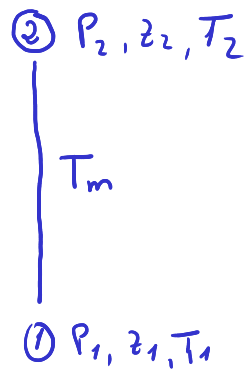


Temperaturak atmosferan

Mapa meteorologiko batzuetan begiratuta, 500 hPa-ko geopotenziala 5750 m-ko altueran eta 850 hPa-koa 1.550 m-ko altueran daudela ikusi da. Zein da atmosferaren batez besteko tenperatura? Zein da bi geopotenzialen altueran tenperatura?

$$g = 9.8 \text{ m/s}^2 \quad M_{\text{aire}} = 29 \text{ g/mol} \quad R = 8.31 \text{ J/K mol}$$

Datuak



Ekuazioak

$$1- \quad P_2 = P_1 e^{-\frac{z_2 - z_1}{H}} \rightarrow$$

$$H = \frac{RT_m}{gM \cdot 10^{-3}}$$

Ebazpena

$$\frac{P_2}{P_1} = e^{-\frac{z_2 - z_1}{H}}$$

$$\ln \frac{P_2}{P_1} = -\frac{z_2 - z_1}{H}$$

$$H = -\frac{z_2 - z_1}{\ln \frac{P_2}{P_1}} = 7915 \text{ m}$$

$$T_m = \frac{HgM \cdot 10^{-3}}{R} = \underline{\underline{271 \text{ K}}}$$

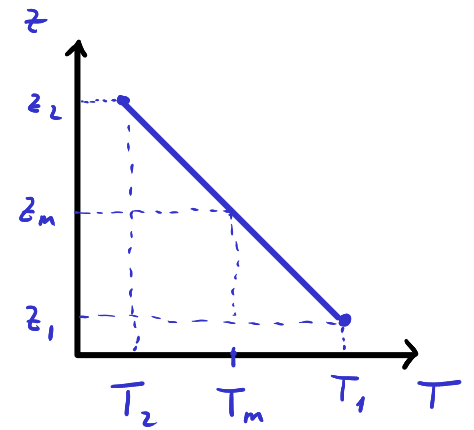
$$P_2 = 50000 \text{ Pa}$$

$$z_2 = 5750 \text{ m}$$

$$P_1 = 85000 \text{ Pa}$$

$$z_1 = 1550 \text{ m}$$

$$T_m, T_2, T_1 ?$$



Ekuazioak

$$a) \quad T_m = \frac{T_2 + T_1}{2}$$

$$b) \quad z_m = \frac{z_2 + z_1}{2}$$

$$c) \quad T_2 = T_1 - 0.0065(z_2 - z_1)$$

Ebazpena

a)-b)

$$T_2 = 2T_m - T_1 - 0.0065(z_2 - z_1)$$

$$T_2 = T_m - 0.0065 \frac{z_2 - z_1}{2} = \underline{\underline{257 \text{ K}}}$$

$$T_1 = T_m + 0.0065 \frac{z_2 - z_1}{2}$$

$$T_1 = \underline{\underline{284 \text{ K}}}$$