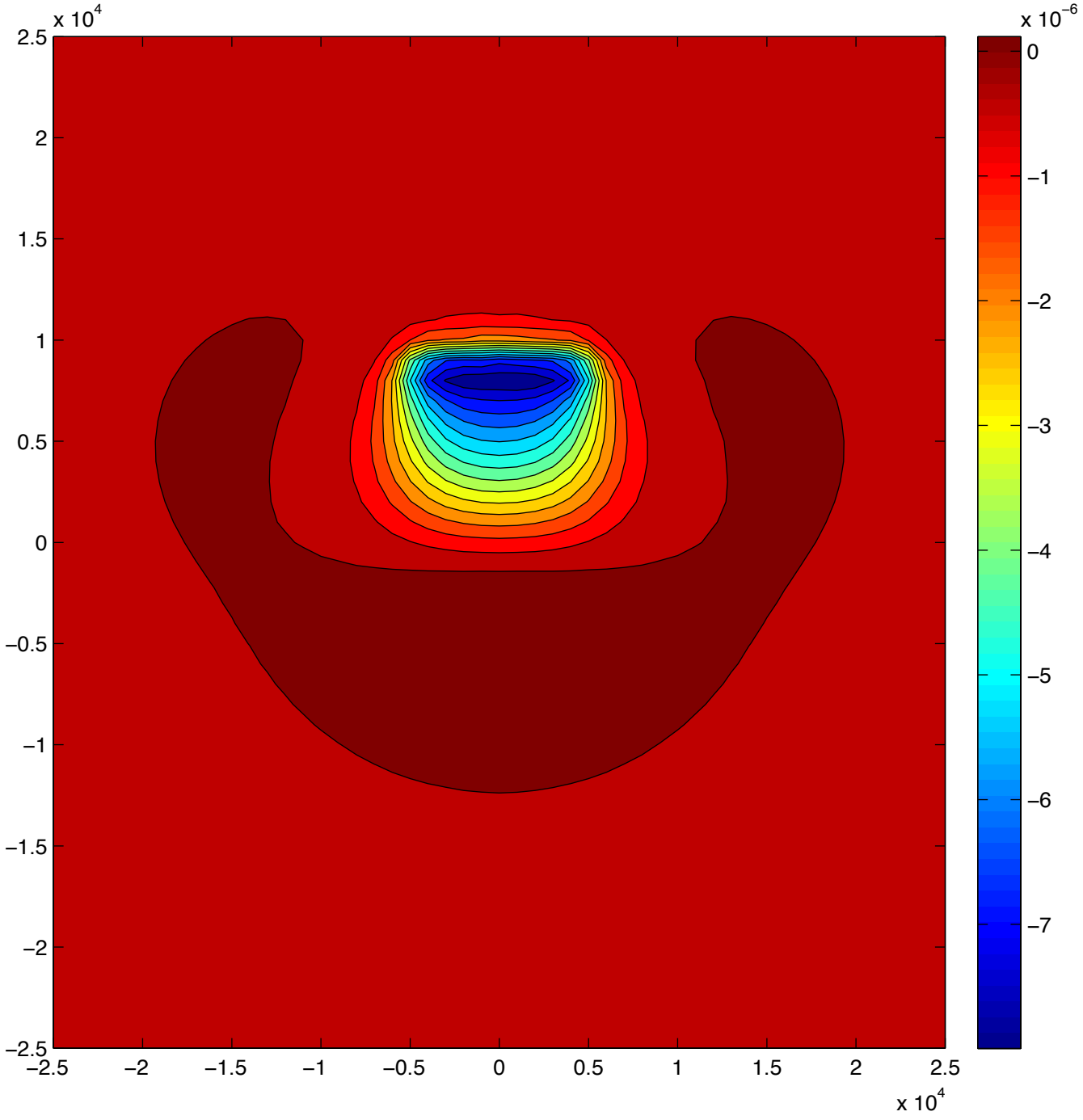
$g_0 \approx 9.81\text{x}10^8$ μGal, 1μGal = 10^{-8} m/s^2



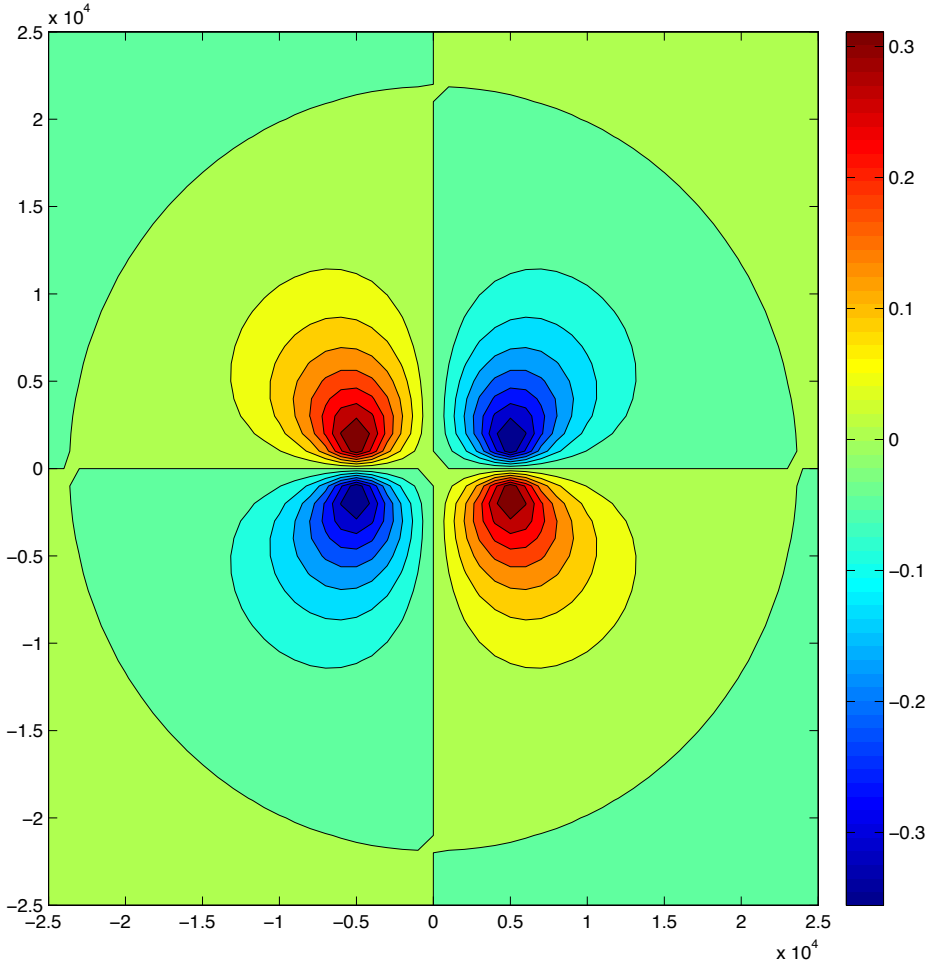
strike slip fault
surface gravity change (m/s^2)

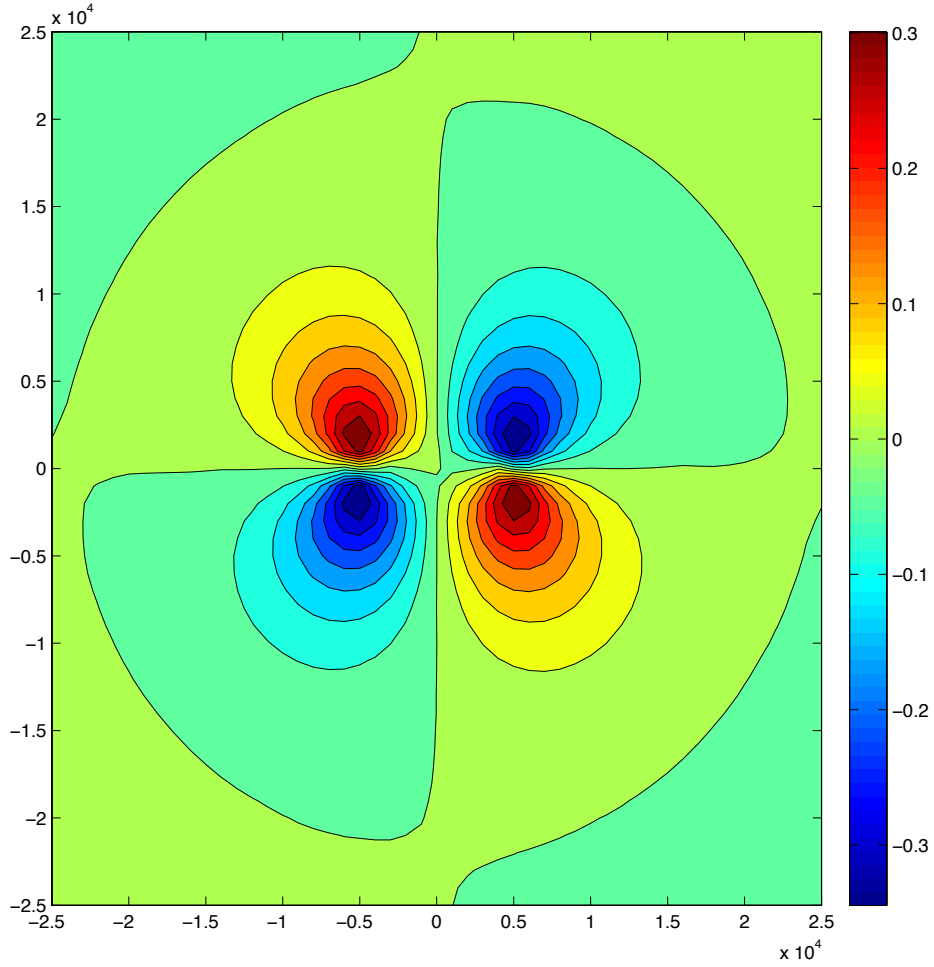


60° normal fault
surface gravity change (m/s^2)



30° thrust fault
surface gravity change (m/s^2)





Okada solution

GeoFEST solution

strike slip fault, vertical displacement (meters)