Vertical stress magnitude

\[ S_v = \int_0^z \rho(z)gdz \]
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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