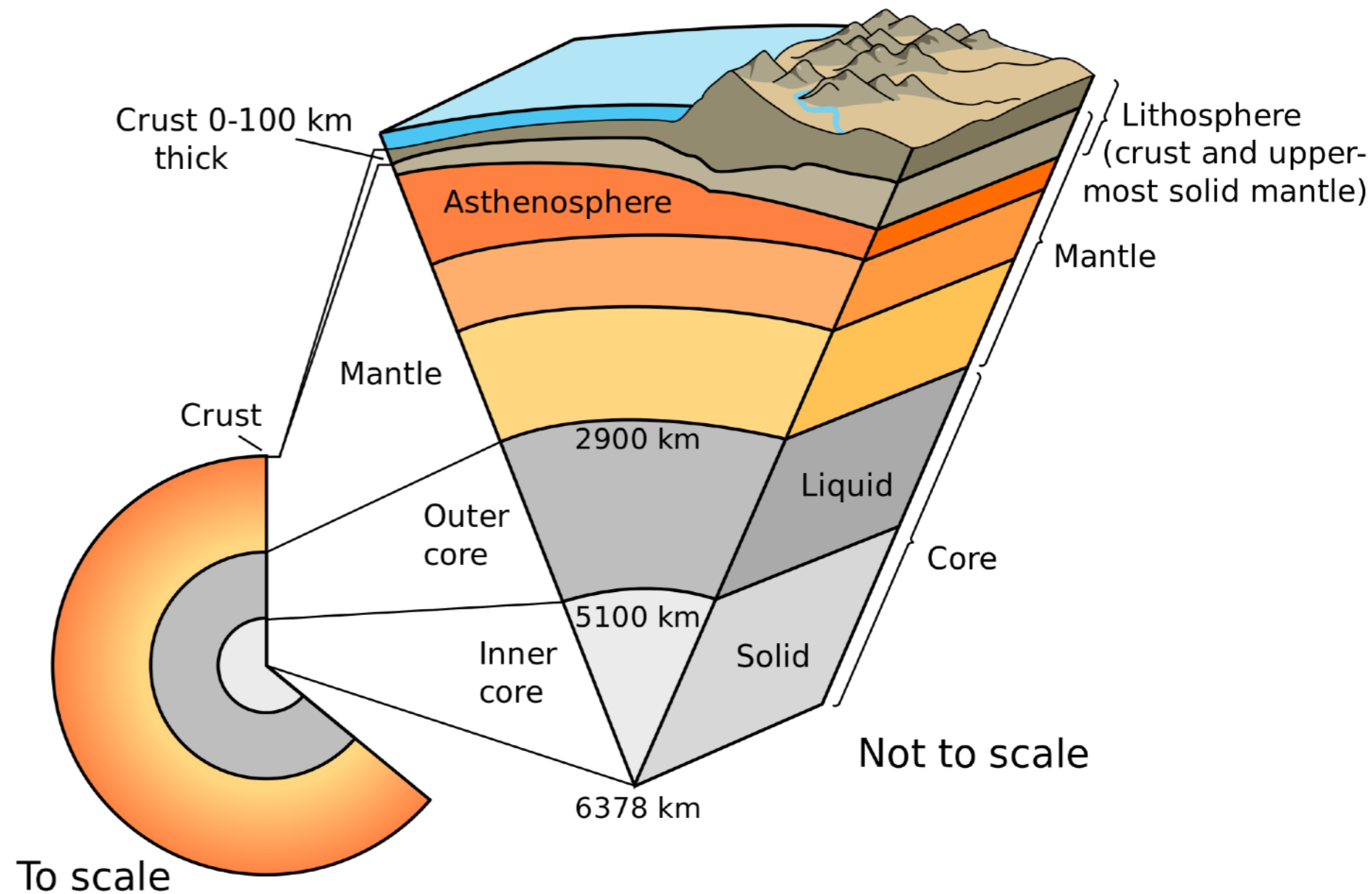
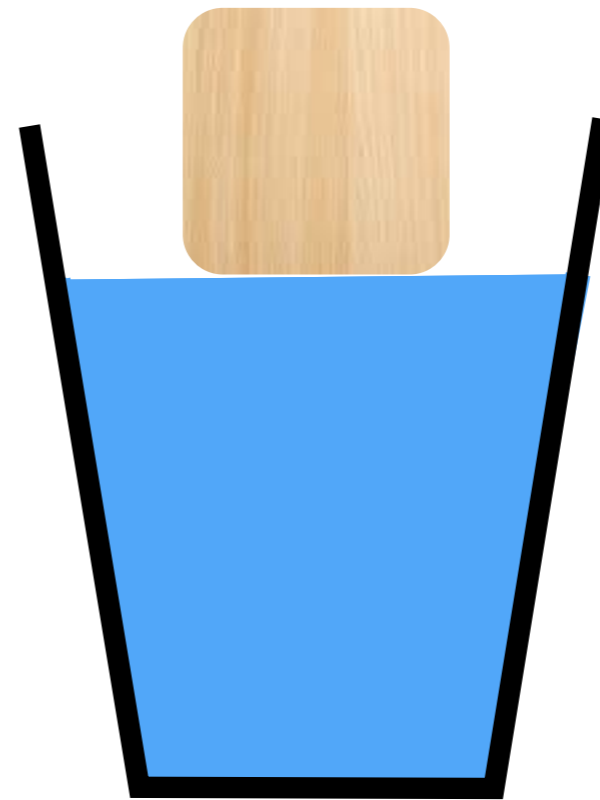


FLEXURA E ISOSTASIA DA LITOSFERA



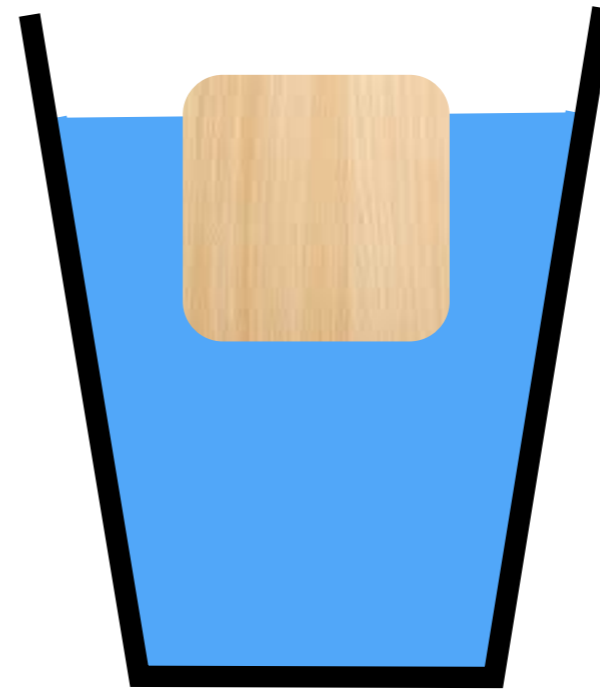
Isostasia

Princípio de Arquimedes



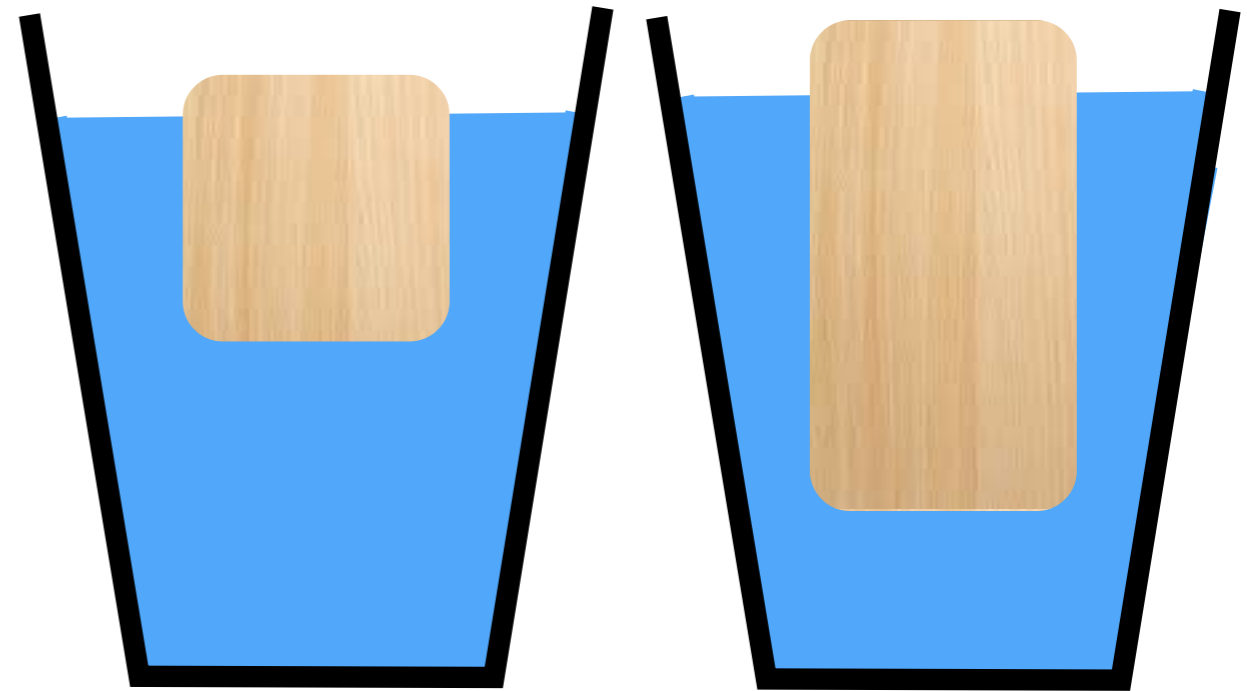
Any floating object displaces its own weight of fluid.
— Archimedes of Syracuse

Princípio de Arquimedes



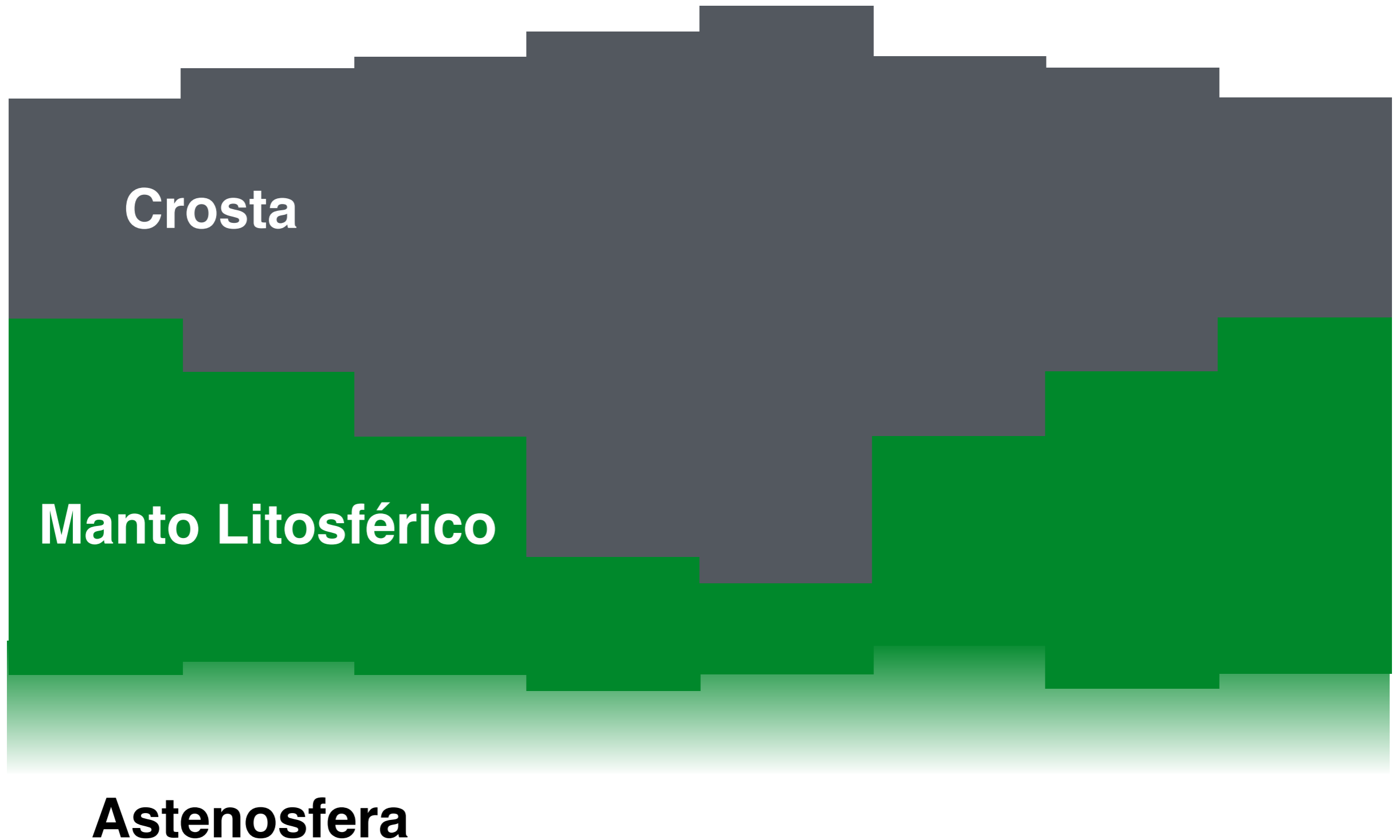
Any floating object displaces its own weight of fluid.
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Princípio de Arquimedes

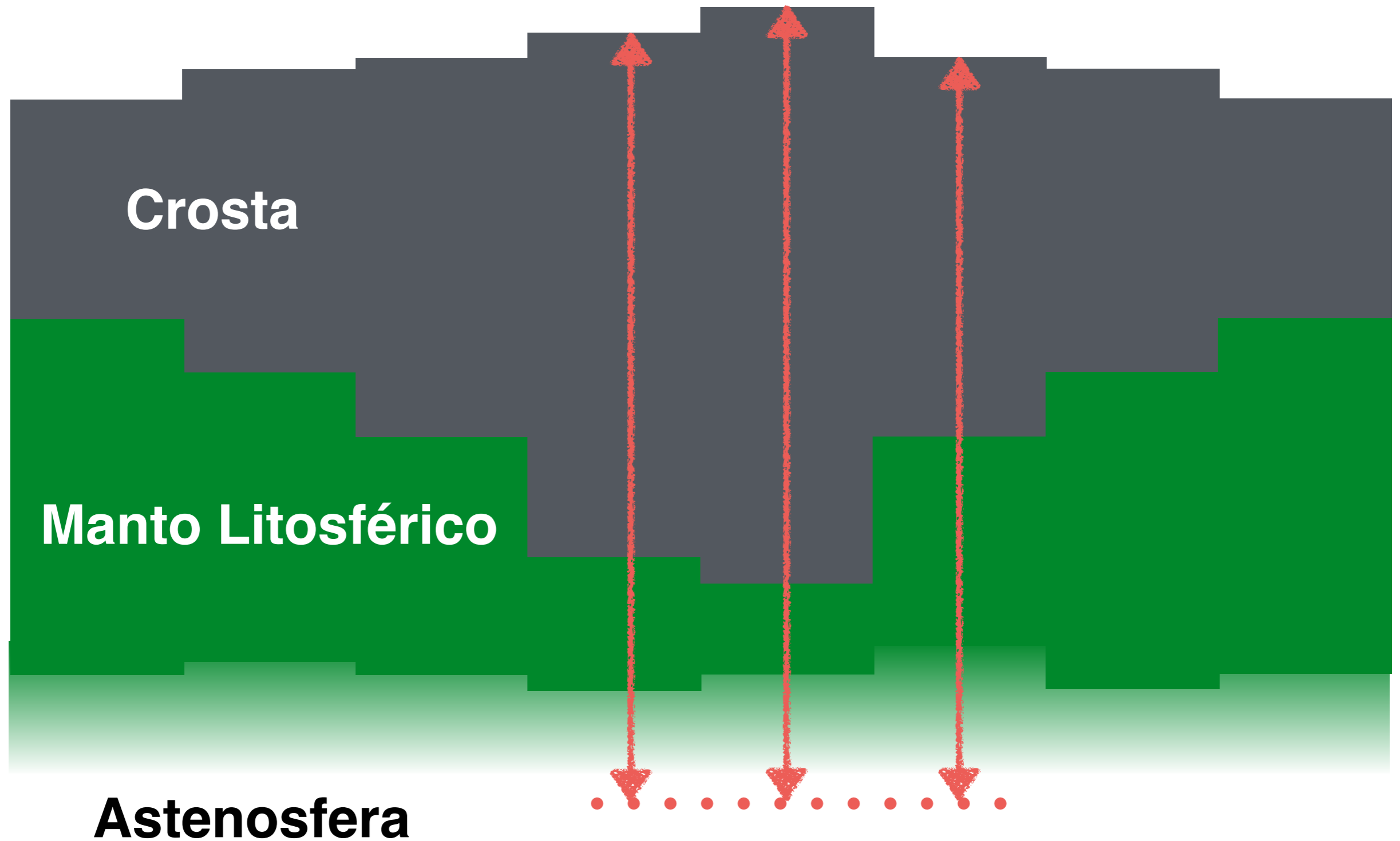


Any floating object displaces its own weight of fluid.
— Archimedes of Syracuse

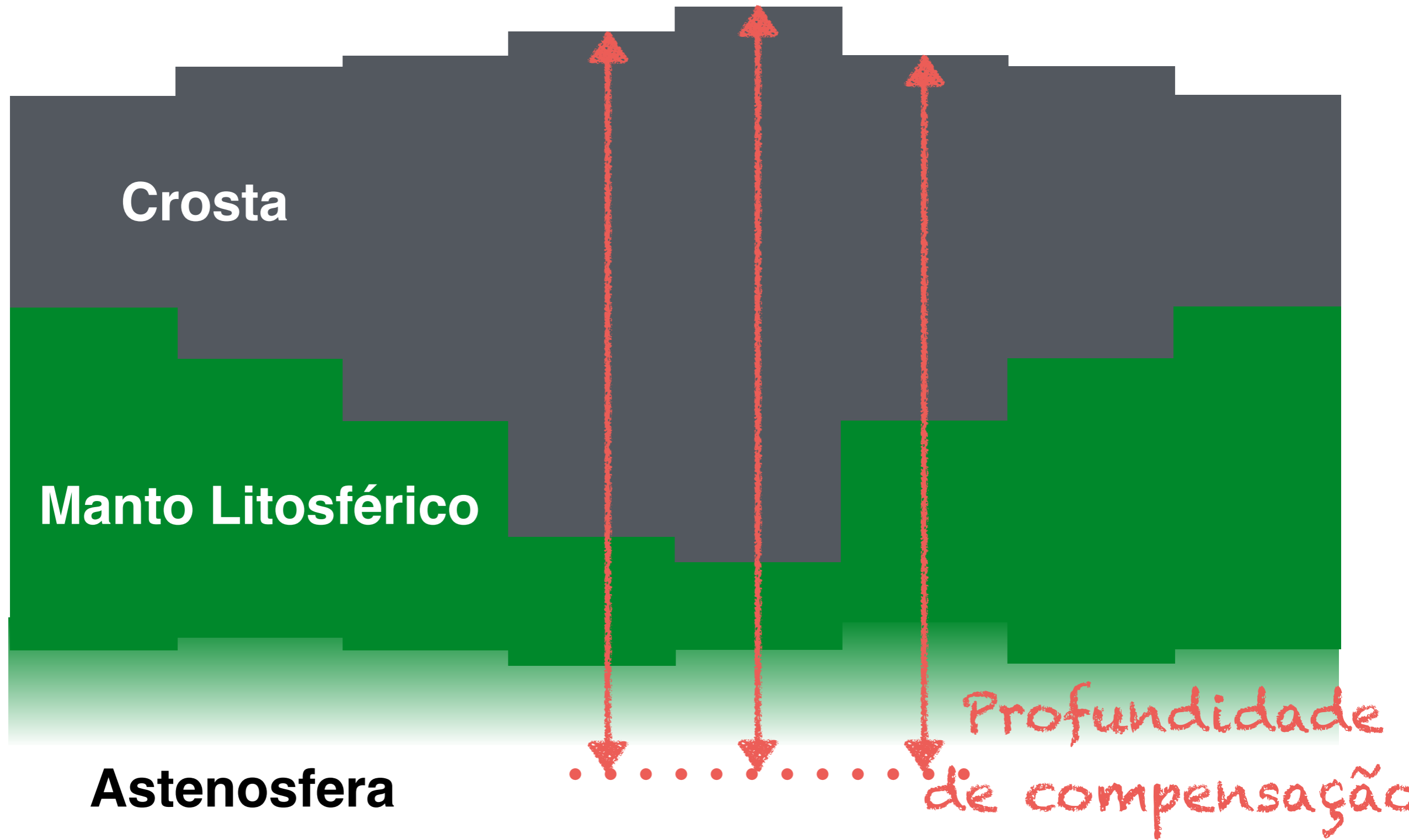
Isostasia da litosfera



Isostasia da litosfera



Isostasia da litosfera



Isostasia e flexura da litosfera

Isostasia
Local

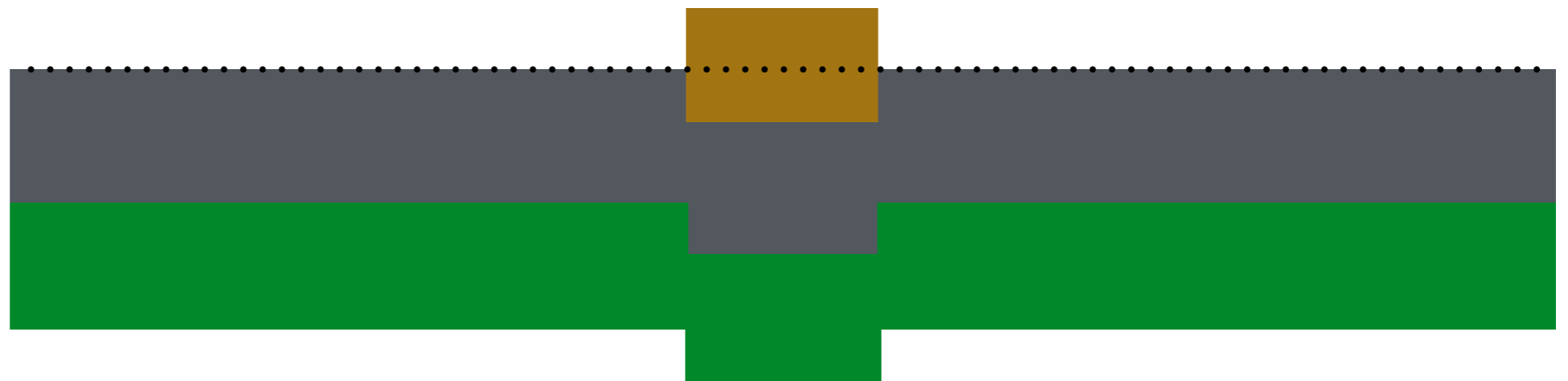


Isostasia
Flexural



Isostasia e flexura da litosfera

Isostasia
Local

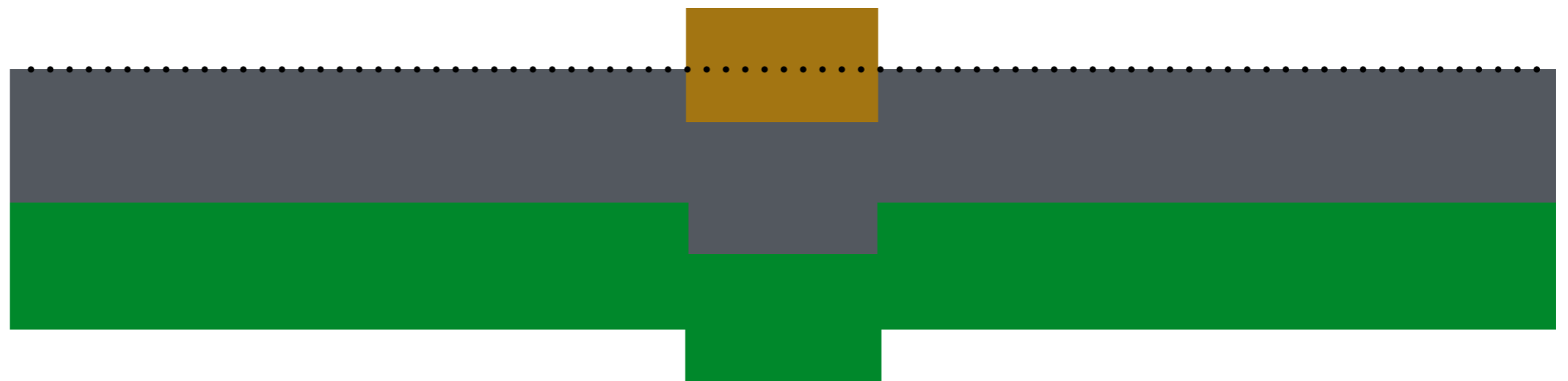


Isostasia
Flexural



Isostasia e flexura da litosfera

Isostasia
Local

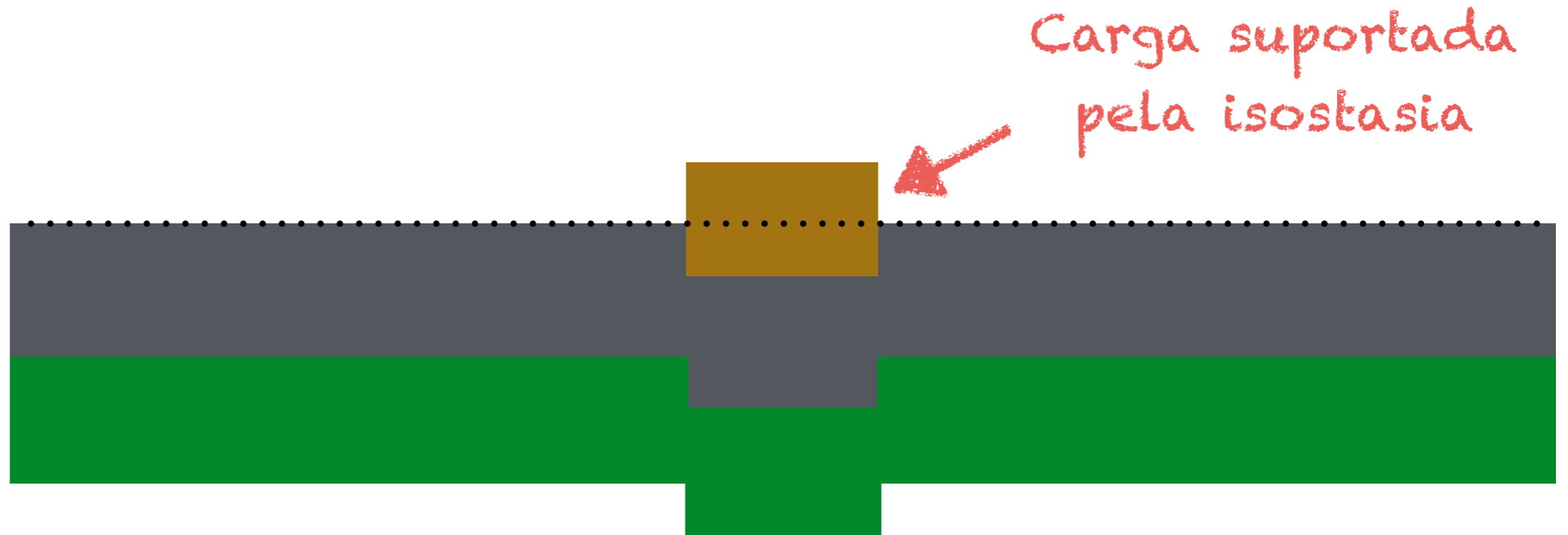


Isostasia
Flexural



Isostasia e flexura da litosfera

Isostasia
Local

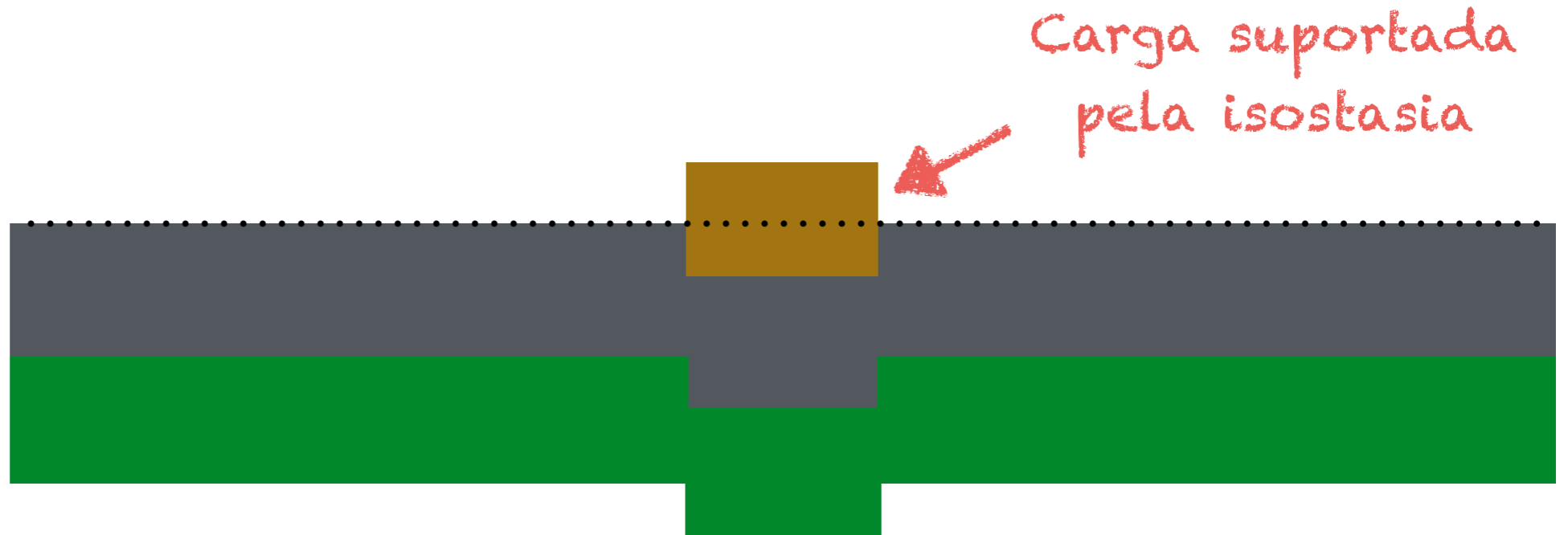


Isostasia
Flexural

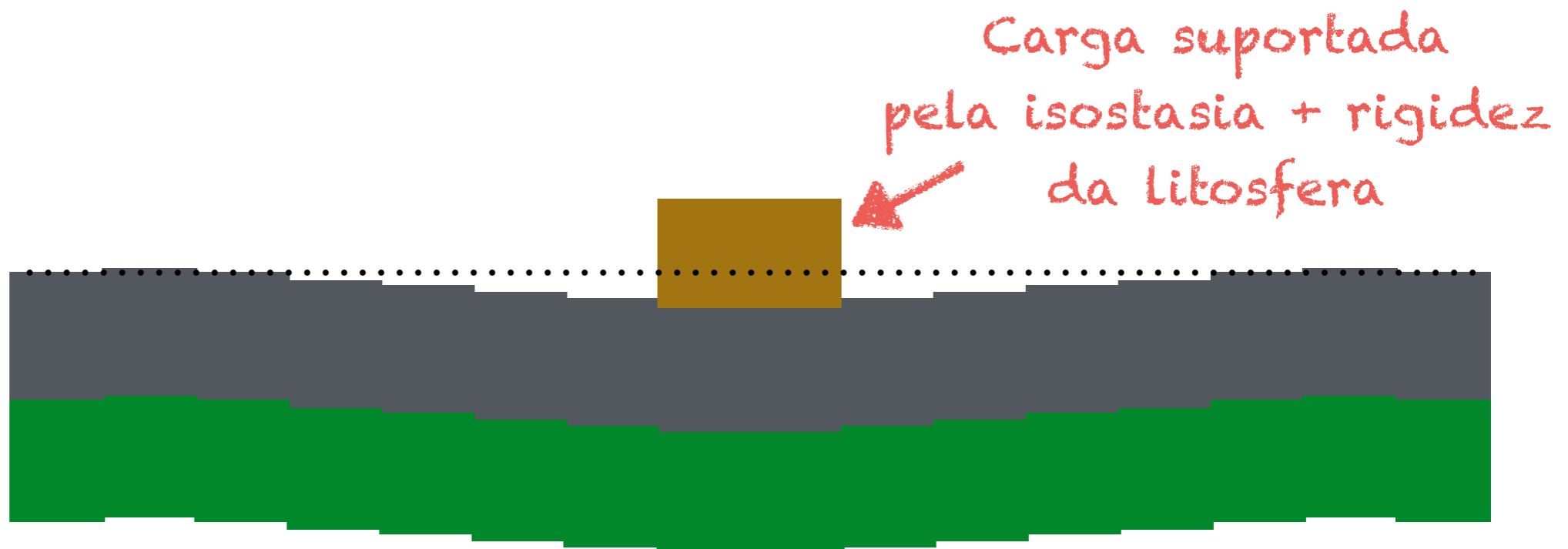


Isostasia e flexura da litosfera

Isostasia
Local



Isostasia
Flexural



Espessura elástica efetiva

T_e : Espessura elástica efetiva da litosfera

$T_e = 0$



T_e finite

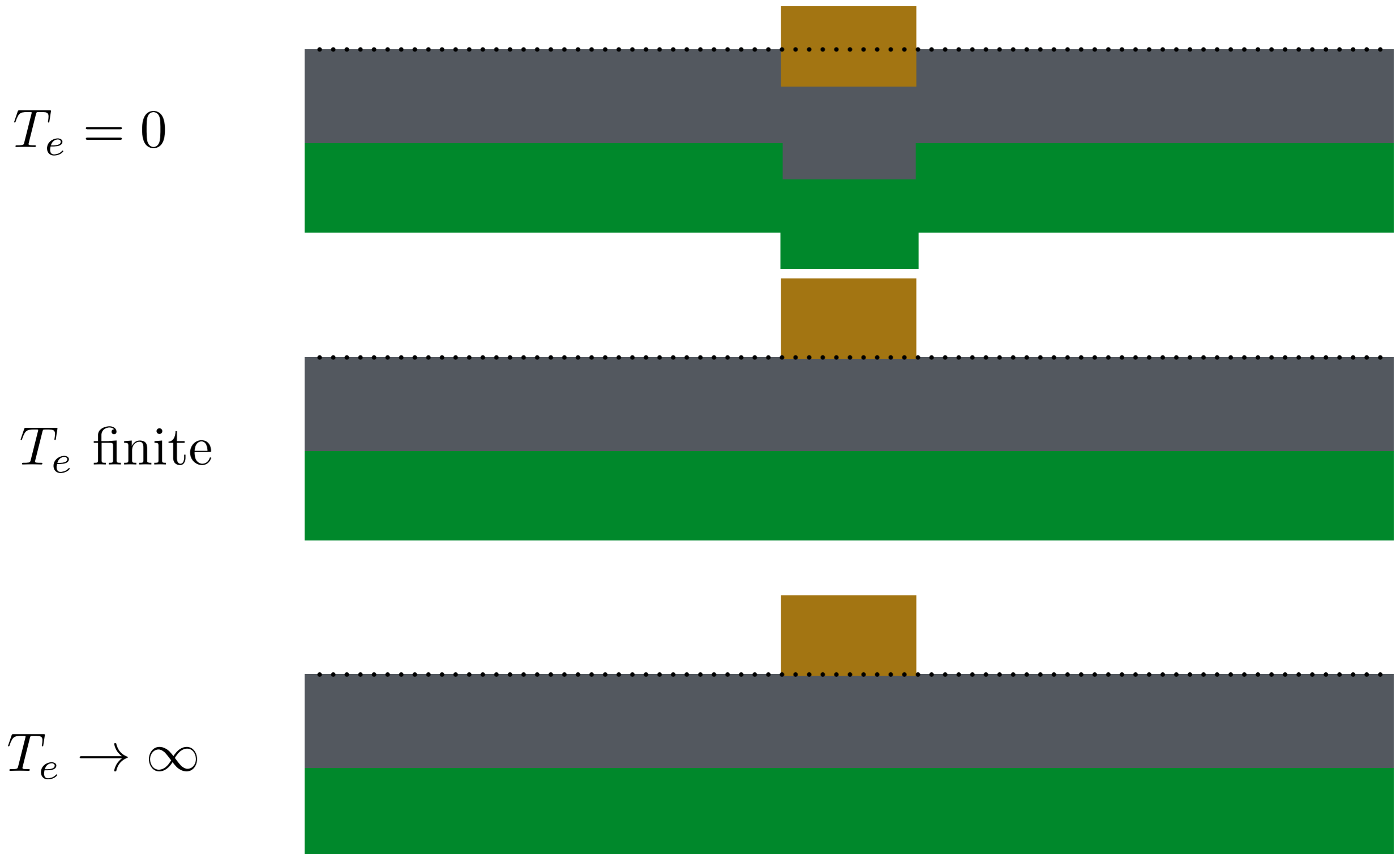


$T_e \rightarrow \infty$



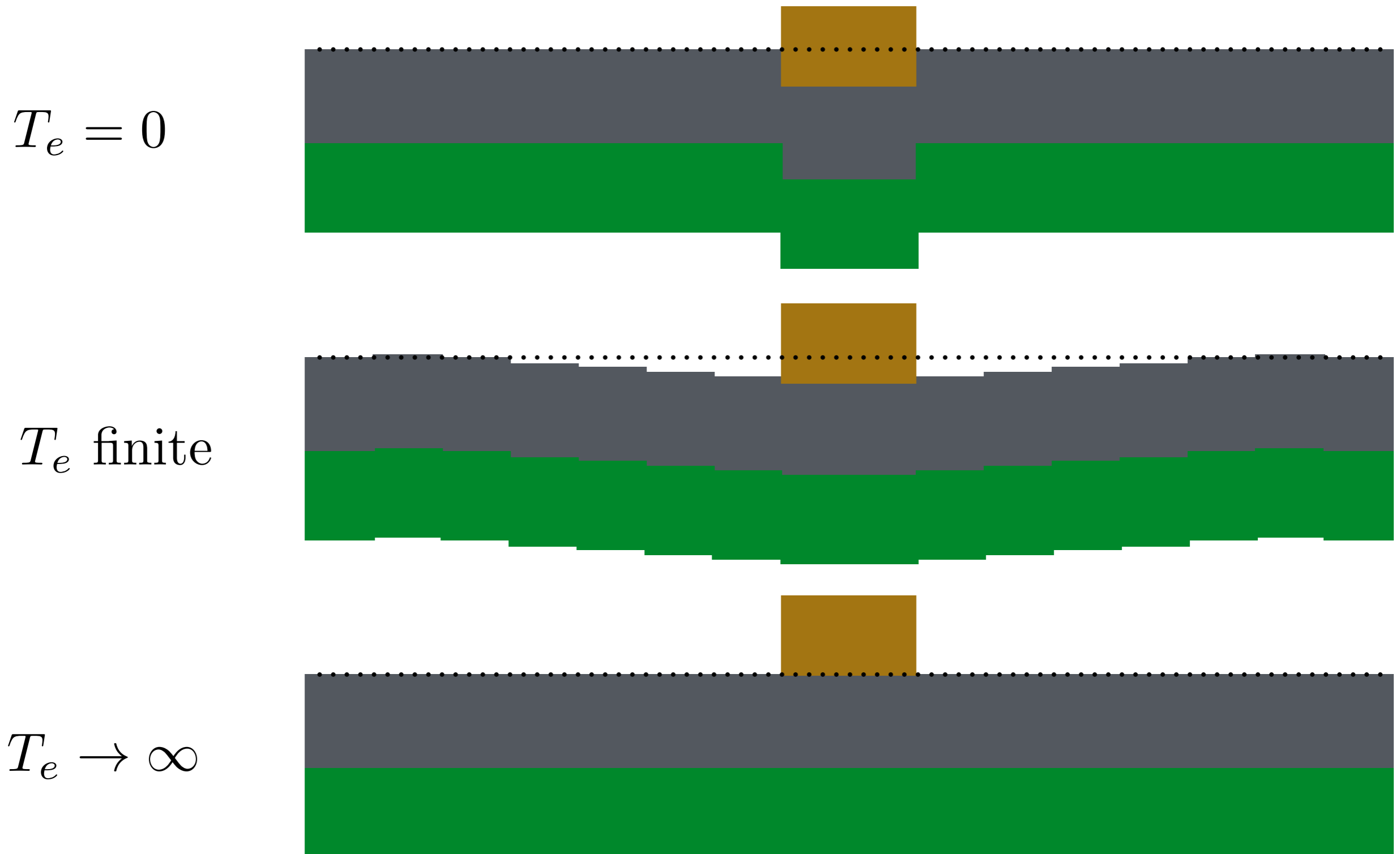
Espessura elástica efetiva

T_e : Espessura elástica efetiva da litosfera



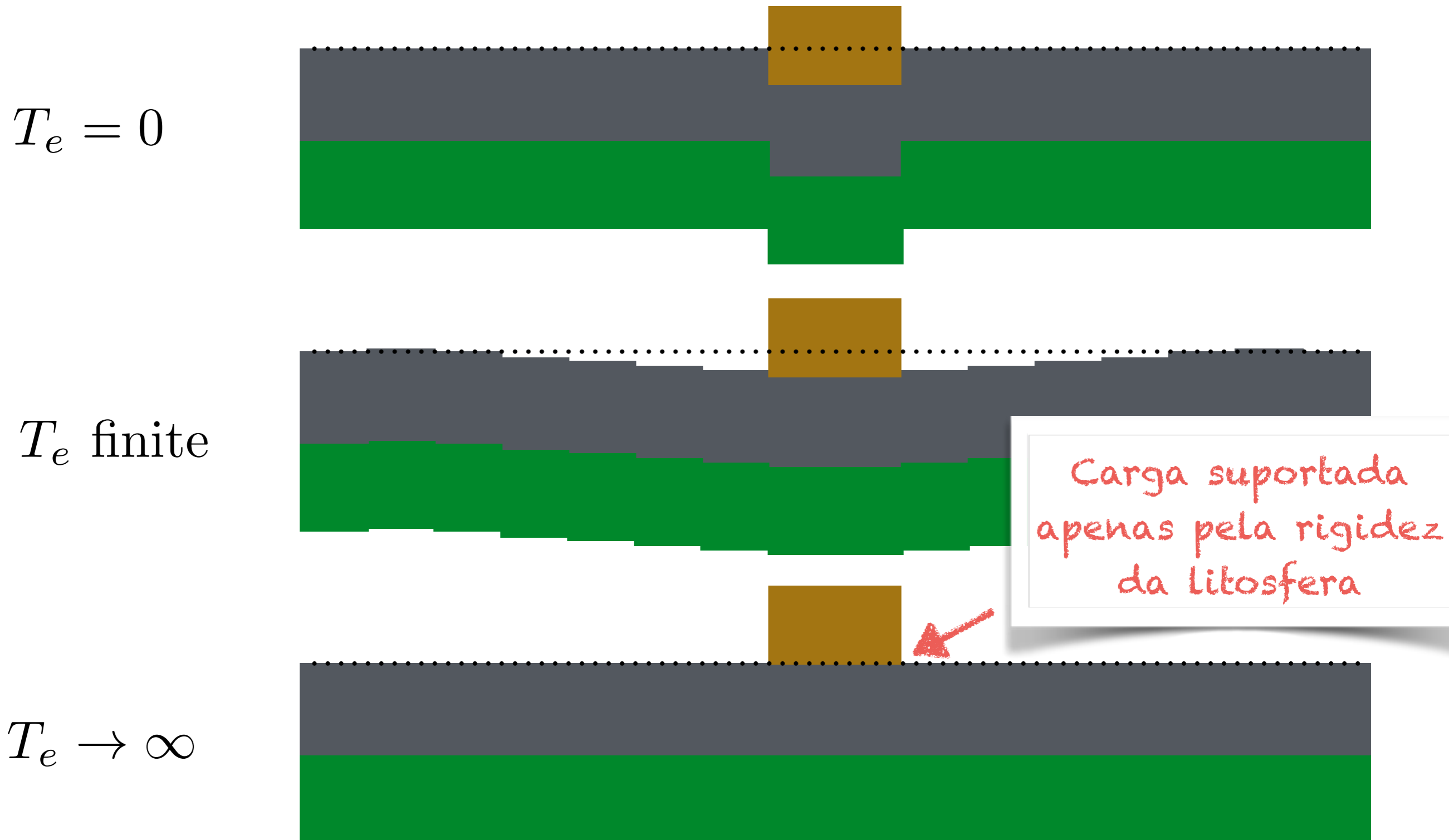
Espessura elástica efetiva

T_e : Espessura elástica efetiva da litosfera



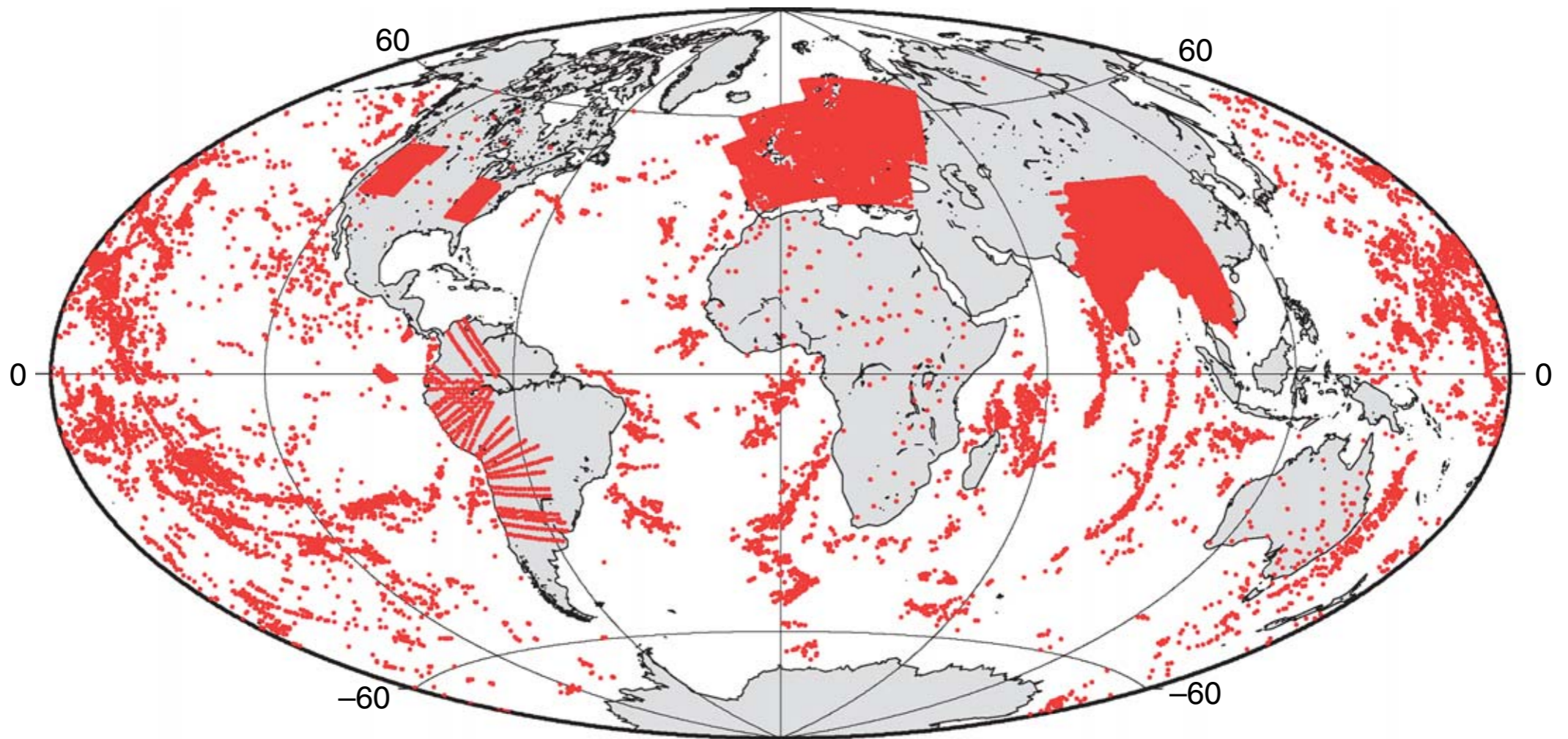
Espessura elástica efetiva

T_e : Espessura elástica efetiva da litosfera



Global T_e map

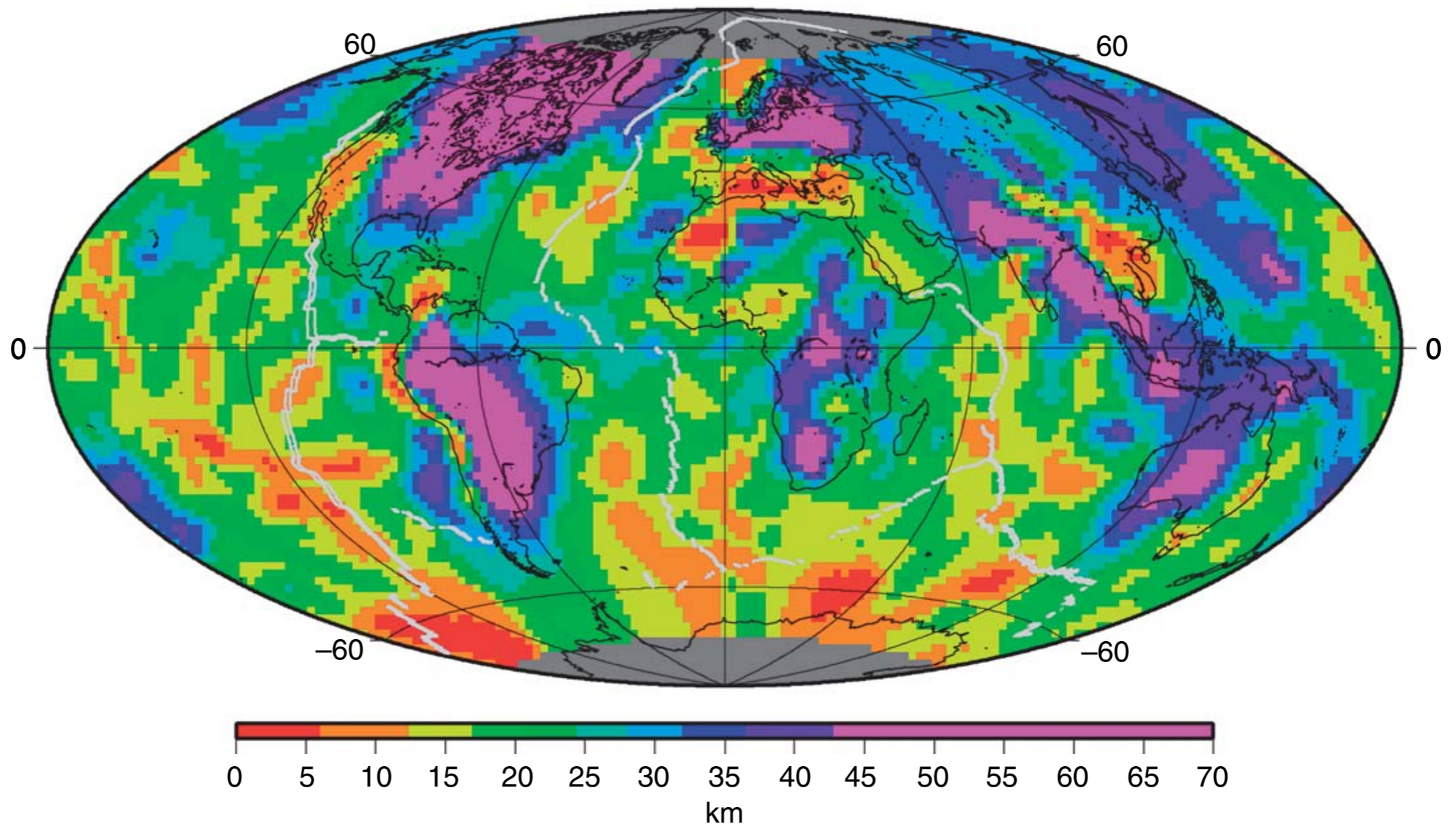
(a)



Watts (2007)

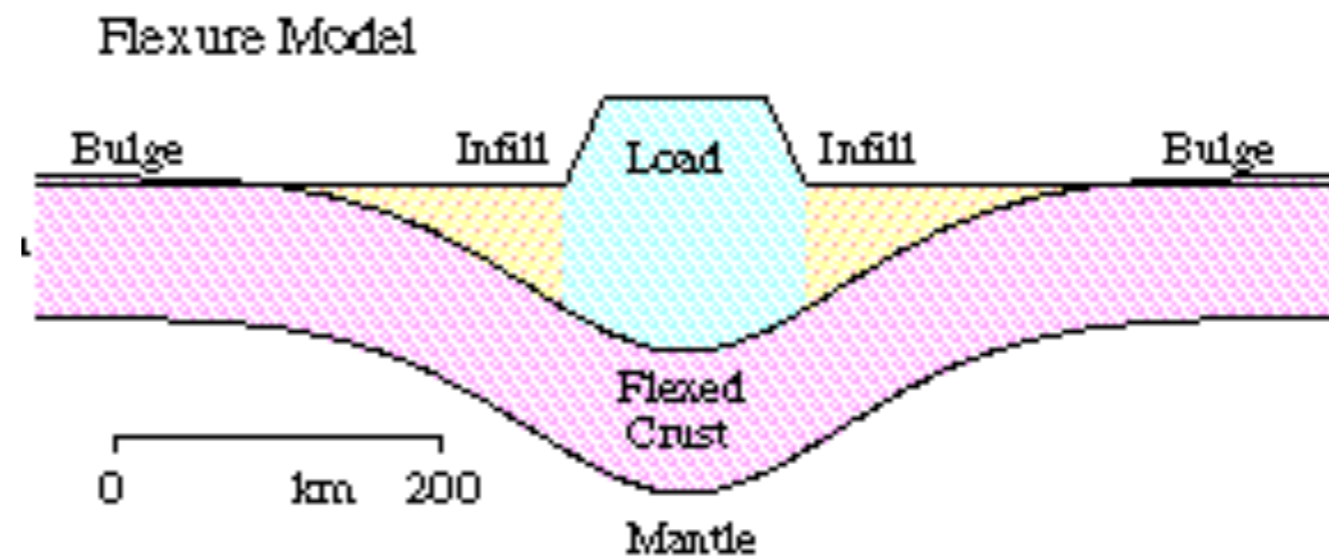
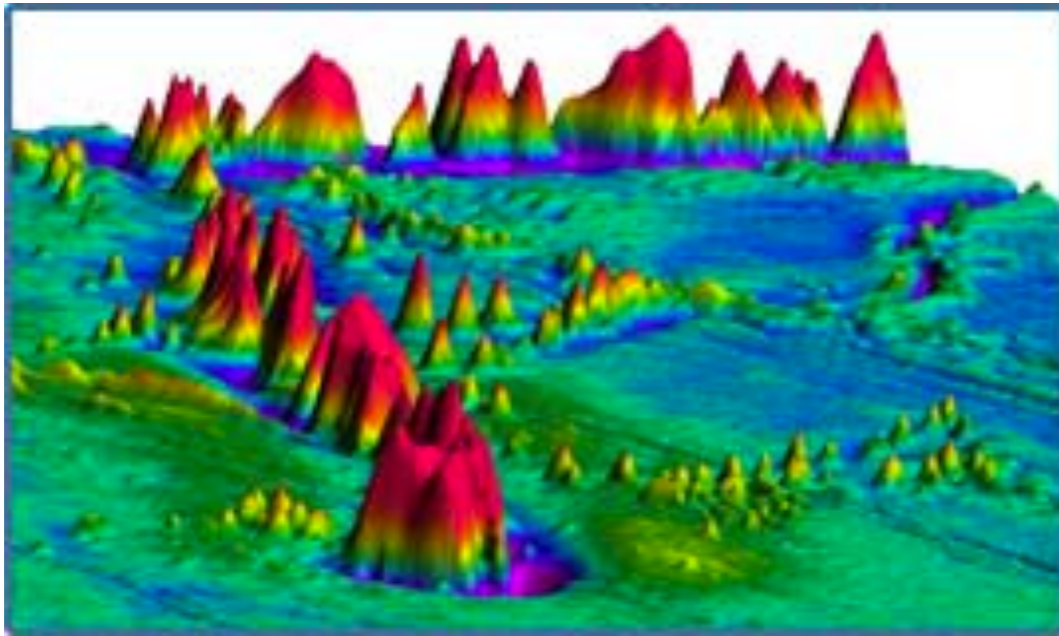
Global T_e map

(b)



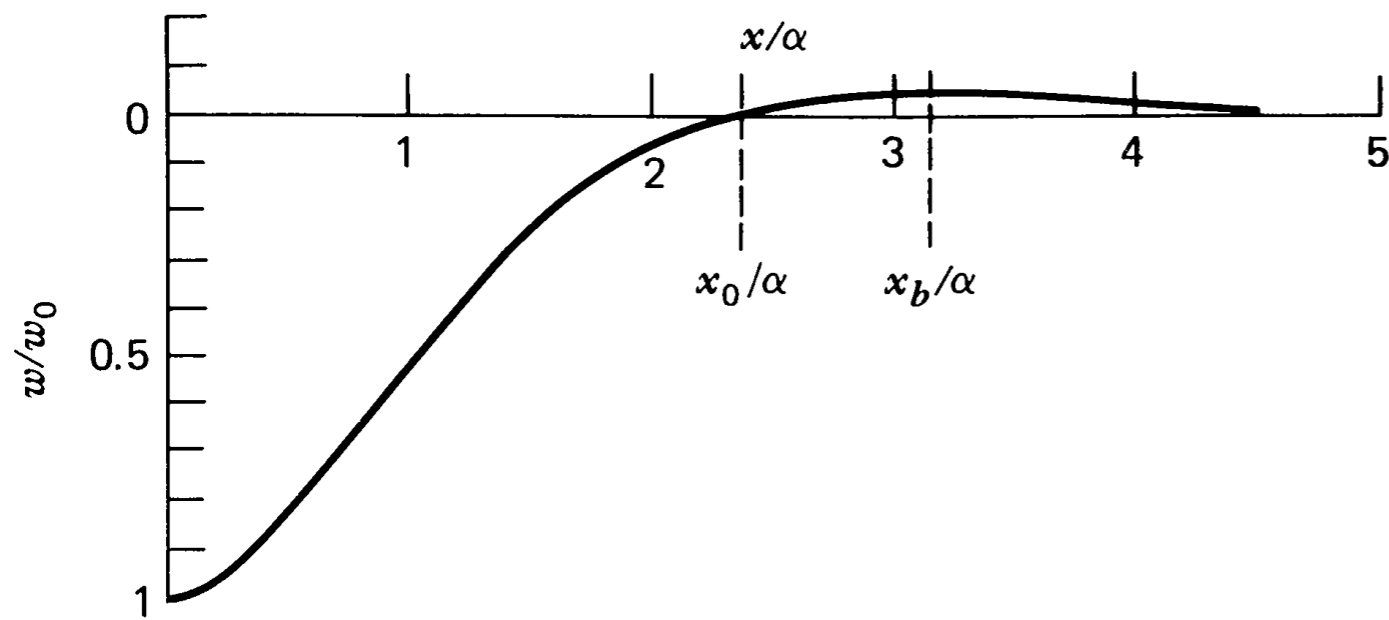
Watts (2007)

Cadeia Havaií-Imperador



Equação de flexura

$$w = \frac{V_0 \alpha^3}{8D} e^{-x/\alpha} \left(\cos \frac{x}{\alpha} + \sin \frac{x}{\alpha} \right)$$



$$D = \frac{ET_e^3}{12(1 - \nu^2)}$$

$$\alpha = \left[\frac{4D}{(\rho_m - \rho_w)g} \right]^{1/4}$$

Parâmetros do modelo

Fixos

$$E = 10^{11} \text{ Pa}$$

$$\nu = 0.25$$

$$\rho_m = 3300 \text{ kg/m}^3$$

$$\rho_w = 1030 \text{ kg/m}^3$$

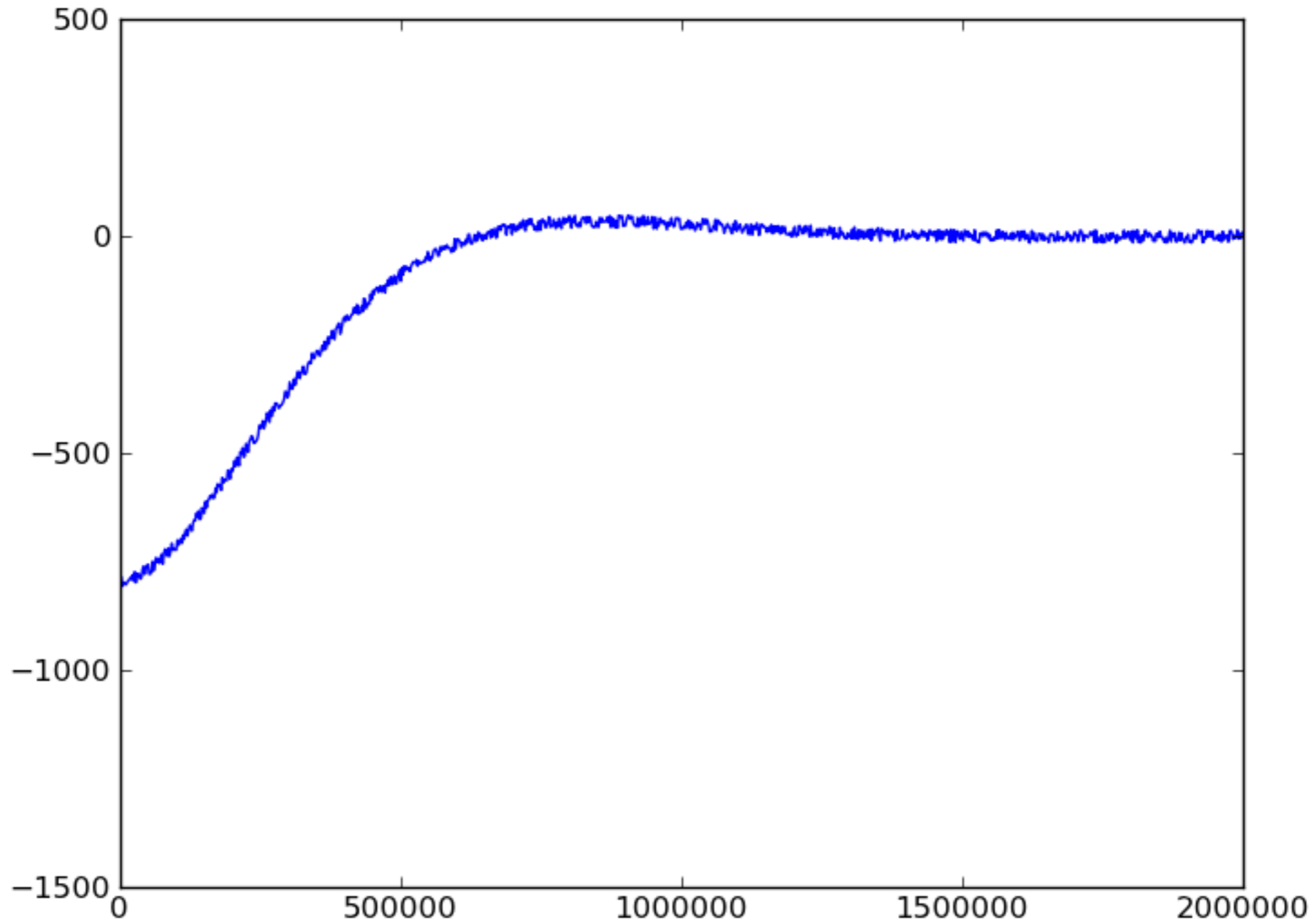
$$g = 9.8 \text{ m/s}^2$$

Variáveis

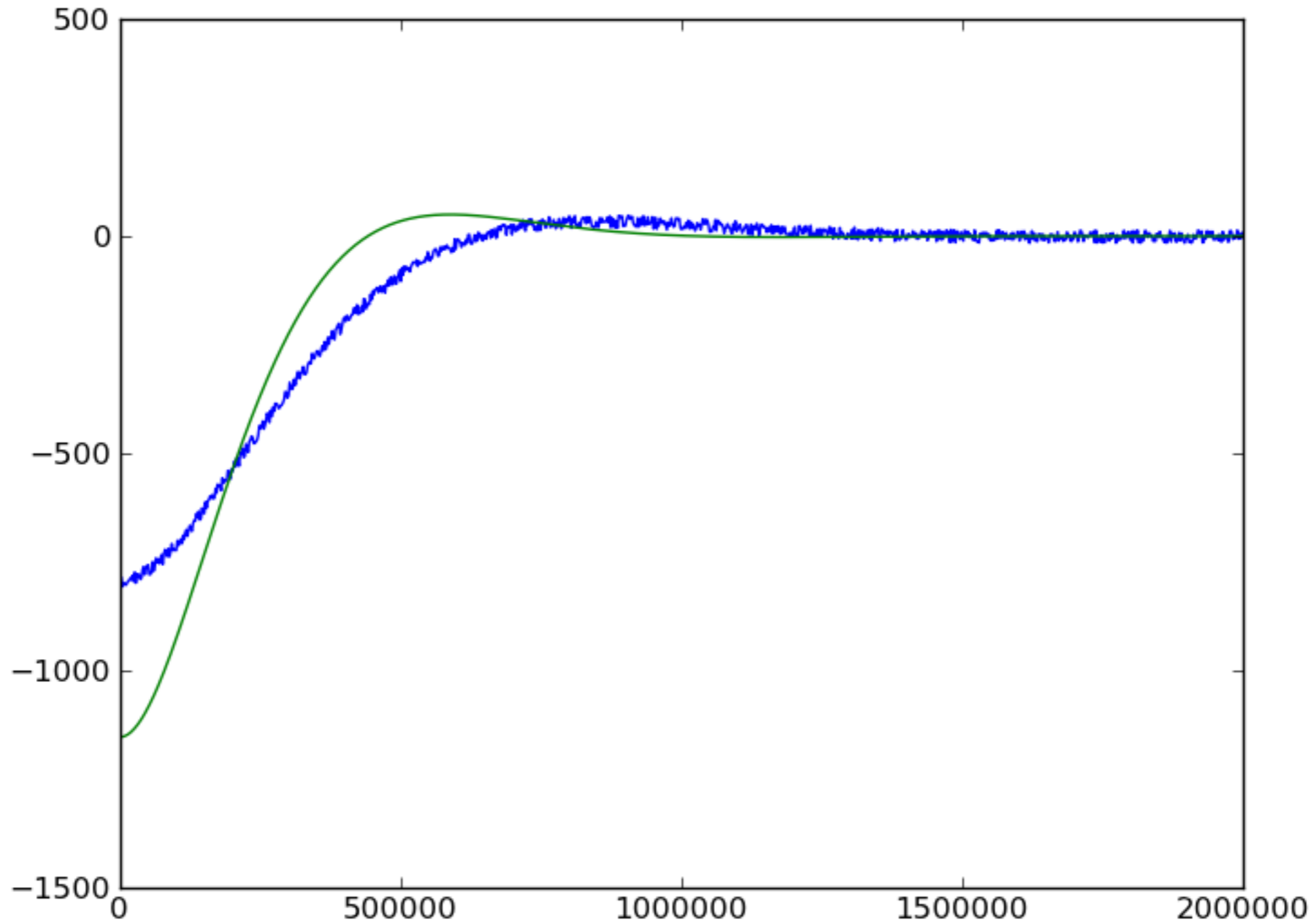
$$V_0 = -10^{11} \text{ até } -10^{13} \text{ N/m}$$

$$T_e = 10^3 \text{ até } 10^5 \text{ m}$$

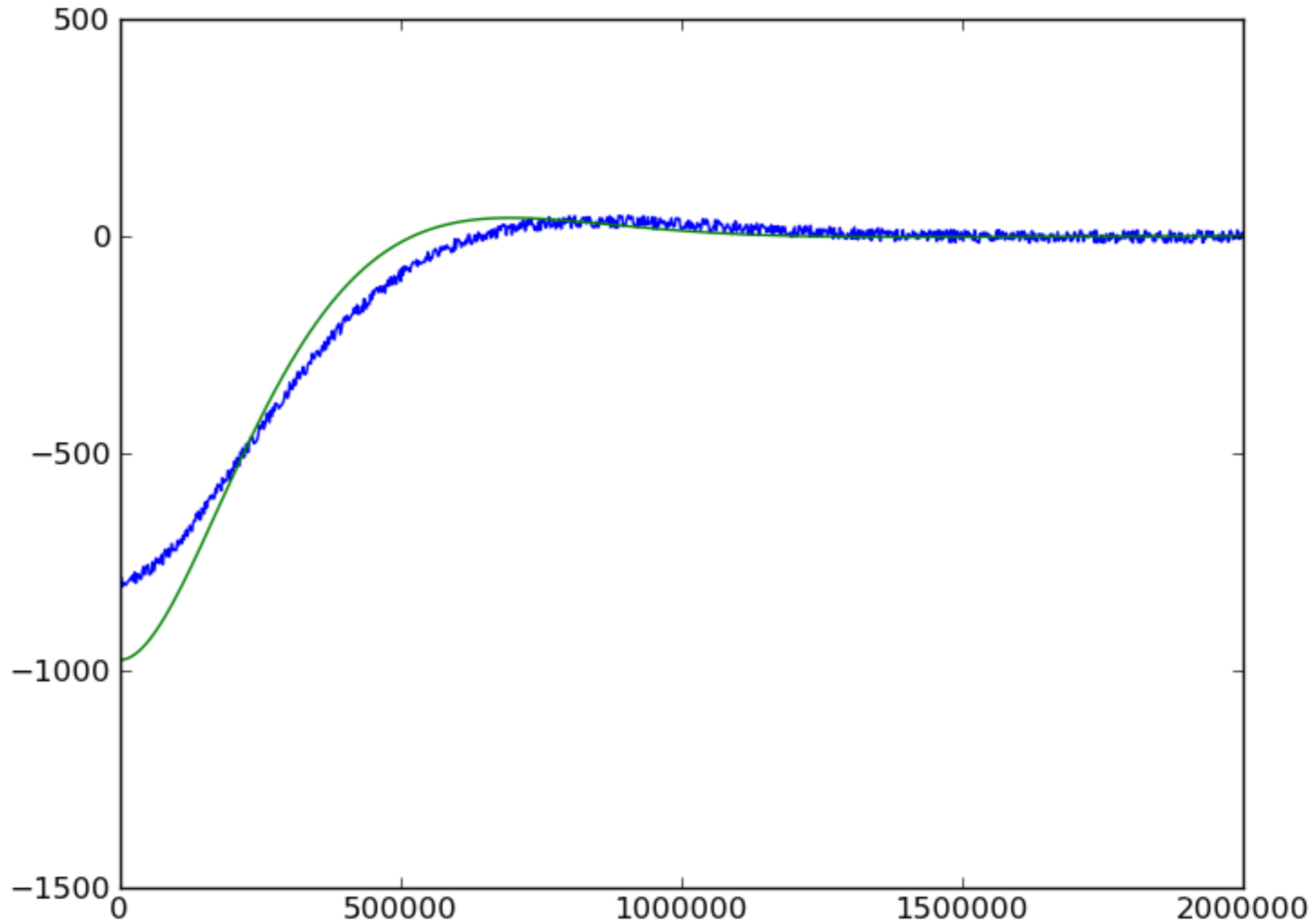
Descobrir o T_e e o V_0



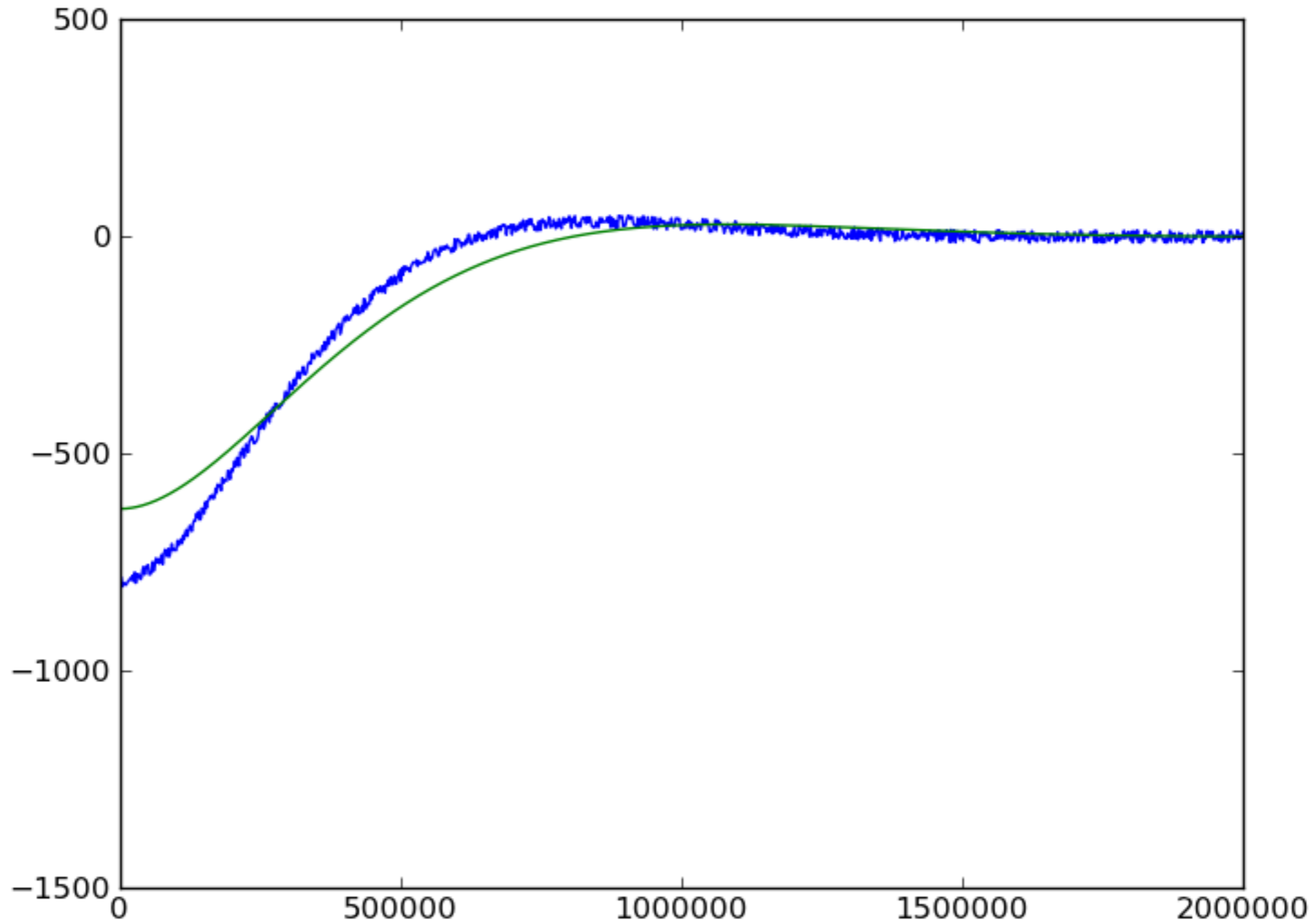
Descobrir o T_e e o V_0



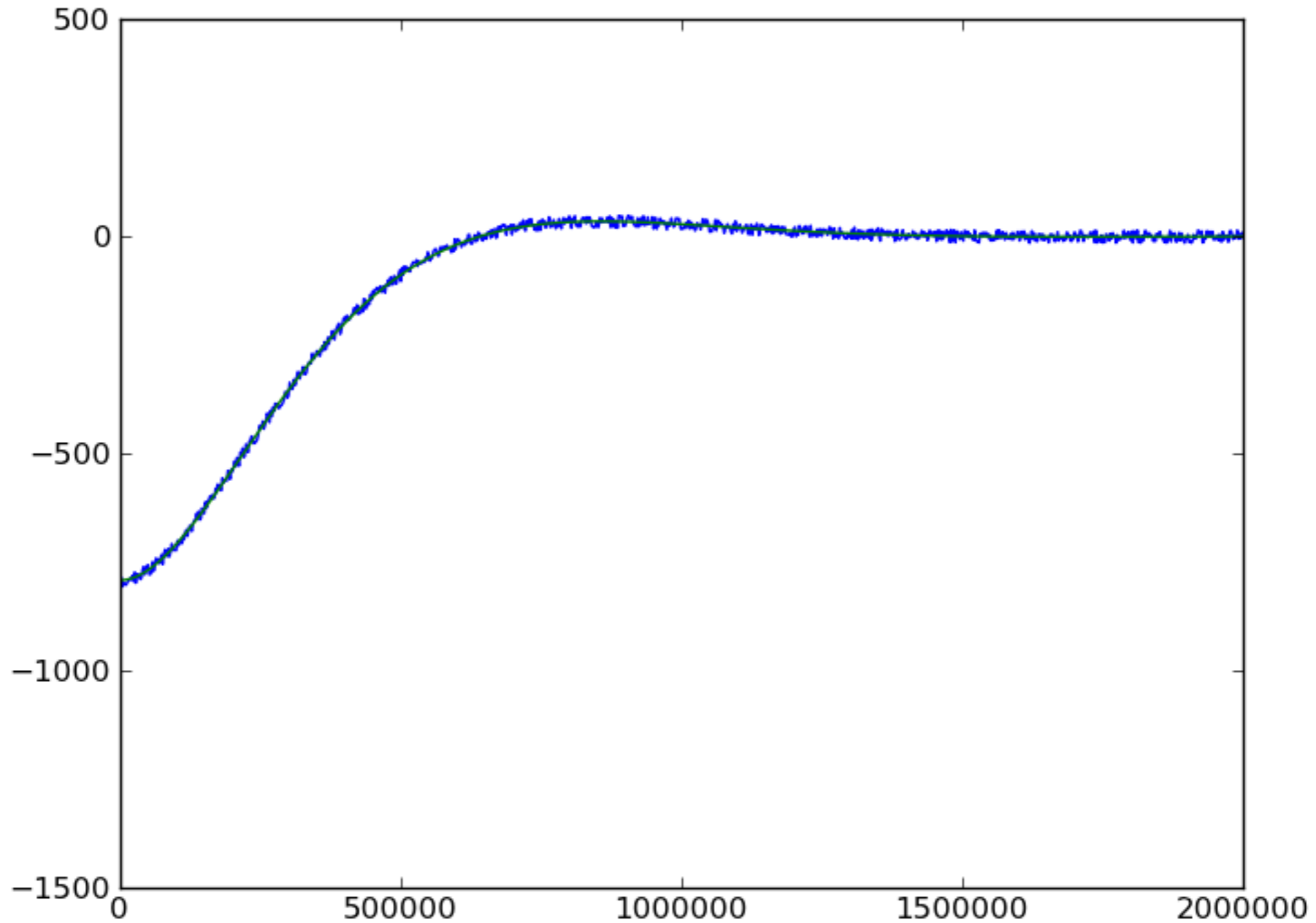
Descobrir o T_e e o V_0



Descobrir o T_e e o V_0



Descobrir o T_e e o V_0



Exercício

- Dado um perfil flexural da litosfera, criar um programa que determina o T_e e o V_0 que melhor ajustam os dados observados.