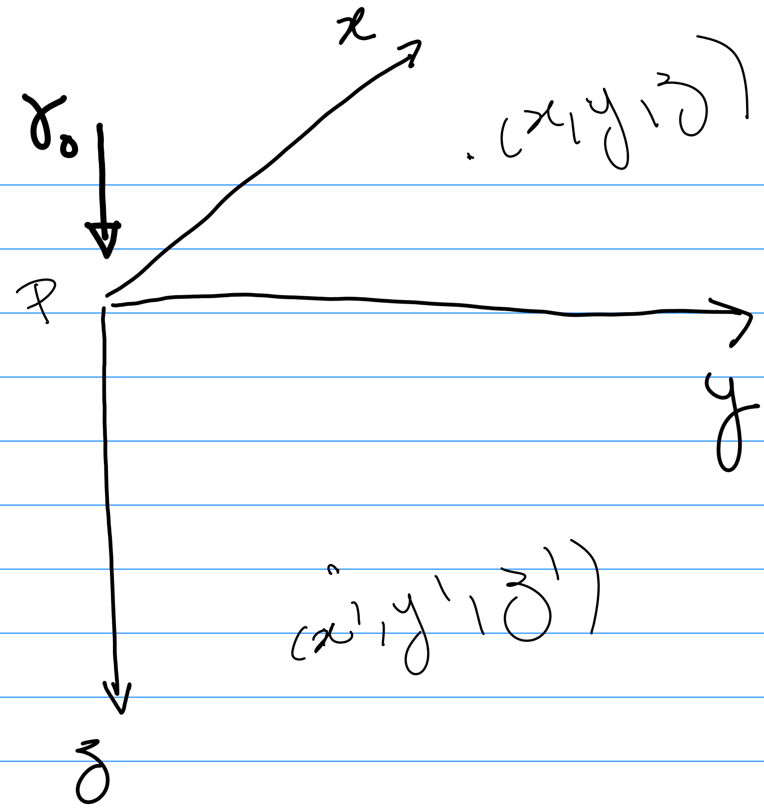
Gravity variations



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

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

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

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

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

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

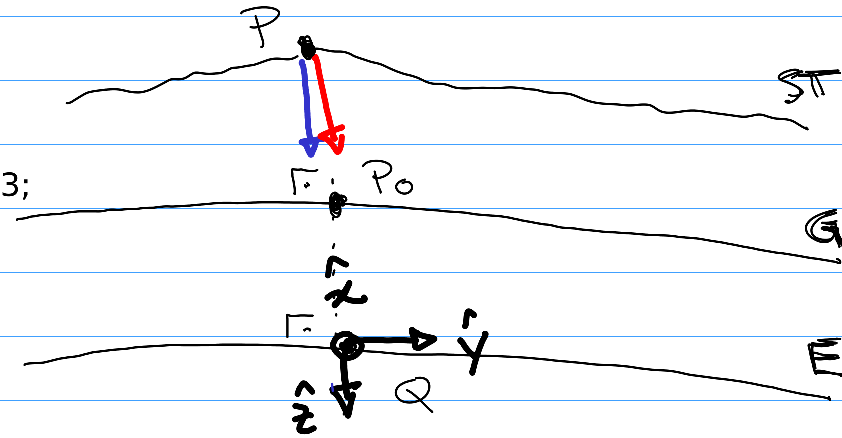
$$\approx \hat{z}^{T} \delta g$$

$$\approx \delta g_z$$

(Sansò and Sideris, 2013, p. 49)

Gravity disturbance vector
(Hofmann-Wellenhof and Moritz, 2005, p. 92;
Sansò and Sideris, 2013, p. 49)

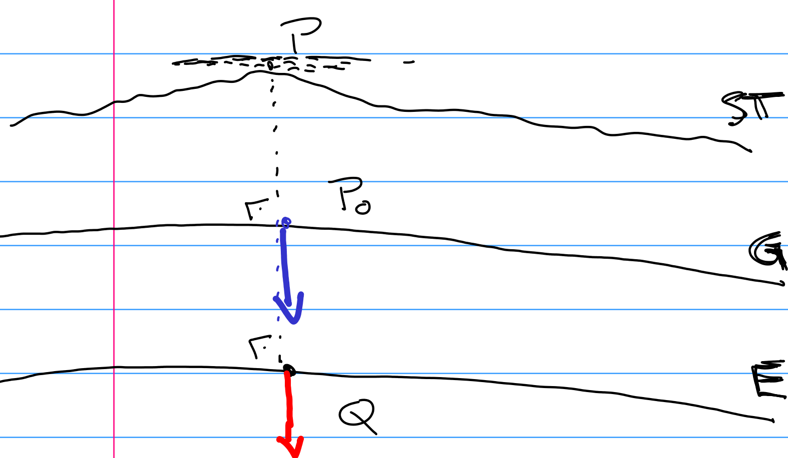
$$\boldsymbol{\delta g}_P = \mathbf{g}_P - \boldsymbol{\gamma}_P$$



Gravity disturbance
(Hofmann-Wellenhof and Moritz, 2005, p. 93;
Sansò and Sideris, 2013, p. 49)

$$\delta g \simeq \hat{z}^T \boldsymbol{\delta g}$$

$$\delta g \neq \| \boldsymbol{\delta g} \|$$



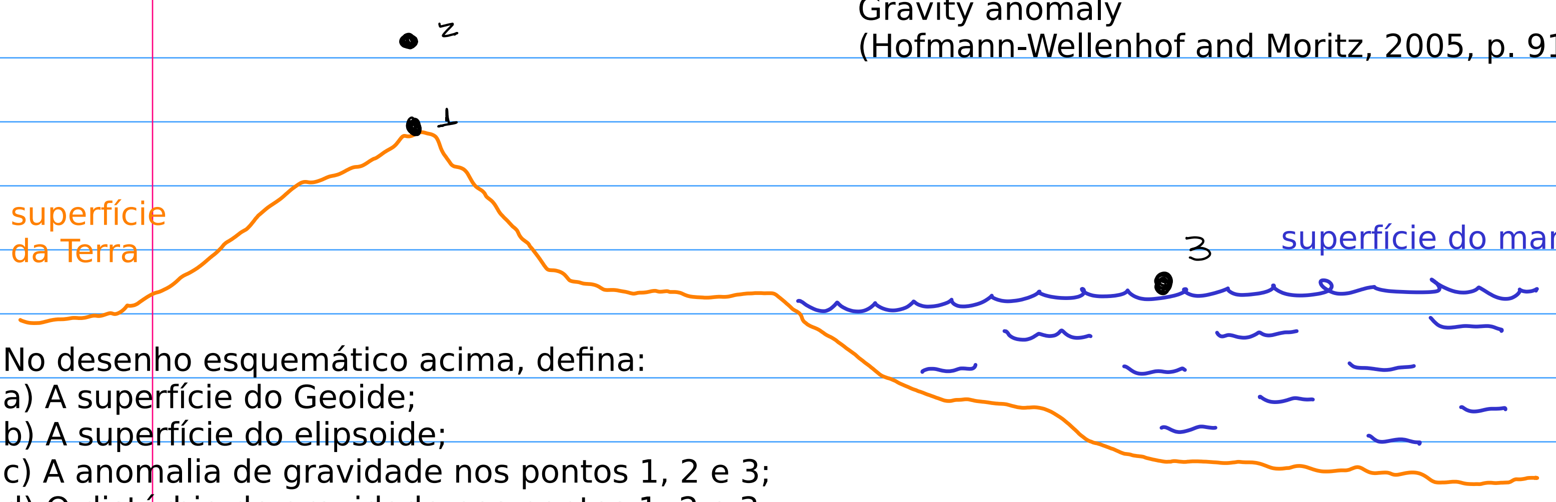
Gravity anomaly vector
(Hofmann-Wellenhof and Moritz, 2005, p. 91)

$$\boldsymbol{\Delta g}_P = \mathbf{g}_0 - \boldsymbol{\gamma}_Q$$

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

$$\Delta g_P \neq \| \boldsymbol{\Delta g}_P \|$$

Gravity anomaly
(Hofmann-Wellenhof and Moritz, 2005, p. 91)



No desenho esquemático acima, defina:
a) A superfície do Geoide;
b) A superfície do elipsoide;
c) A anomalia de gravidade nos pontos 1, 2 e 3;
d) O distúrbio de gravidade nos pontos 1, 2 e 3.

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