

### Pressure as a function of altitude

Constantes:

$$\rho_0 = 1.225691$$

$$P_0 = 1.01325 * 10^5 \quad [\text{mBar}] \quad (\text{pressure at } 15^\circ\text{C}) \quad (1 \text{ Bar} = 10^5 \text{ Pa})$$

$$T_0 = 273.15 + 15 \quad [^\circ\text{K}] \quad (\text{Reference temperature } 0^\circ\text{K} + 15^\circ\text{C})$$

$$T_{p_0} = 15 \quad [^\circ\text{C}]$$

$$S := -0.0065$$

$$g_r = 9.80665 \quad [\text{m/s}^2]$$

Alt = altitude where pressure is measured [m]

Pressure = pressure measured [mBar]

Pressure0 = pressure at sea level

$$T_{\text{int}} = \left( T_{p_0} + \frac{S}{2} * \text{Alt} \right) + 273.15$$

$$\text{Pressure0} = \text{Pressure} * e^{\left( \frac{\rho_0}{P_0} * \frac{T_0}{T_{\text{int}}} * g_r * \text{Alt} \right)}$$