

Qual é o significado do T_e ?

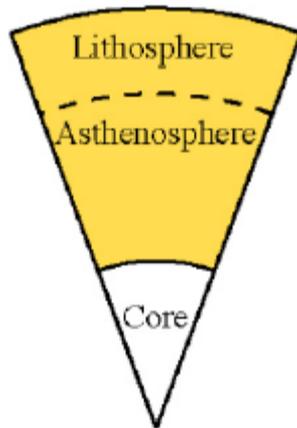
Victor Sacek

IAG/USP

Reologia x Escala de Tempo

Short-term
0-120 s

**e.g. co-seismic
deformation**



 Elastic

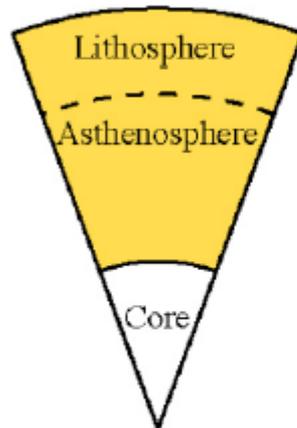
Initial

Elastic half-space

Reologia x Escala de Tempo

Short-term
0-120 s

e.g. co-seismic
deformation



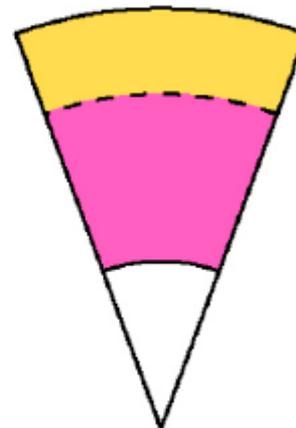
 Elastic

Initial

Elastic half-space

Intermediate
~ 10 ka

e.g. glacial isostatic
rebound



 Viscoelastic

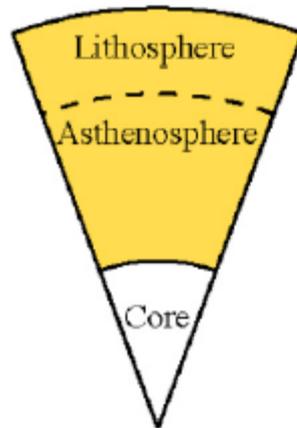
**Transient
regime**

*Elastic plate on
a viscoelastic
half-space*

Reologia x Escala de Tempo

Short-term
0-120 s

e.g. co-seismic
deformation



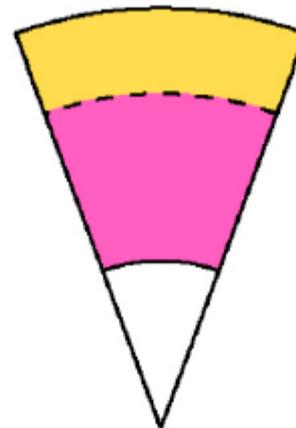
 Elastic

Initial

Elastic half-space

Intermediate
~ 10 ka

e.g. glacial isostatic
rebound



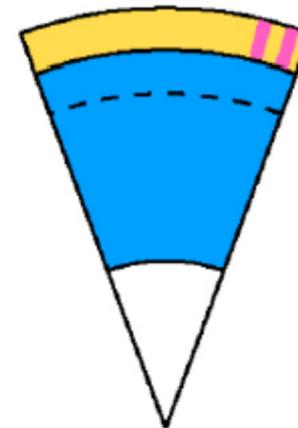
 Viscoelastic

**Transient
regime**

*Elastic plate on
a viscoelastic
half-space*

Long-term
> 1 Ma

e.g. volcano
flexure

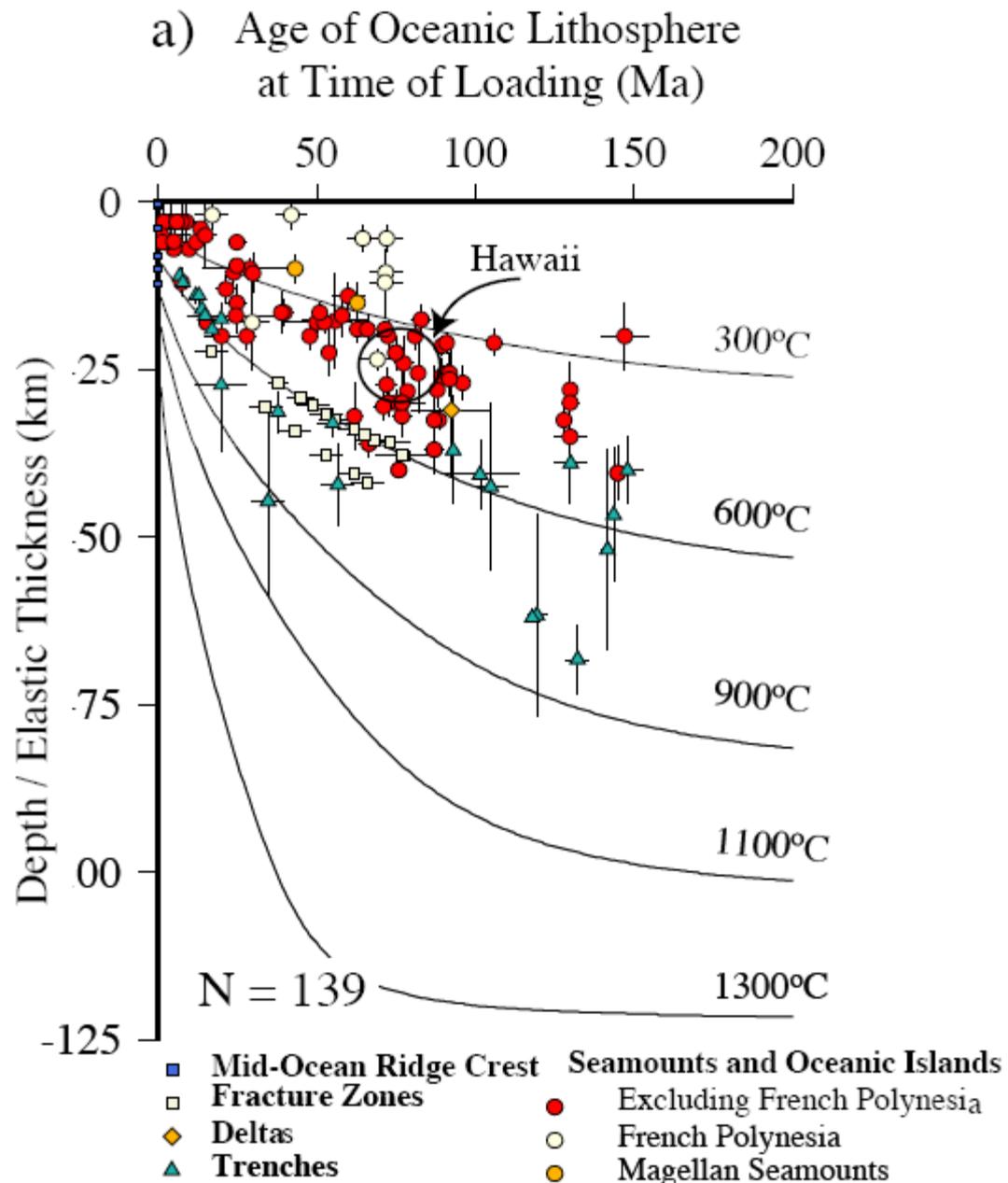


 Inviscid
fluid

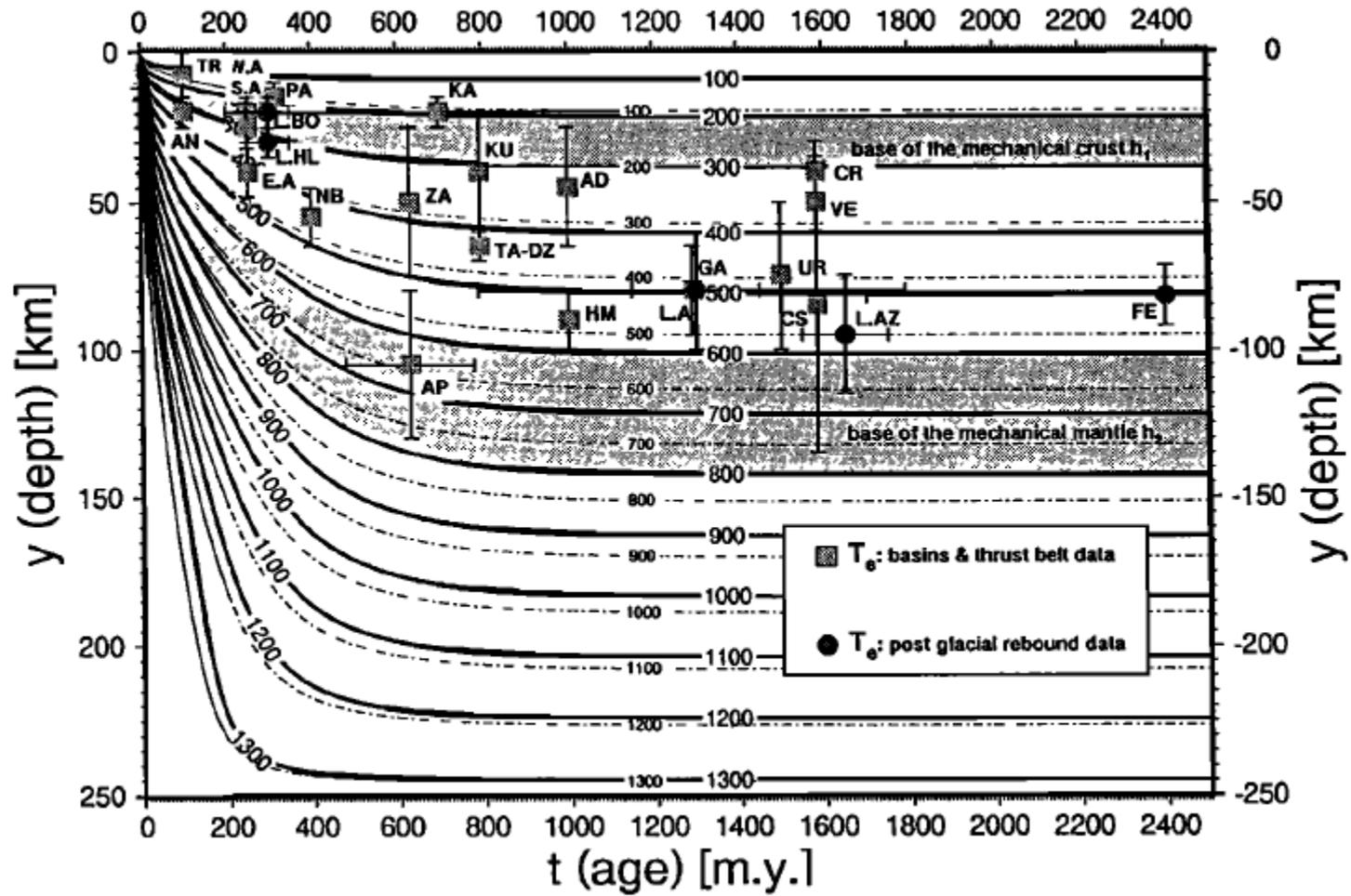
Steady-state

*Elastic plate on
an inviscid
fluid*

Idade x T_e em litosfera oceânica

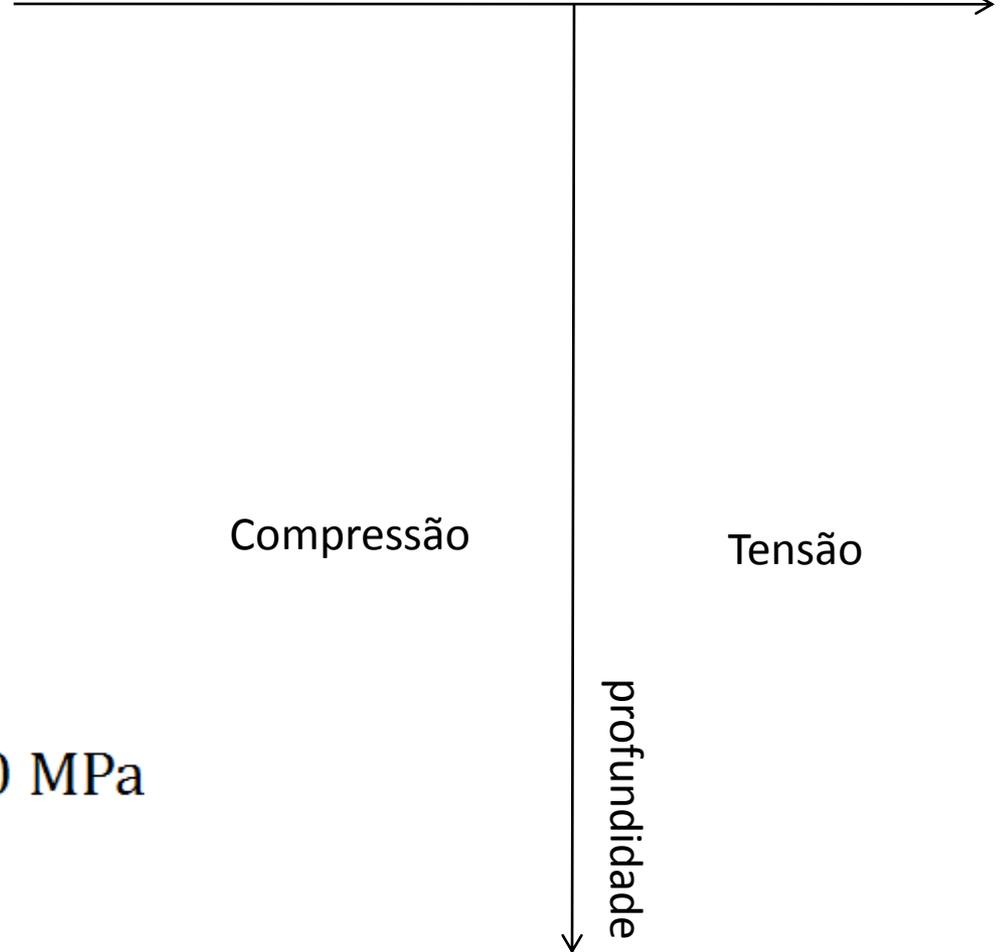


Idade x T_e em litosfera continental



Reologia rúptil

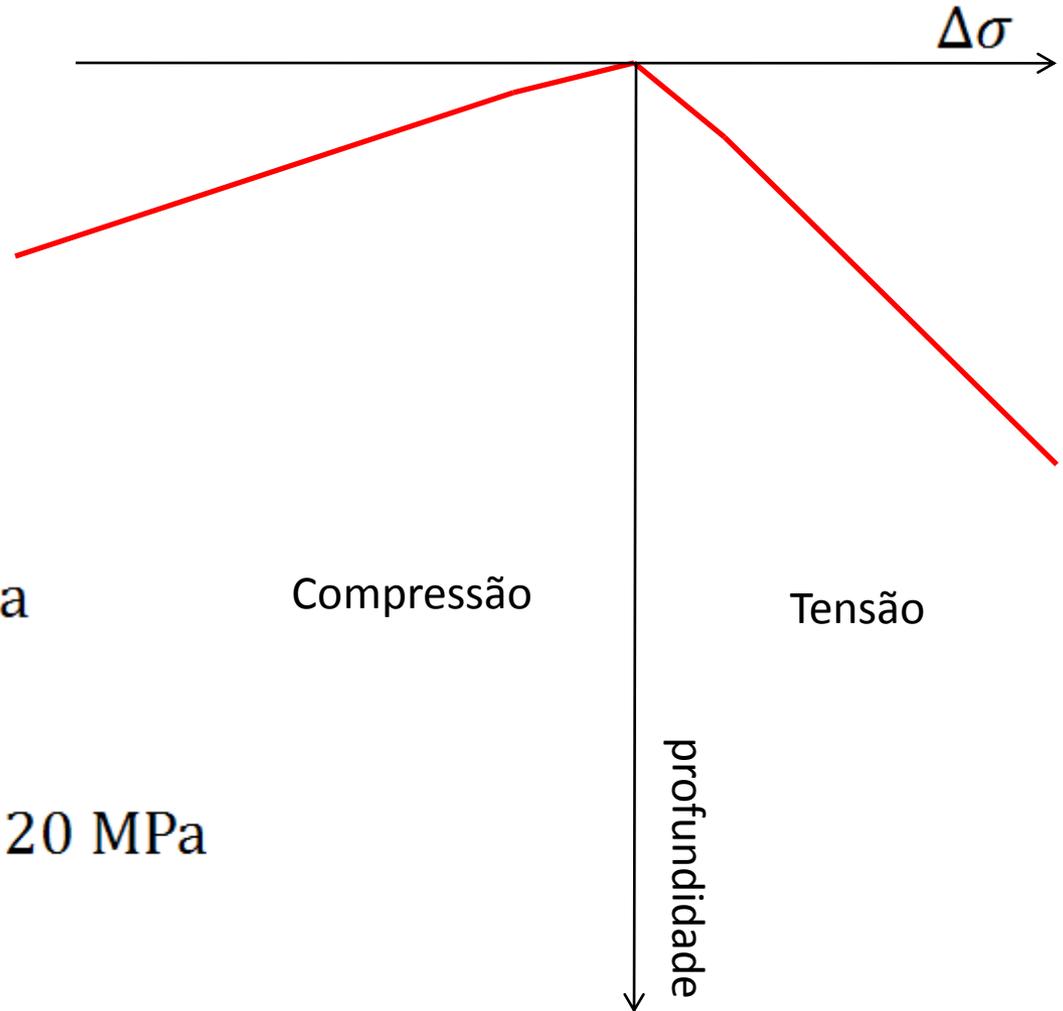
$\Delta\sigma$



$$\sigma_3 = \frac{\sigma_1 - \sigma_3}{3.9} \text{ se } \sigma_3 < 120 \text{ MPa}$$

$$\sigma_3 = \frac{\sigma_1 - \sigma_3}{2.1} - 100 \text{ se } \sigma_3 \geq 120 \text{ MPa}$$

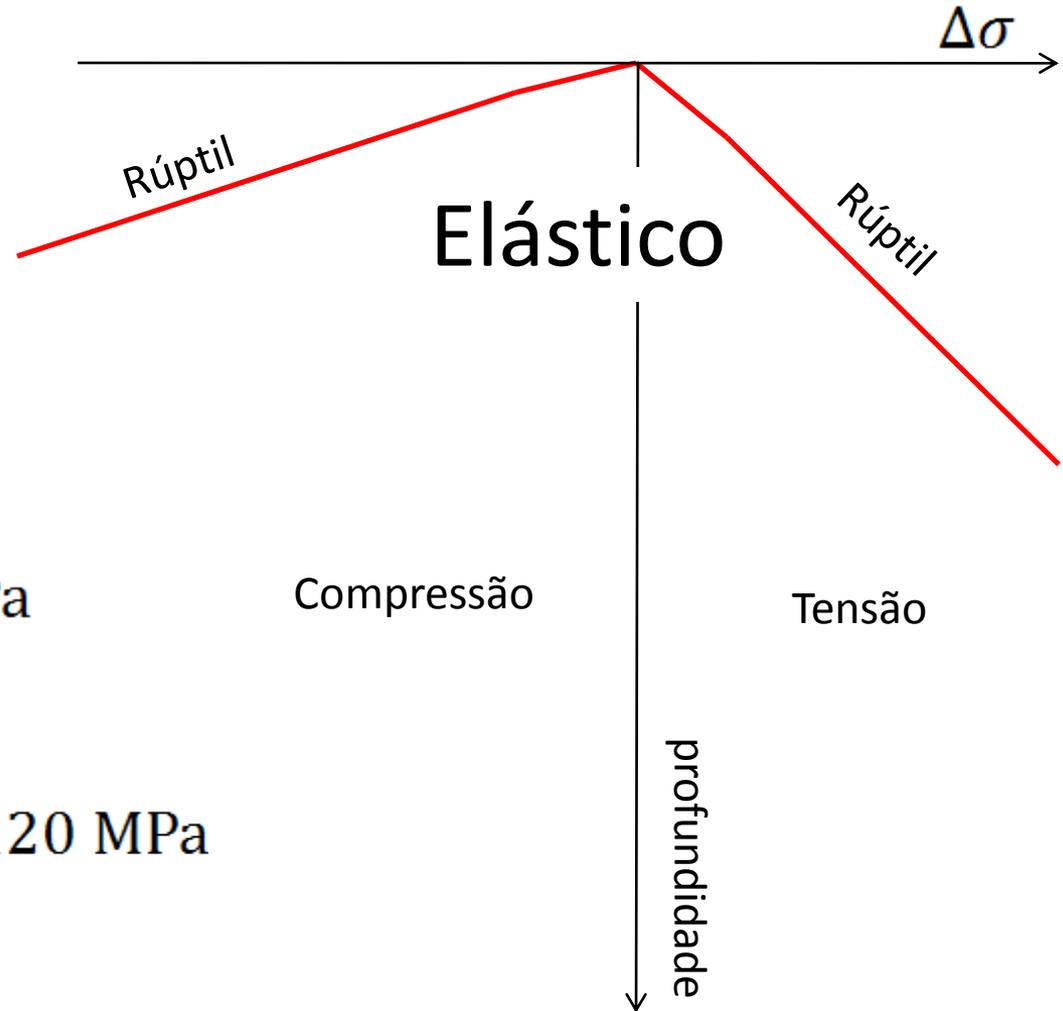
Reologia rúptil



$$\sigma_3 = \frac{\sigma_1 - \sigma_3}{3.9} \text{ se } \sigma_3 < 120 \text{ MPa}$$

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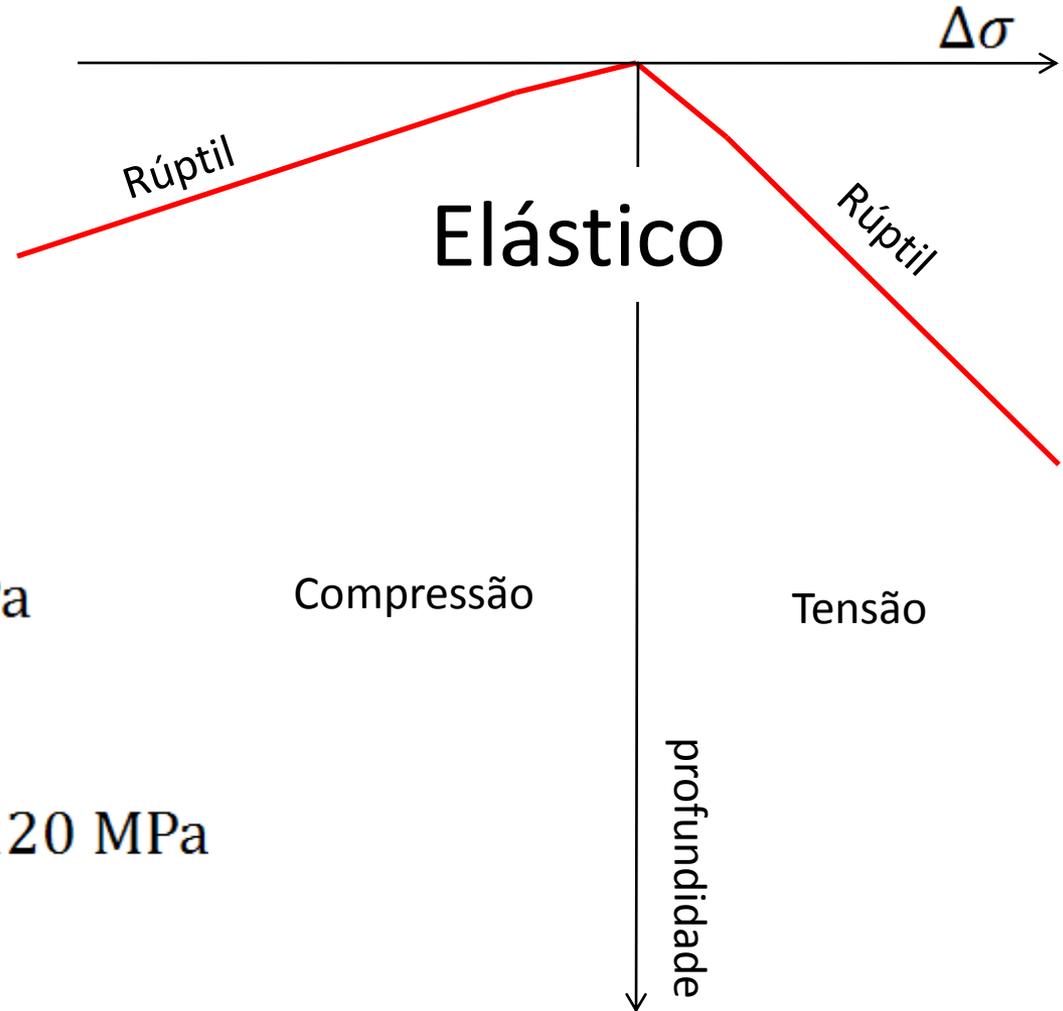
Reologia rúptil



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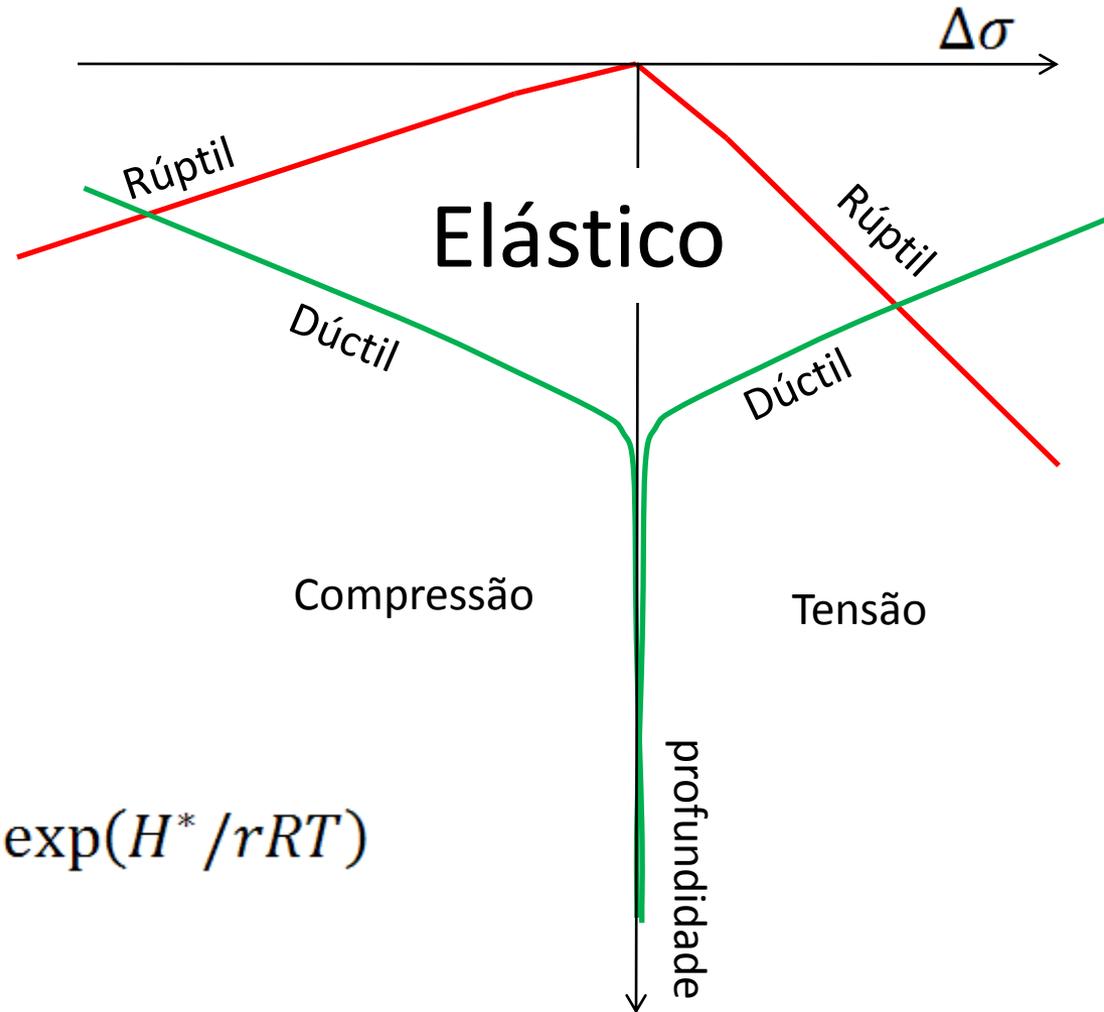
Reologia rúptil



$$\sigma_3 = \frac{\sigma_1 - \sigma_3}{3.9} \text{ se } \sigma_3 < 120 \text{ MPa}$$

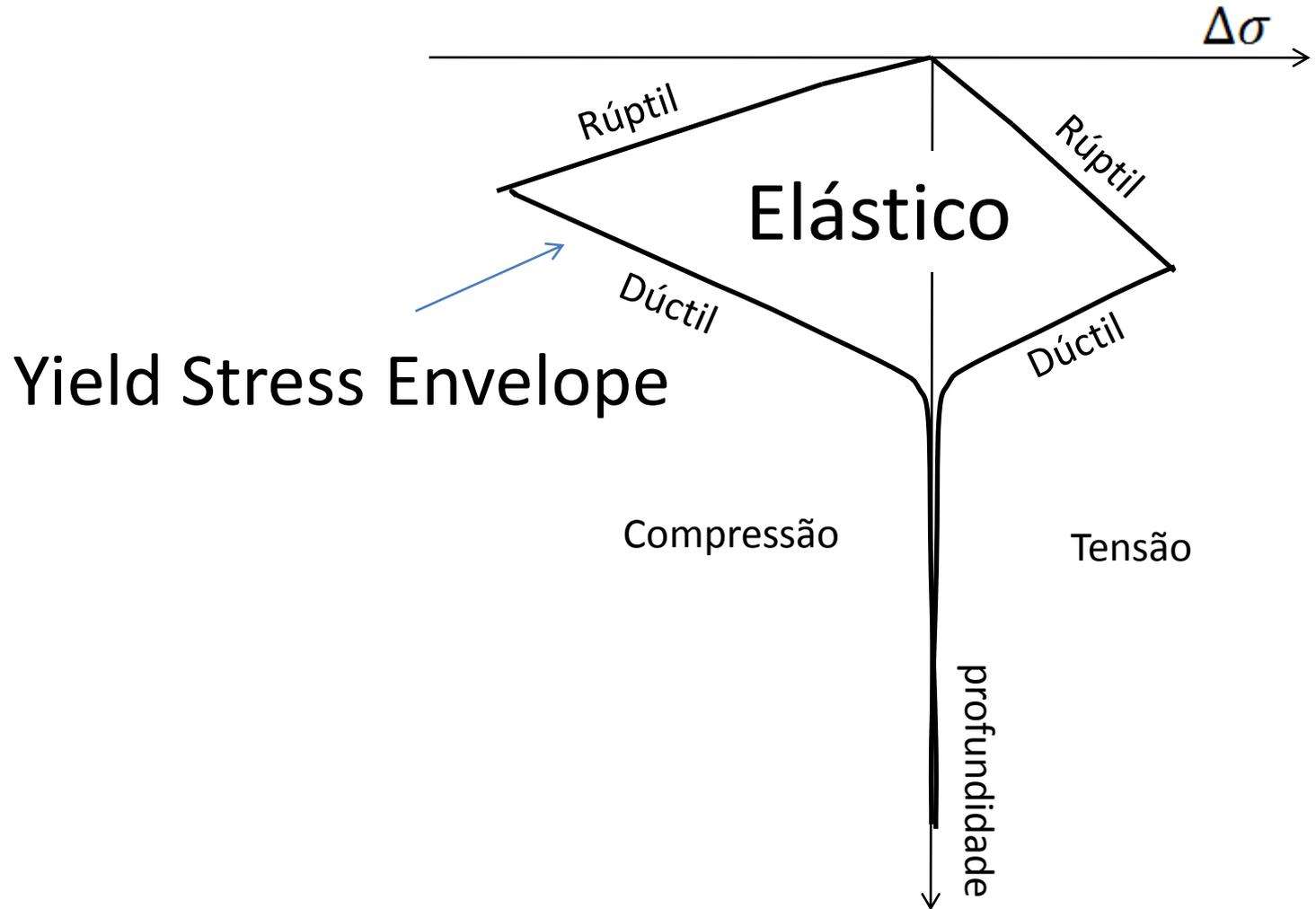
$$\sigma_3 = \frac{\sigma_1 - \sigma_3}{2.1} - 100 \text{ se } \sigma_3 \geq 120 \text{ MPa}$$

Reologia dúctil



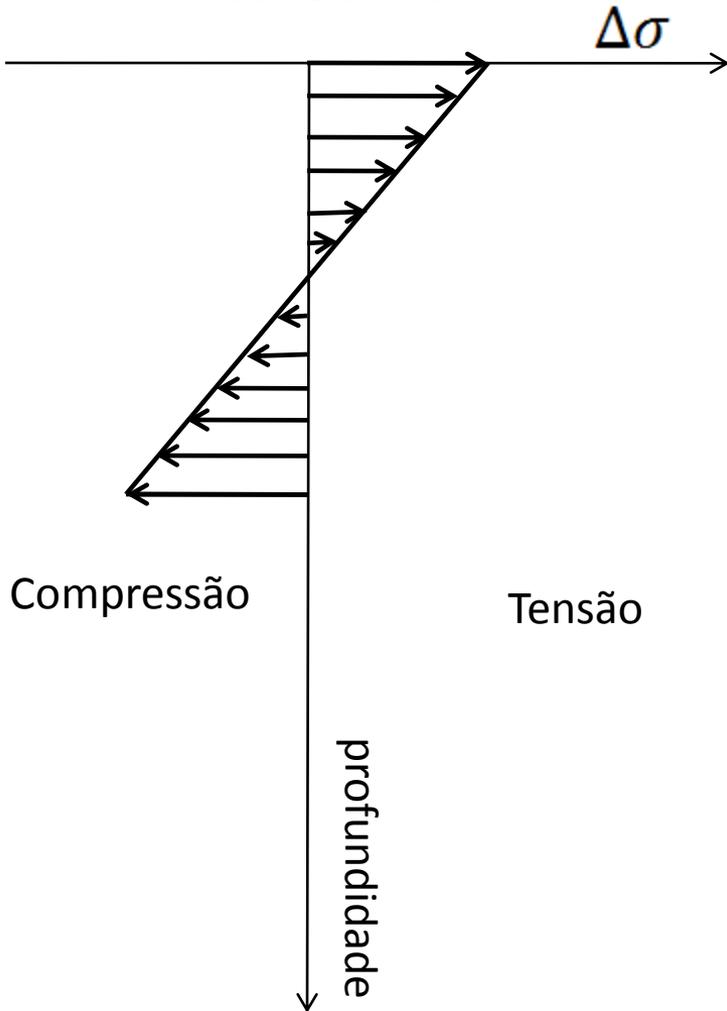
$$(\sigma_1 - \sigma_3) = (\dot{\epsilon}(A^*)^{-1} a^m)^{1/n} \exp(H^*/rRT)$$

Reologia dúctil

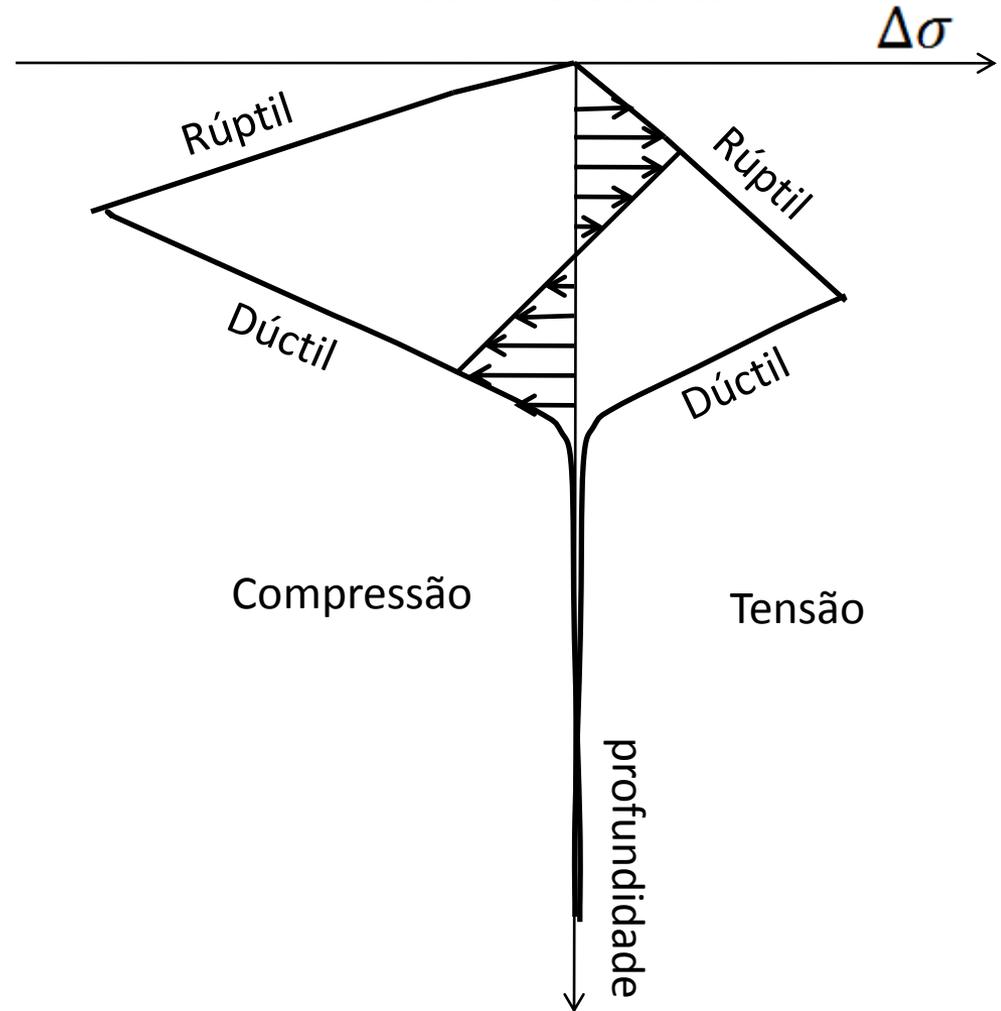


Flexura

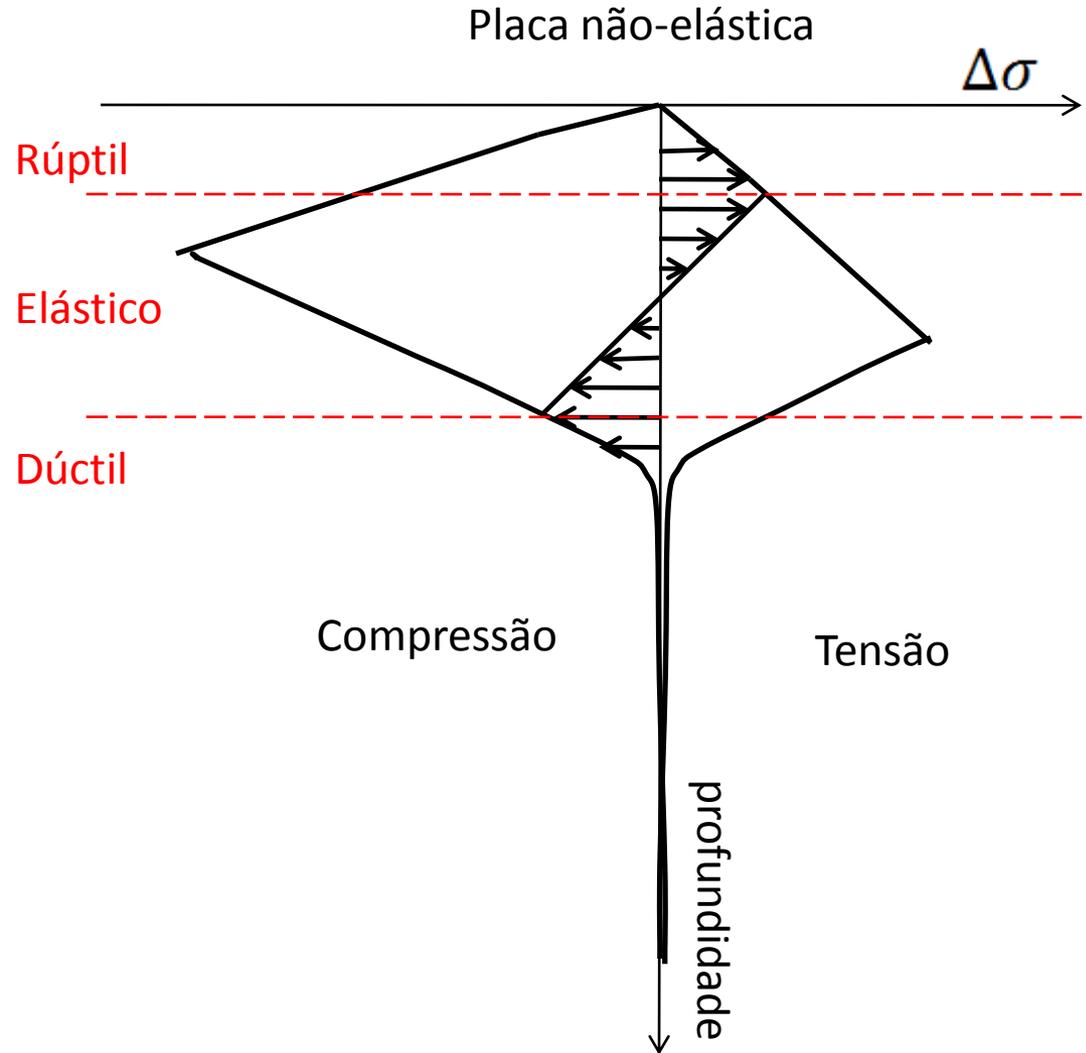
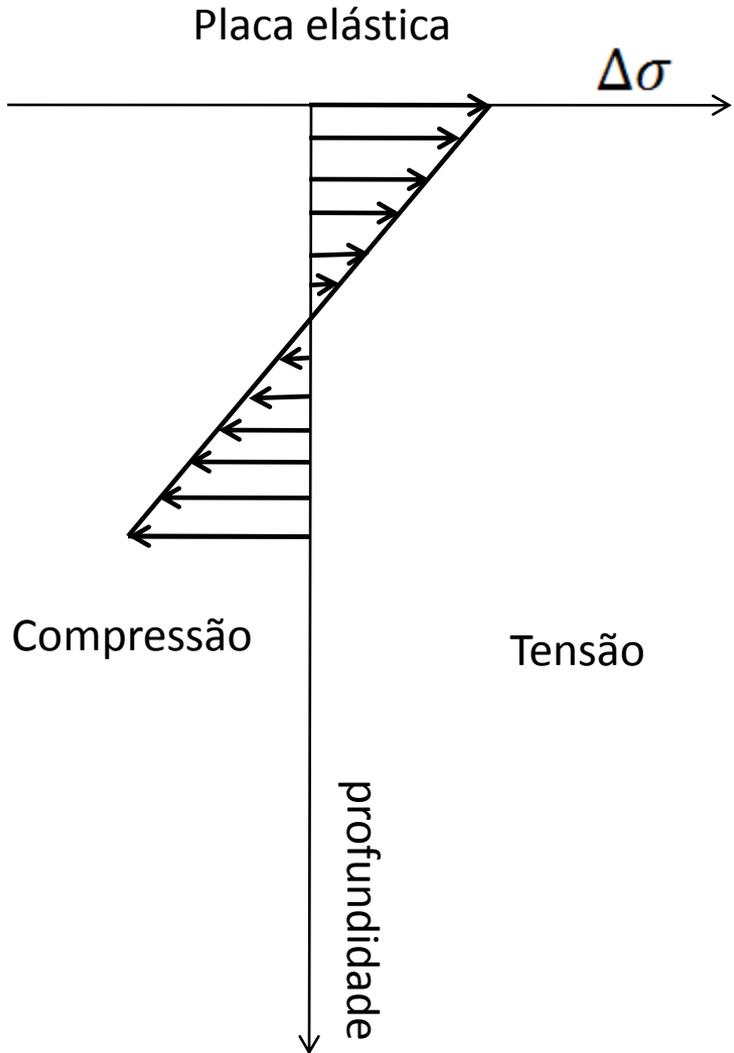
Placa elástica



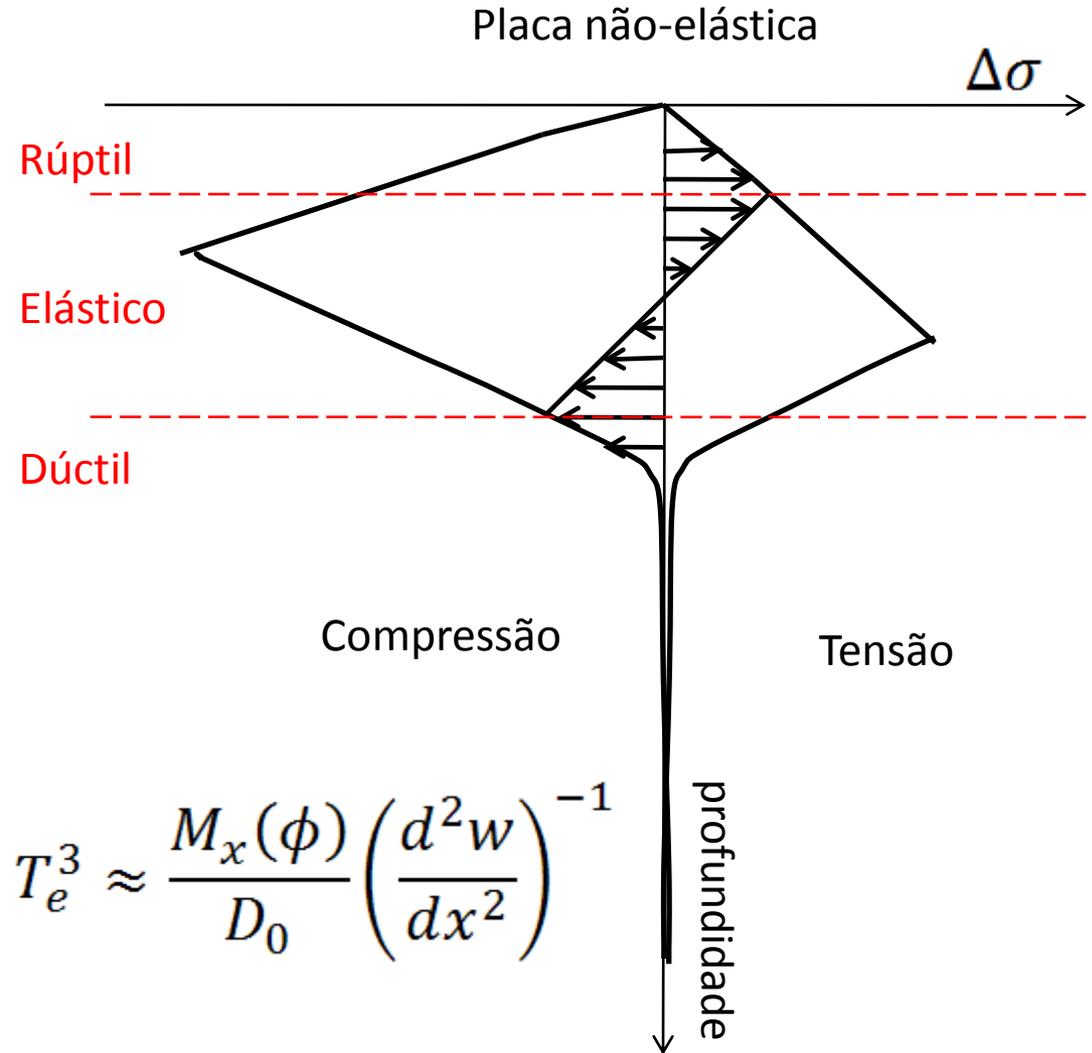
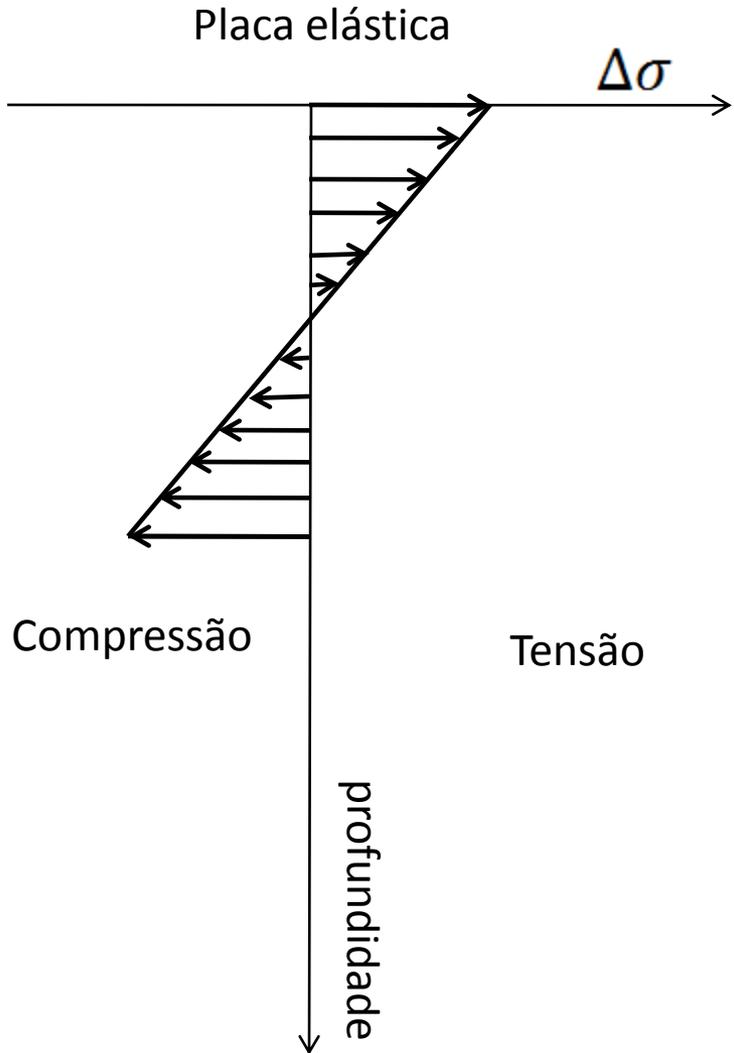
Placa não-elástica



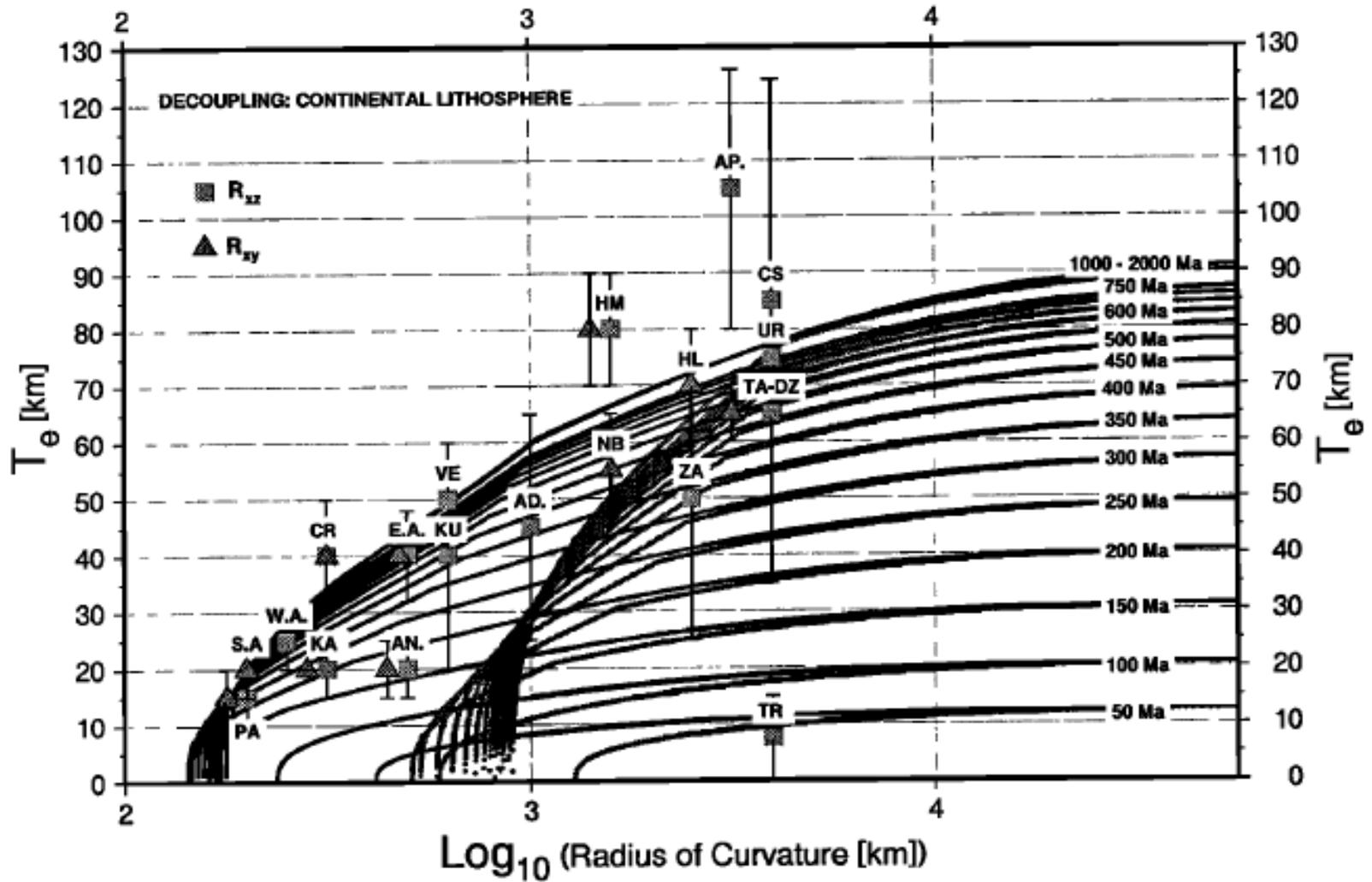
Flexura



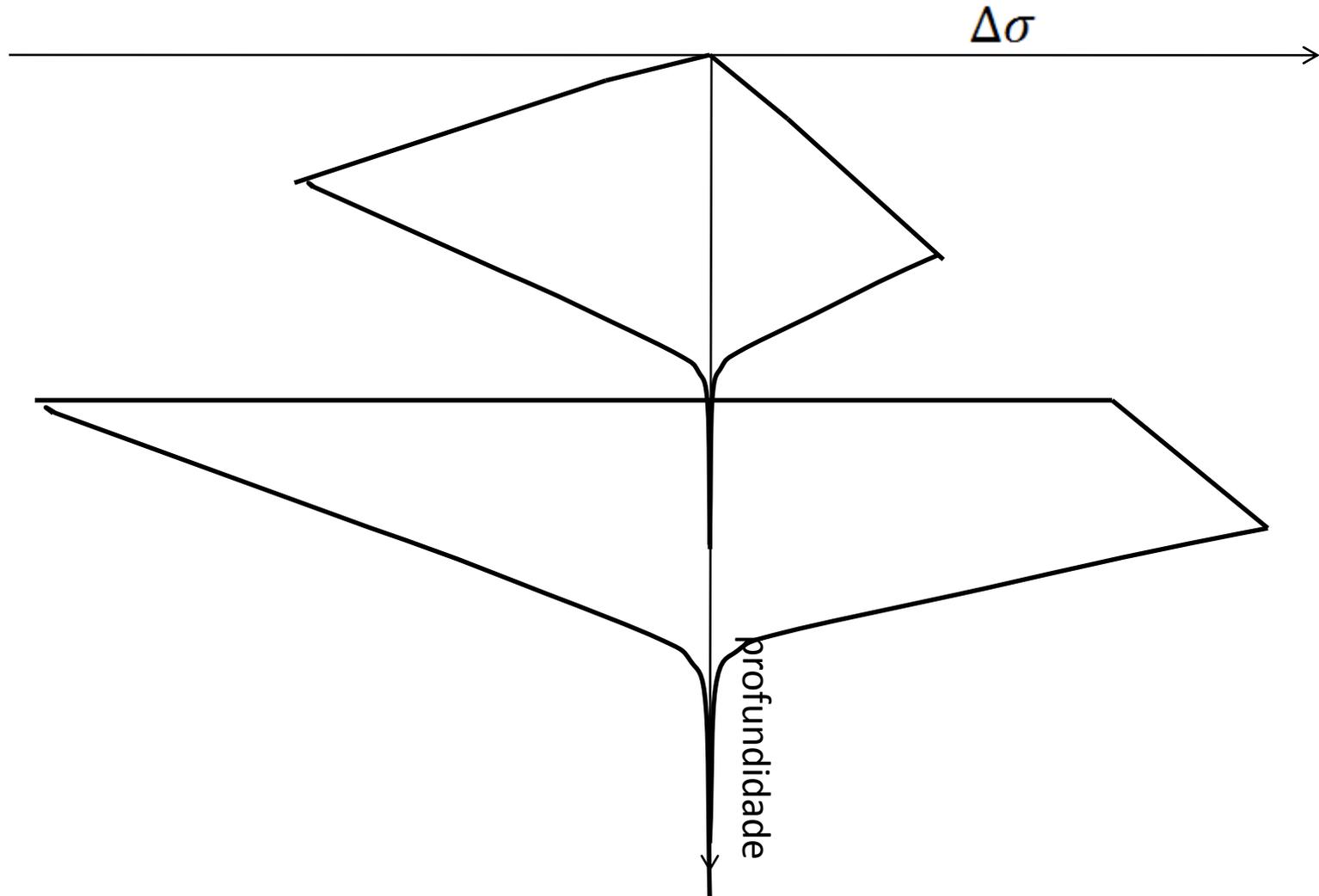
Flexura

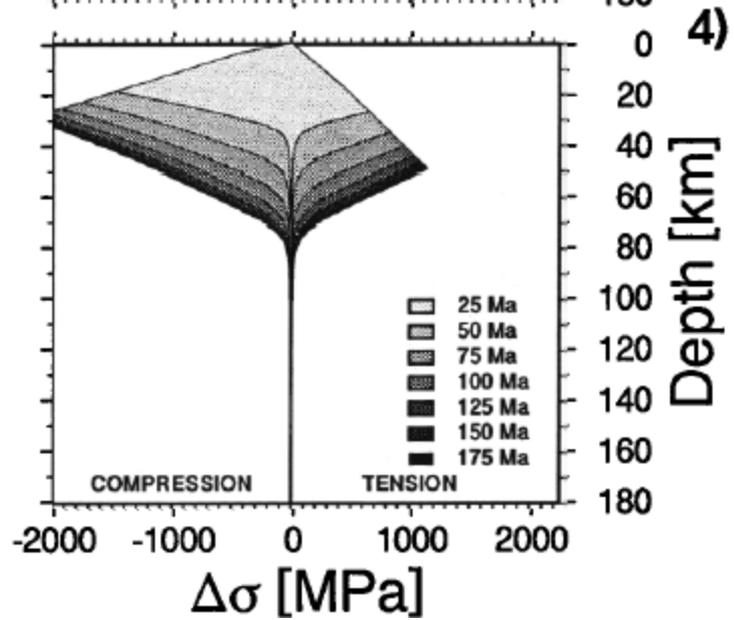
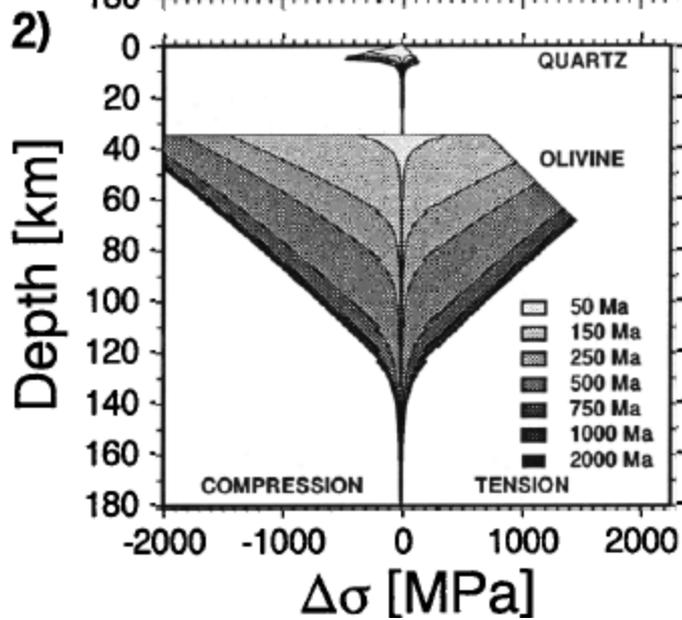
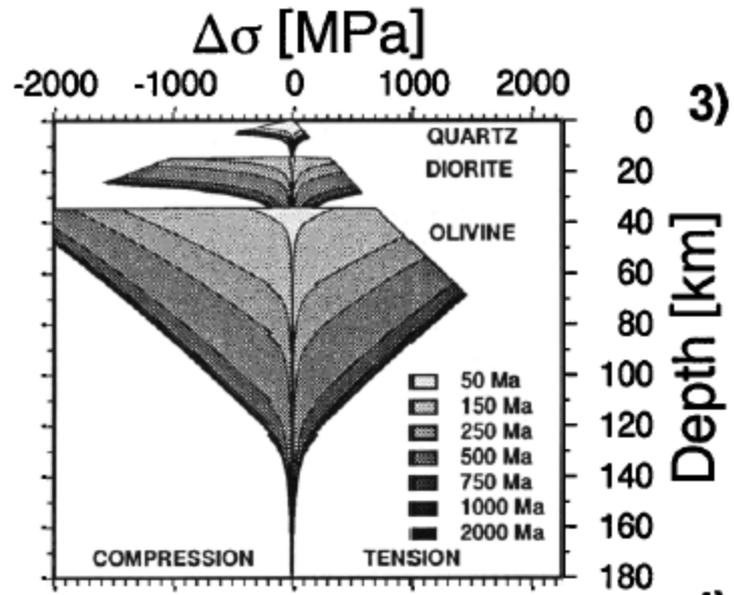
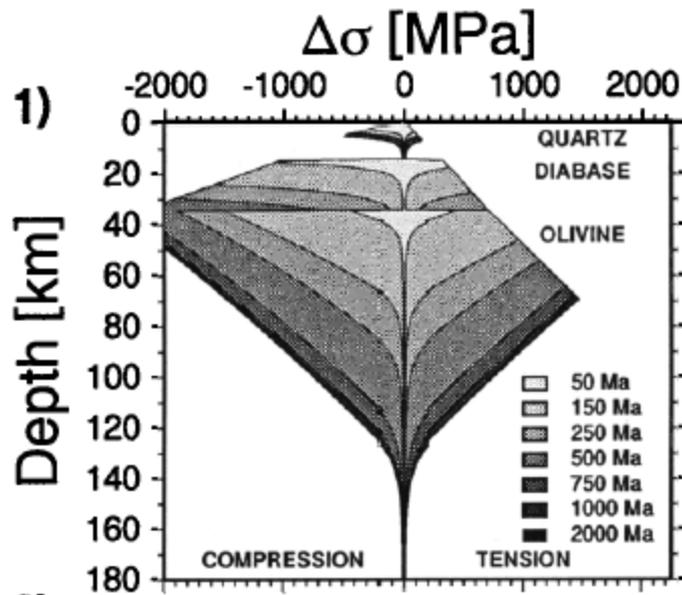


T_e x curvatura

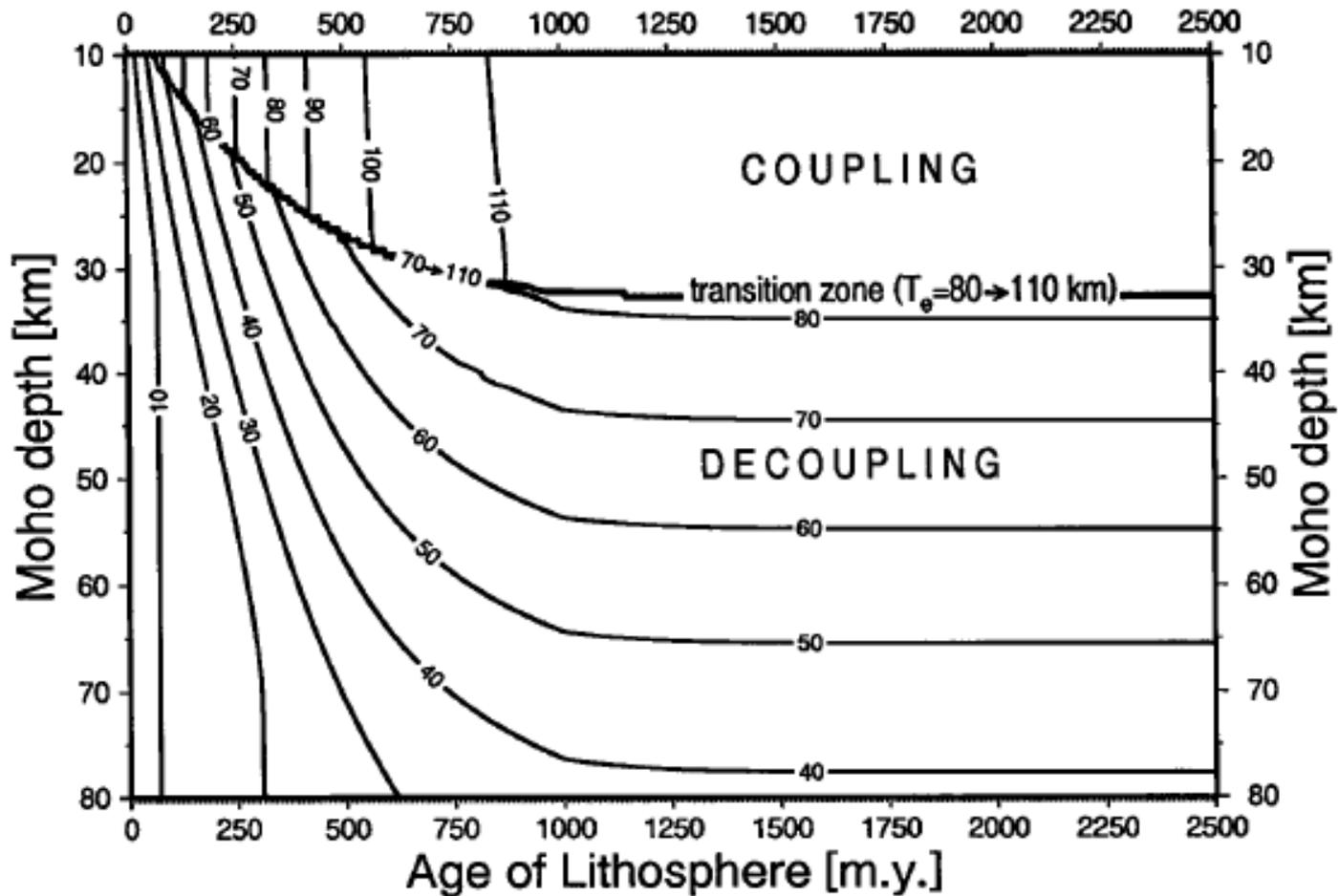


Multi-Camada





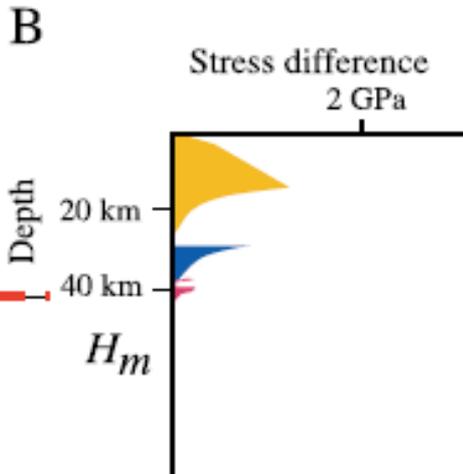
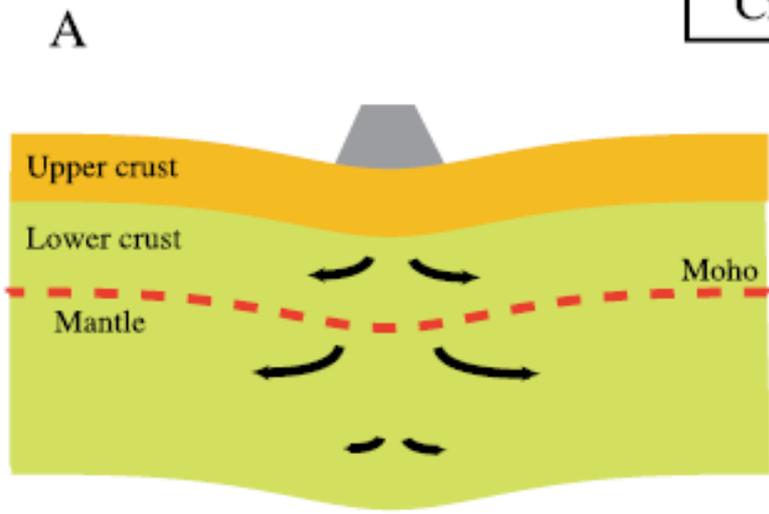
T_e em continentes



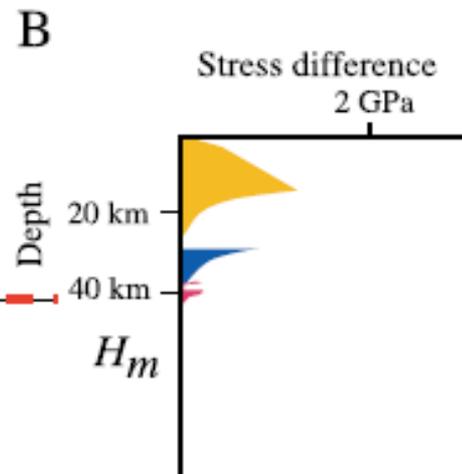
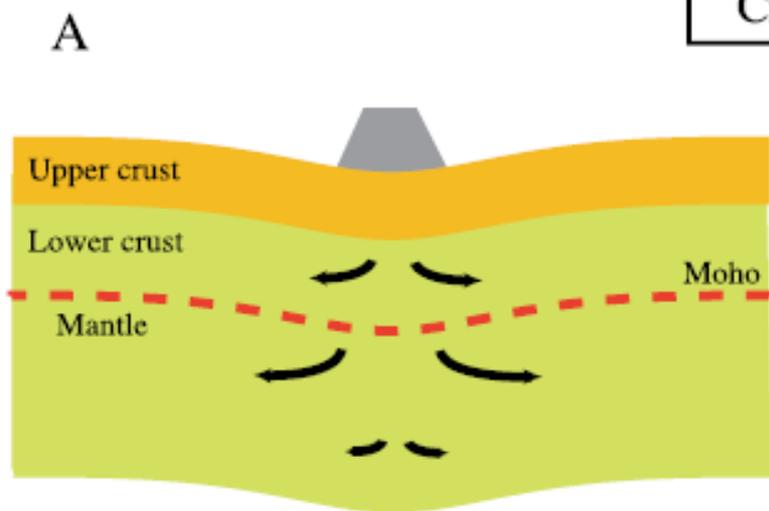
crème brûlée X jelly sandwich



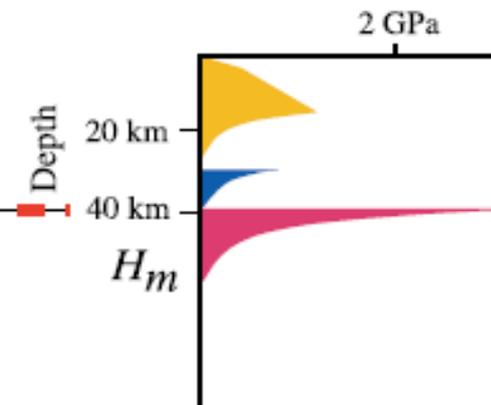
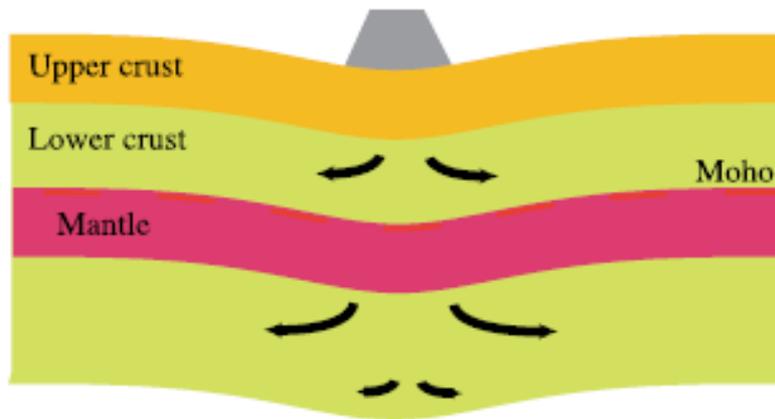
Crème brûlée



Crème brûlée



Jelly sandwich



Fatores que determinam T_e

- Composição

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- Composição
- Estado térmico da litosfera

Fatores que determinam T_e

- Composição
- Estado térmico da litosfera
- Estado de tensão da litosfera

Fatores que determinam T_e

- Composição
- Estado térmico da litosfera
- Estado de tensão da litosfera
- Acoplamento crosta/manto