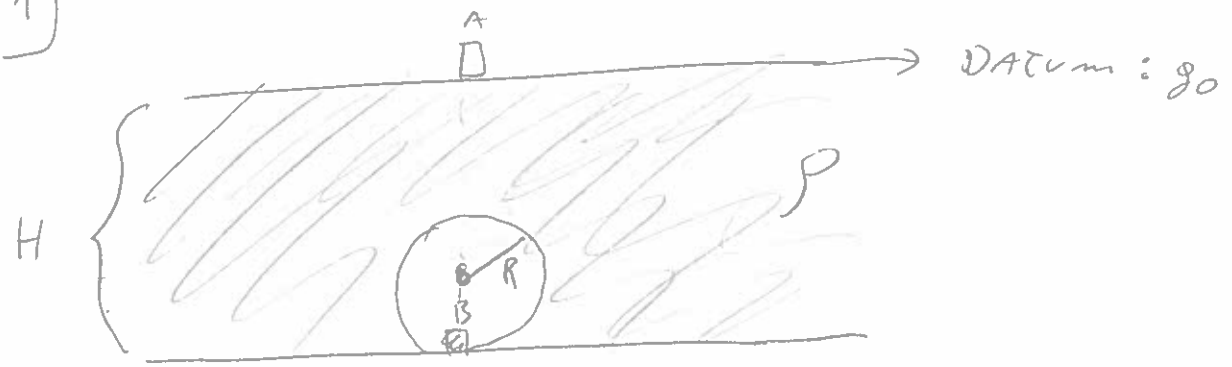
ESTEBAN
MODEL

PAUTA AUX 4

P1]



a) $g_A = g_0 + \underbrace{2\pi\rho G H}_{\text{BOUGUER}} + \frac{G(\Delta\rho)\cdot V}{(H-R)^2}$ / NO HAY AIRE LIBRE

$V = \frac{4}{3}\pi R^3$; $\Delta\rho = \rho_{ADENTRO} - \rho_{AFUERA} = 0 - \rho$

$\Rightarrow g_A = g_0 + 2\pi\rho G H - \frac{G\rho}{(H-R)^2}\cdot\frac{4}{3}\pi R^3$

AHORA EN B

$\Rightarrow g_B = g_0 - \gamma(-H) - 2\pi\rho G H + \frac{G\rho V}{R^2}$

$= g_0 + \gamma\cdot H - 2\pi\rho G H + \frac{G\rho V}{R}$

Con γ = GRADIENTE DE AIRE LIBRE = 0,3086 $\frac{mGAL}{m}$

$$\Delta g = g_B - g_A = \gamma H - 4\pi\rho G H + G\rho\frac{4\pi}{3}R^3\left[\frac{1}{R^2} + \frac{1}{(H-R)^2}\right]$$

$$= \gamma H - 4\pi\rho G H + \frac{4}{3}\pi G\rho \cdot R\left[\frac{R^2}{R^2} + \frac{R^2}{(H-R)^2}\right]$$

$$= \gamma H - 4\pi\rho G H + \frac{4}{3}\pi G\rho \frac{H}{H}\cdot R\left[1 + \left(\frac{R}{H-R}\right)^2\right]$$

$$= \gamma H - 4\pi\rho G H + \frac{4}{3}\pi G\rho H \cdot \frac{R}{H}\left[1 + \left(\frac{R}{H-R}\right)^2\right]$$

$$= \gamma H - 4\pi\rho G H (1 - A)$$

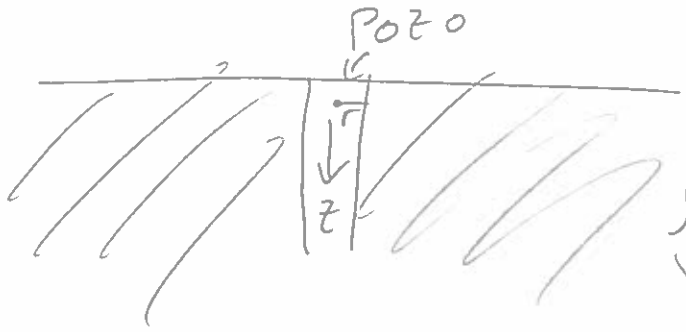
Con $A = \frac{1}{3}\cdot\frac{R}{H}\left[1 + \left(\frac{R}{H-R}\right)^2\right]$

$$\Rightarrow \rho = \frac{\gamma H - \Delta g}{4\pi G H (1-A)}$$

b) $\Delta g = 13$ mGal $\Rightarrow \rho = 1{,}27 \frac{gr}{cc}$

c) $\Delta g = 0 \Rightarrow \rho = 9{,}28 \frac{gr}{cc}$

P2]



$r \ll 1$

$\rho = \rho_0 + A z$

DENSIDAD LINEA

- X' AIRE LIBRE, LA GRAVEDAD AUMENTA $0,3086 \cdot z$ y x' EFECTO DE PLACA LA GRAVEDAD DISMINUYE a RAZÓN DE 2 VECES el EFECTO DE LA PLACA (2 PLACAS)

$$\Rightarrow g(z) = g_0 + \gamma z - 2 \cdot 2\pi G \cdot \int_0^z \rho \cdot dz$$

$$= g_0 + \gamma z - 4\pi G \int_0^z (\rho_0 + A z)\, dz$$

$$= g_0 + \gamma z - 4\pi G \left(\rho_0 \cdot z + \frac{A}{2} z^2\right)$$

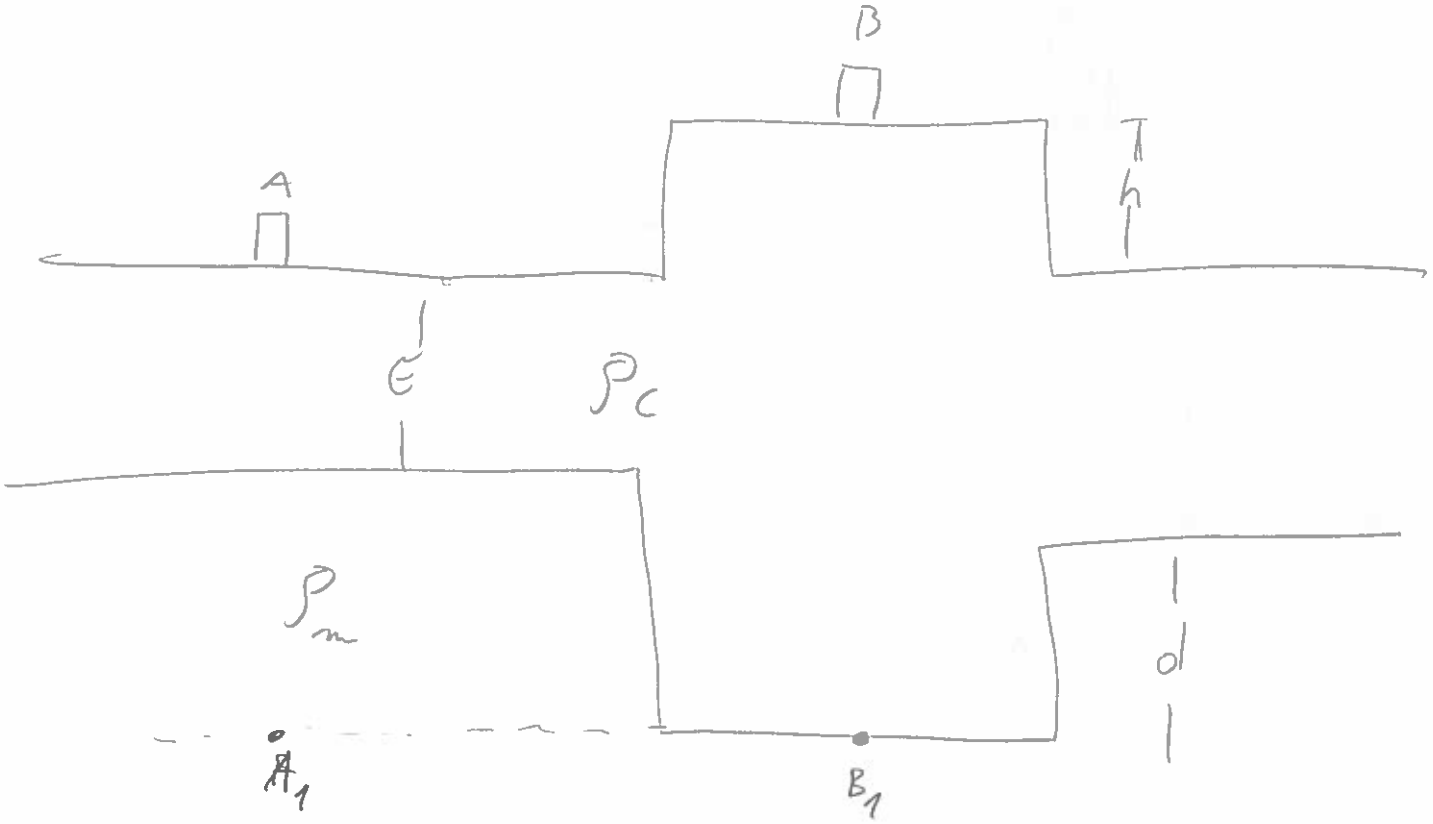
Sin EMBARGO, queremos $\frac{dg(z)}{dz}$

$$\Rightarrow \frac{dg(z)}{dz} = \gamma - 4\pi G \rho_0 - 4\pi G A z$$

$$= \gamma - 4\pi G (\rho_0 + A z)$$

$$= \gamma - 4\pi G \cdot \rho \quad //$$

P3]



a) Por Igualacion de Presiones Litostáticas

$$P_{B_1} = P_{A_1}$$

$$\Rightarrow (h + \cancel{E} + d) \cdot \rho_c = \cancel{\rho_c \cdot E} + \rho_m \cdot d$$

$$(h+d)\rho_c = \rho_m d$$

$$h\rho_c = d(\rho_m - \rho_c)$$

$$\boxed{d = \frac{h\rho_c}{\rho_m - \rho_c}}$$

b) Propuesto . . . .