

# Gravity variations

$$\gamma = \gamma_0 / \hat{z}$$

$$g(x, y, z) = \gamma_0 + \delta g(x, y, z)$$

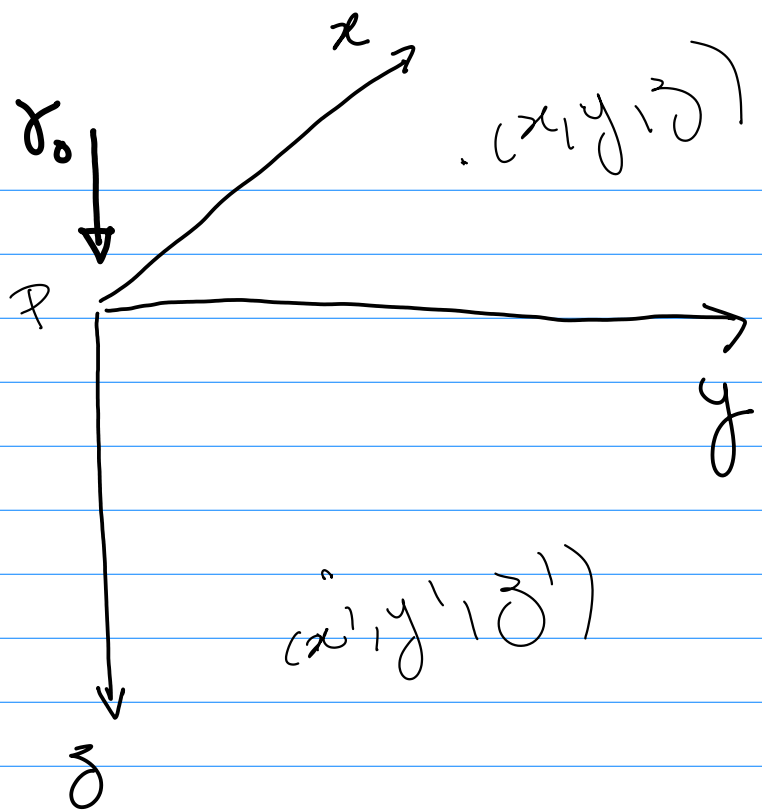
$$\delta g(x, y, z) = \underbrace{\|g(x, y, z)\|}_{g(x, y, z)} - \underbrace{\|\gamma_0\|}_{\gamma_0}$$

$$g(x, y, z) \approx \gamma_0 + \hat{\gamma}_0^T \delta g$$

$$\delta g(x, y, z) \approx \hat{\gamma}_0^T \delta g$$

$$\approx \hat{z}^T \delta g$$

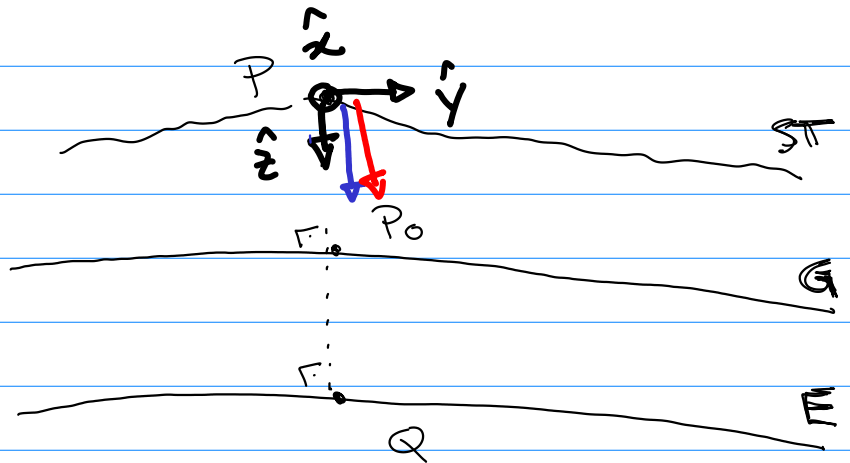
$$\approx \delta g_z$$



$$\hat{\gamma}_0 = \frac{\gamma_0}{\|\gamma_0\|} = \begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix}$$

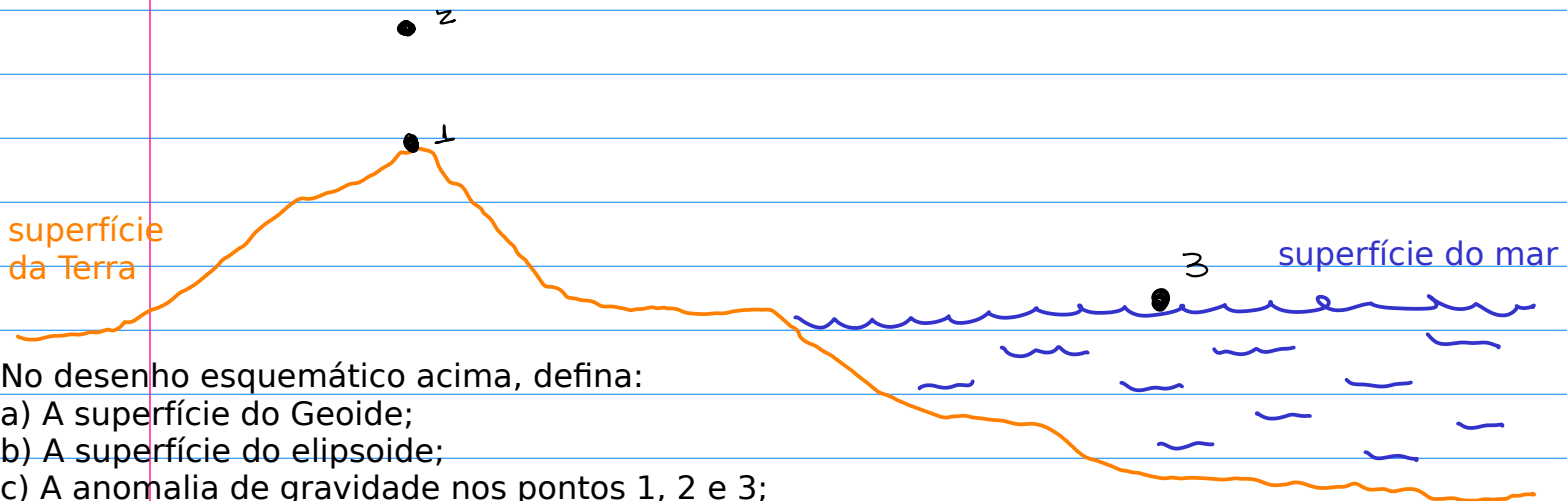
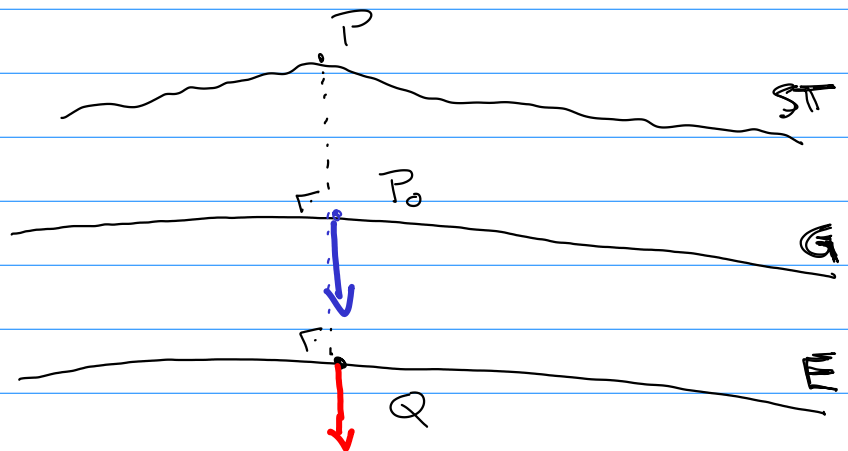
$$\delta g_P = g_P - \gamma_P$$

$$\delta g \approx \delta g_z$$



$$\Delta g_P = g_0 - \gamma_Q$$

$$\Delta g_P = g_0 - \gamma_Q$$



No desenho esquemático acima, defina:

- A superfície do Geóide;
- A superfície do elipsoide;
- A anomalia de gravidade nos pontos 1, 2 e 3;
- O distúrbio de gravidade nos pontos 1, 2 e 3.

Todos os itens deverão ser respondidos, ainda que você não saiba direito a resposta. Neste caso, explique a sua dúvida.