

Vertical stress magnitude

$$S_v = \int_0^z \rho(z)g dz$$

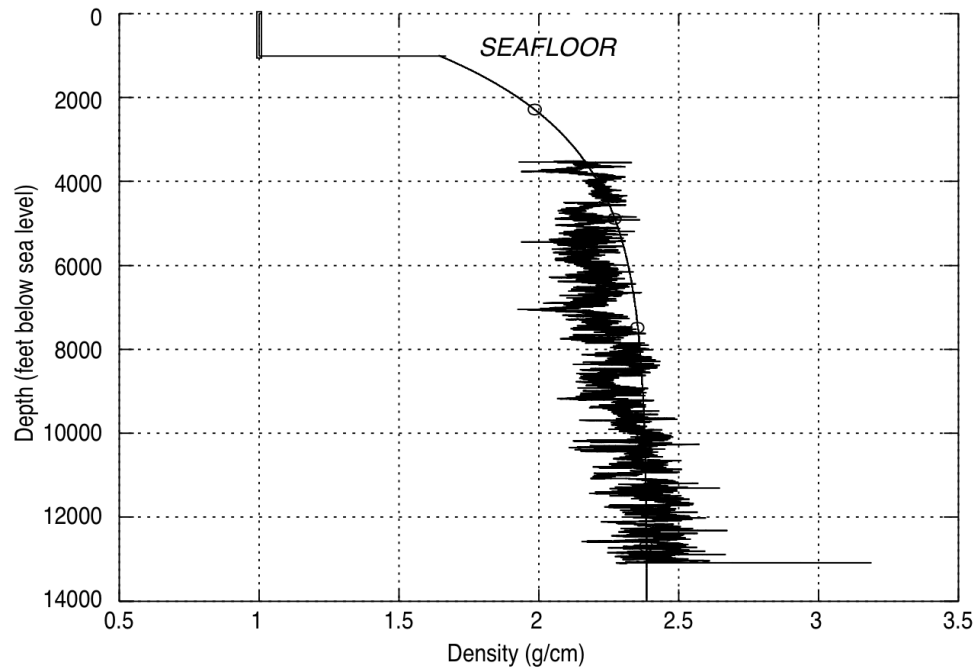
In offshore areas

$$S_v = \rho_w g z_w + \int_{z_w}^z \rho(z) g dz$$

Rules of thumb

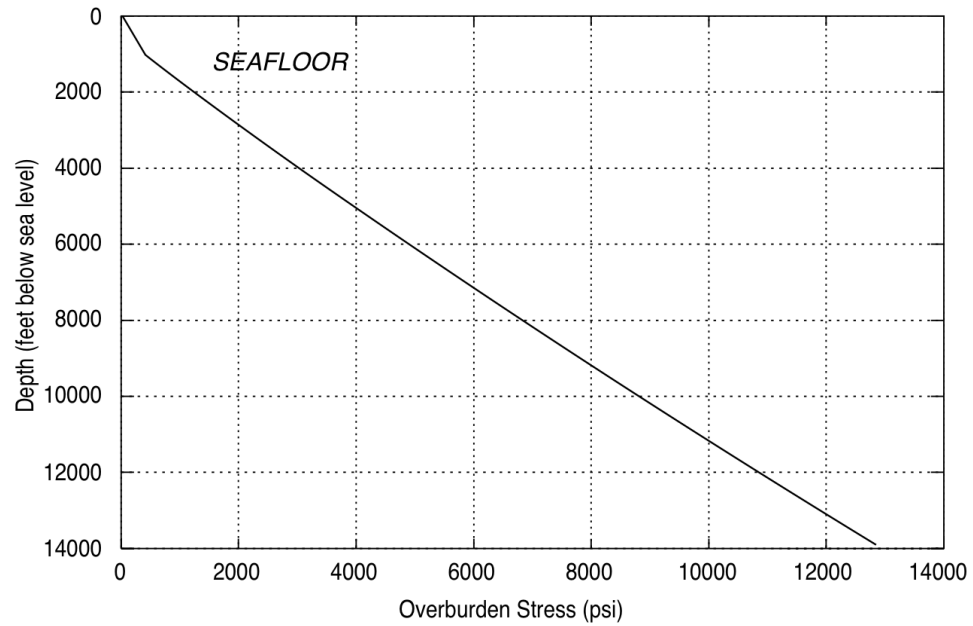
- $\rho_w \approx 1\text{g/cm}^3$
 - increases at a rate of 10 MPa/km (0.44 psi/ft)
- $\rho_{\text{rock}} \approx 2.3\text{g/cm}^3$
 - increases at a rate of 23 MPa/km (1 psi/ft)

Density logs



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Density log integration



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