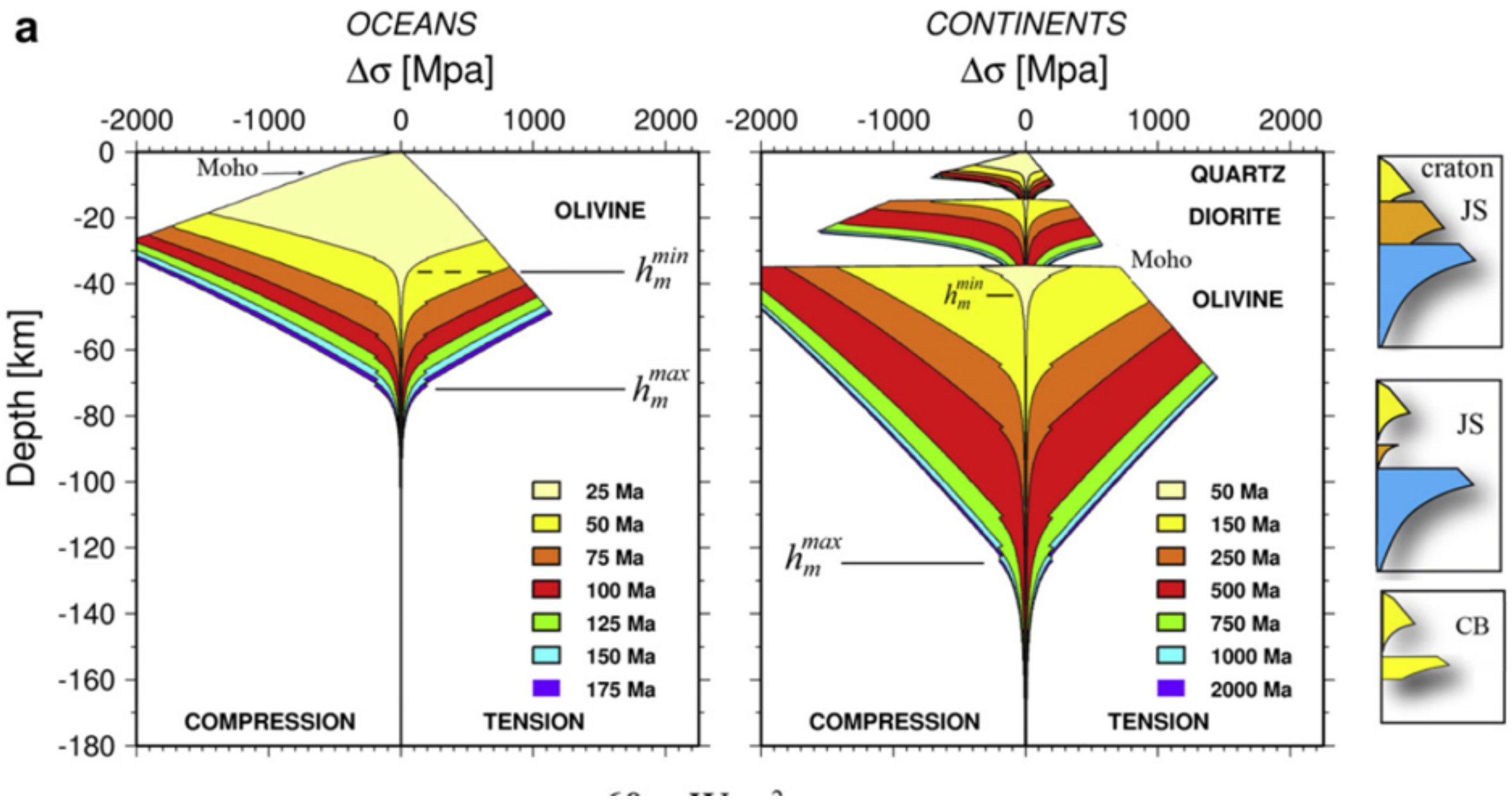
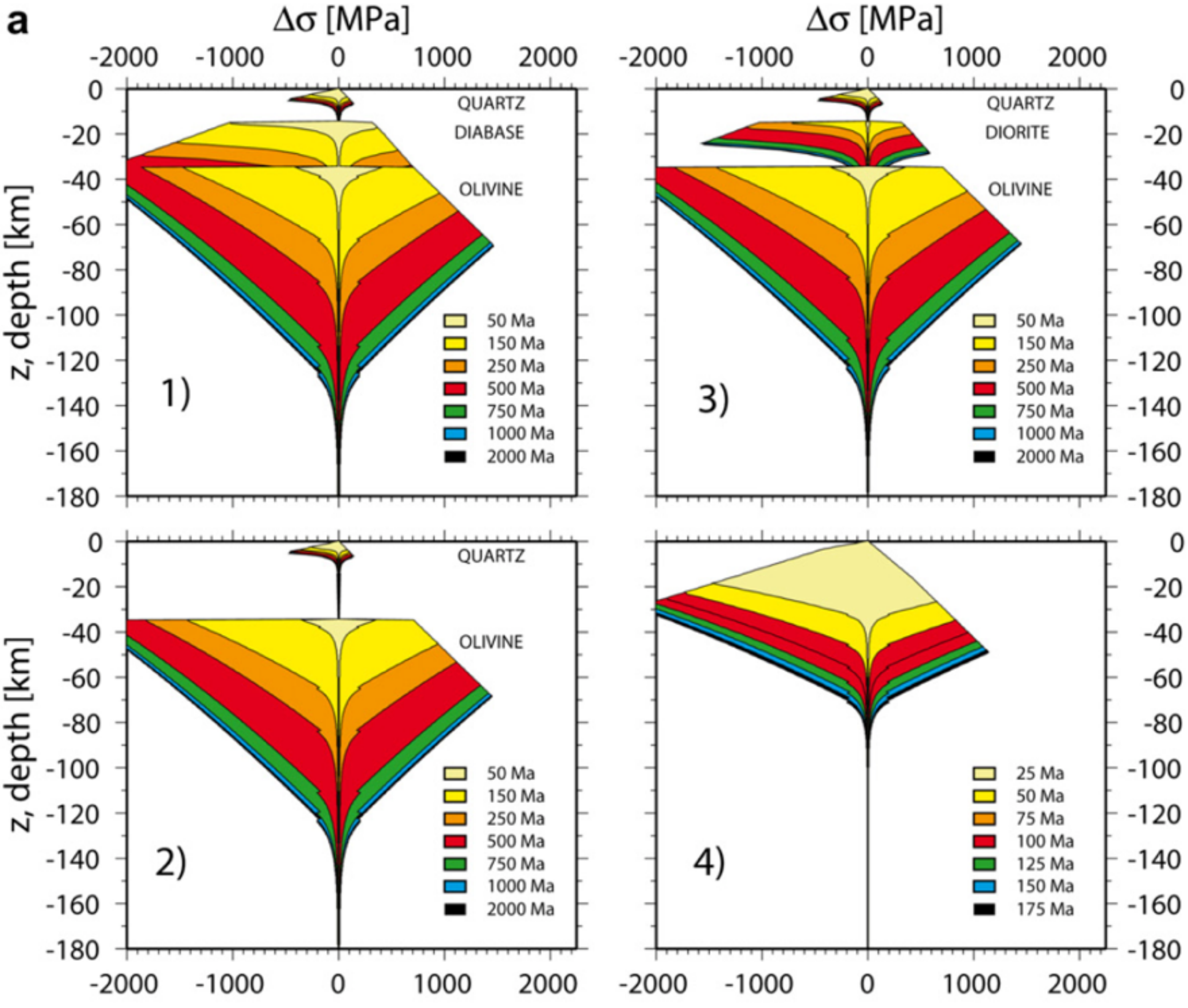
Modelos Quantitativos de Bacias Sedimentares

AGG0314

Modelos de extensão continental -
Parte IV (Modelos termo-mecânicos)

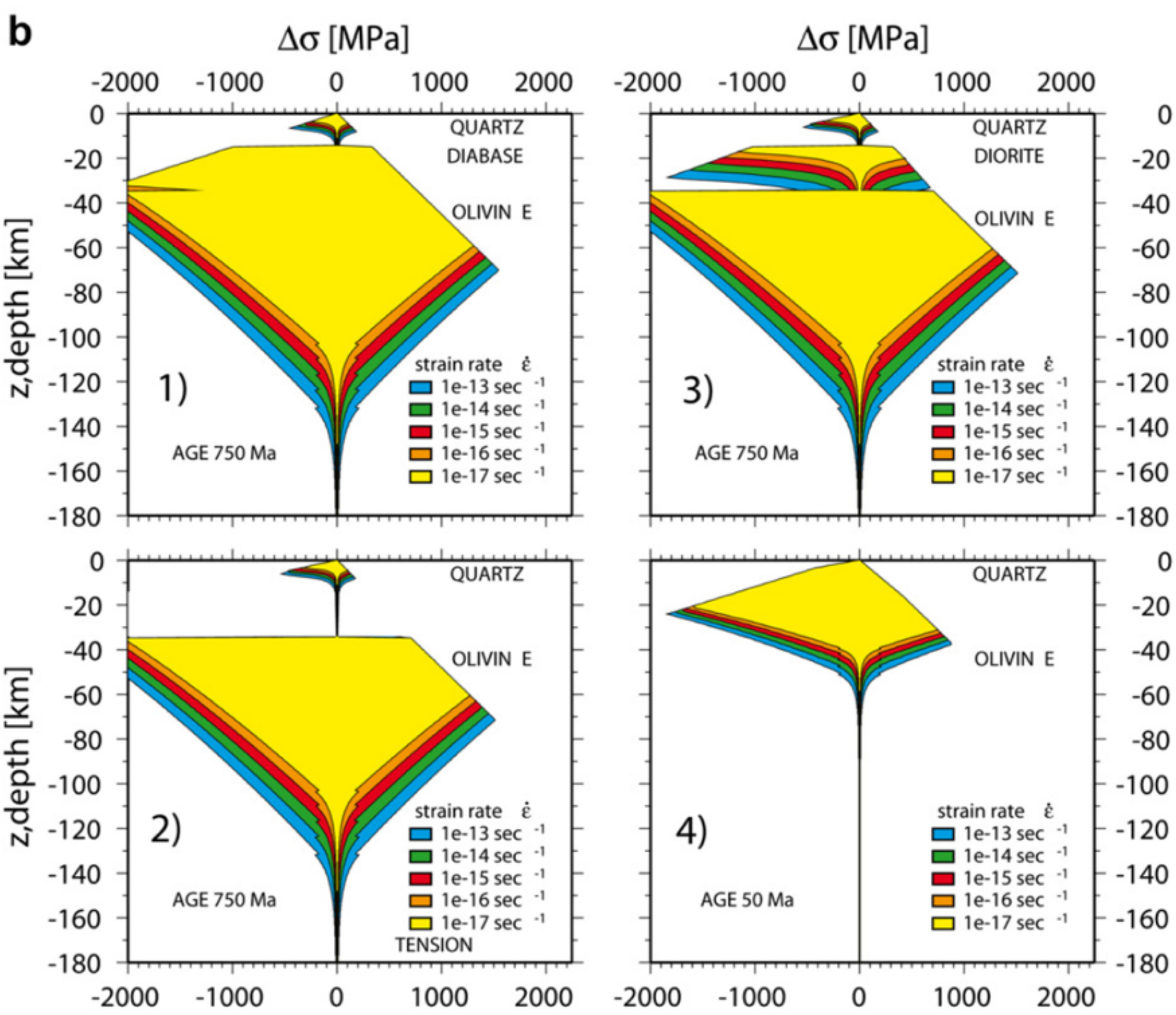

a
OCEANS
Δσ [Mpa]
-2000
-1000
0
1000
2000
Depth [km]
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
Moho
OLIVINE
h_m^{min}
h_m^{max}
25 Ma
50 Ma
75 Ma
100 Ma
125 Ma
150 Ma
175 Ma
COMPRESSION
TENSION
CONTINENTS
Δσ [Mpa]
QUARTZ
DIORITE
Moho
OLIVINE
h_m^{min}
h_m^{max}
50 Ma
150 Ma
250 Ma
500 Ma
750 Ma
1000 Ma
2000 Ma
COMPRESSION
TENSION
craton
JS
JS
CB

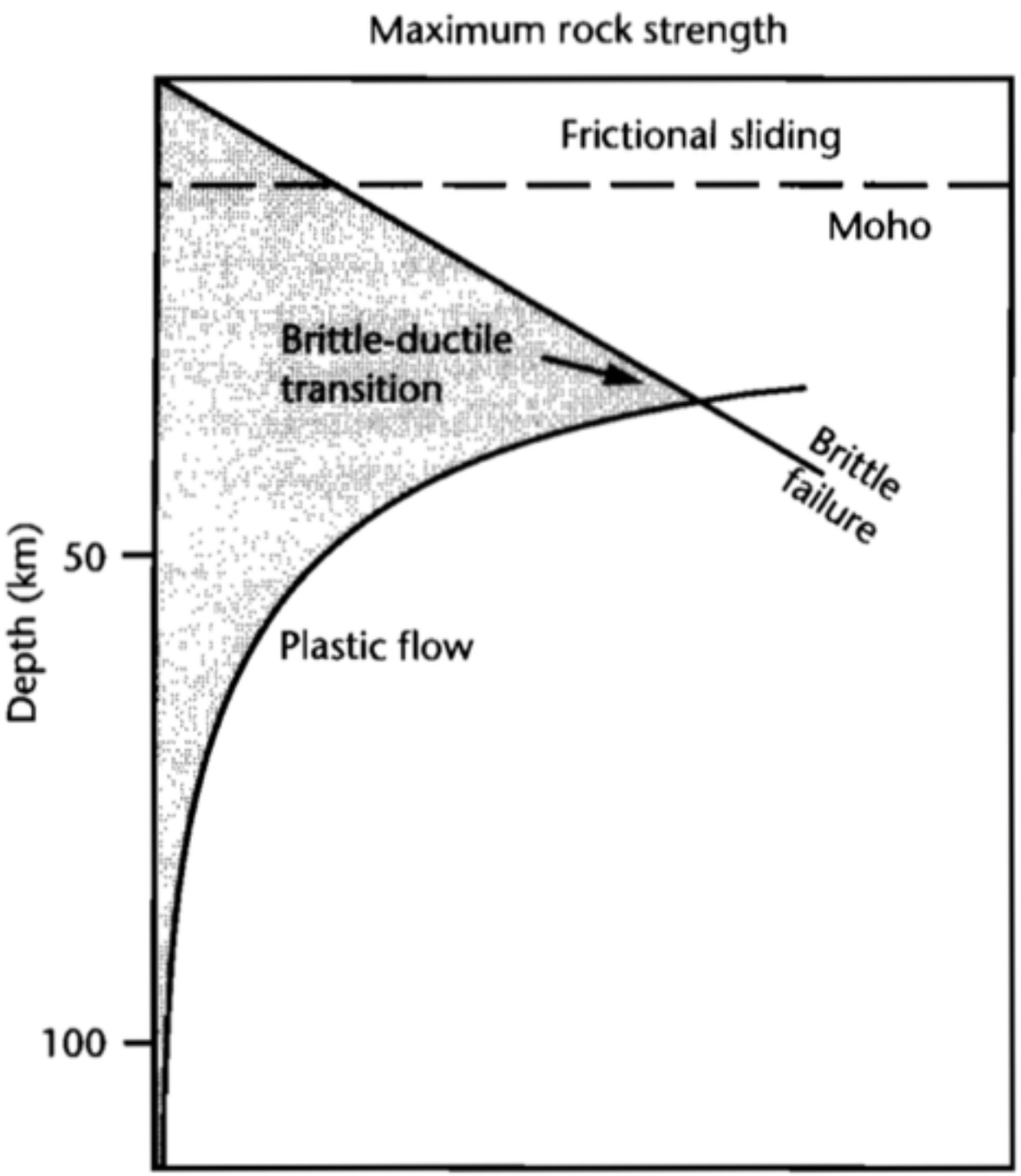
Burov (2011)



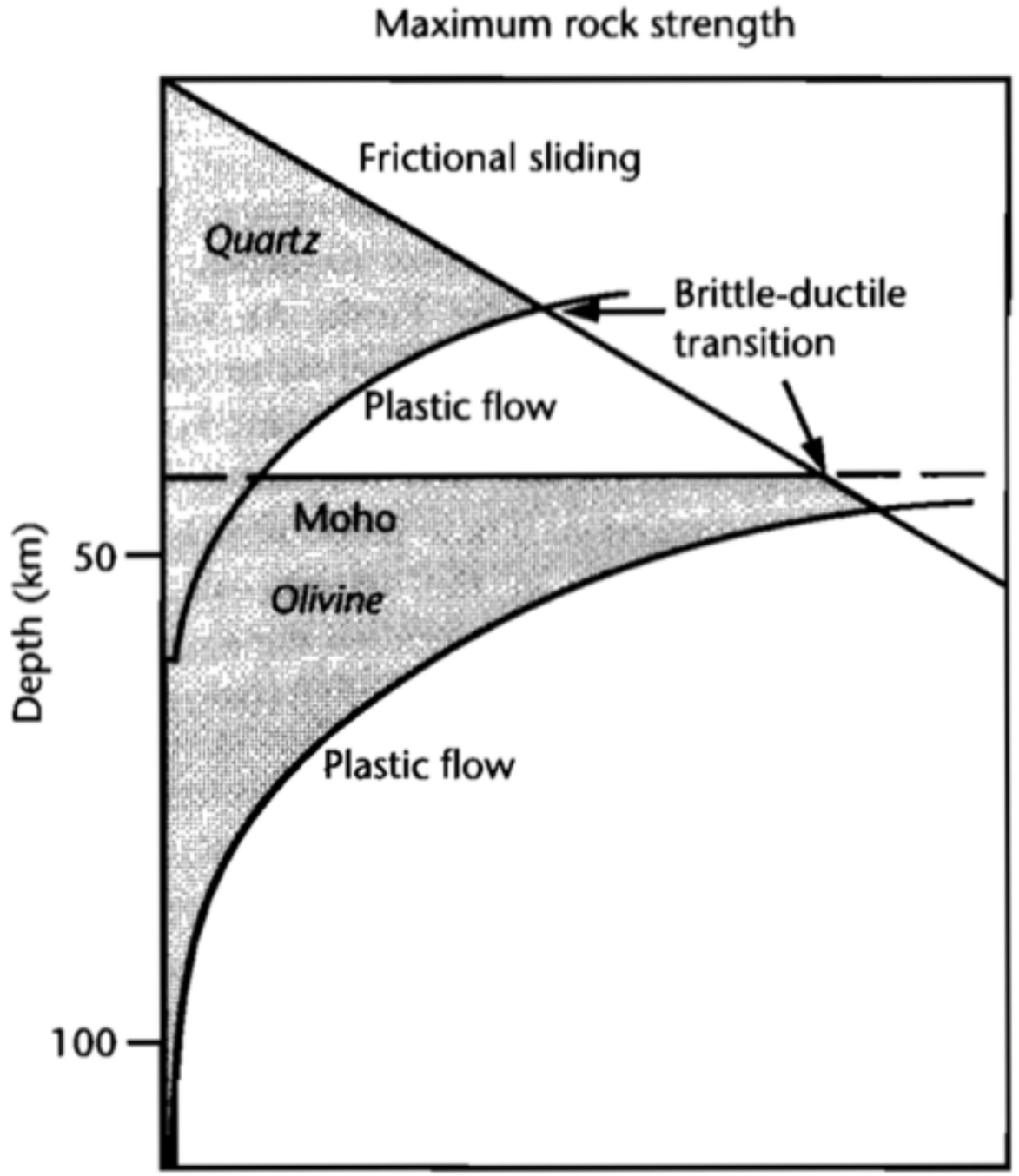
a
Δσ [MPa]
-2000
-1000
0
1000
2000
z, depth [km]
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
QUARTZ
DIABASE
OLIVINE
1)
50 Ma
150 Ma
250 Ma
500 Ma
750 Ma
1000 Ma
2000 Ma
QUARTZ
DIORITE
OLIVINE
3)
50 Ma
150 Ma
250 Ma
500 Ma
750 Ma
1000 Ma
2000 Ma
QUARTZ
OLIVINE
2)
50 Ma
150 Ma
250 Ma
500 Ma
750 Ma
1000 Ma
2000 Ma
4)
25 Ma
50 Ma
75 Ma
100 Ma
125 Ma
150 Ma
175 Ma

b

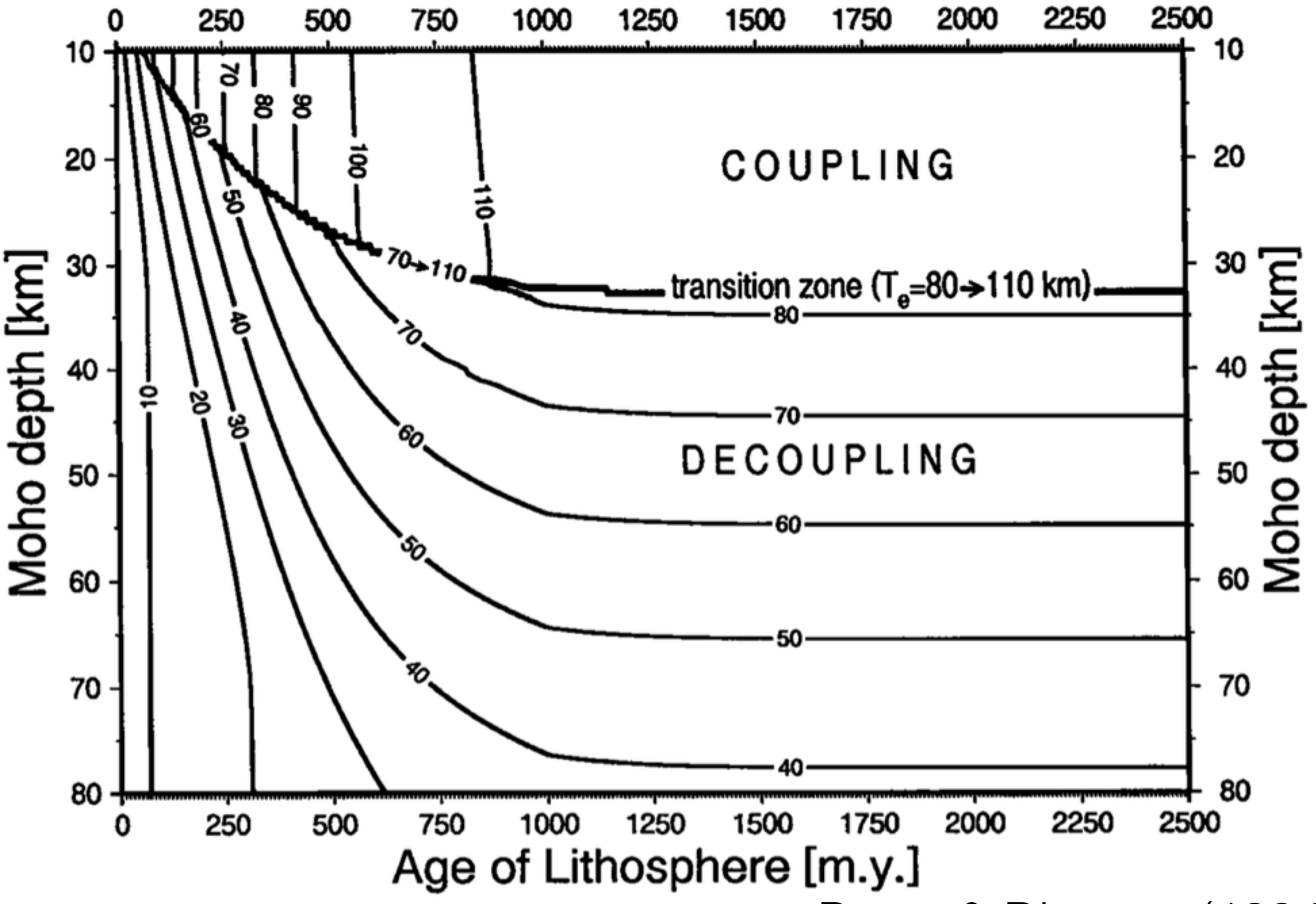

Δσ [MPa]
-2000
-1000
0
1000
2000
z,depth [km]
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
QUARTZ
DIABASE
OLIVIN E
1)
AGE 750 Ma
strain rate ε̇
1e-13 sec -1
1e-14 sec -1
1e-15 sec -1
1e-16 sec -1
1e-17 sec -1
QUARTZ
DIORITE
OLIVIN E
3)
AGE 750 Ma
QUARTZ
OLIVIN E
2)
AGE 750 Ma
TENSION
QUARTZ
OLIVIN E
4)
AGE 50 Ma



(a) Oceanic lithosphere



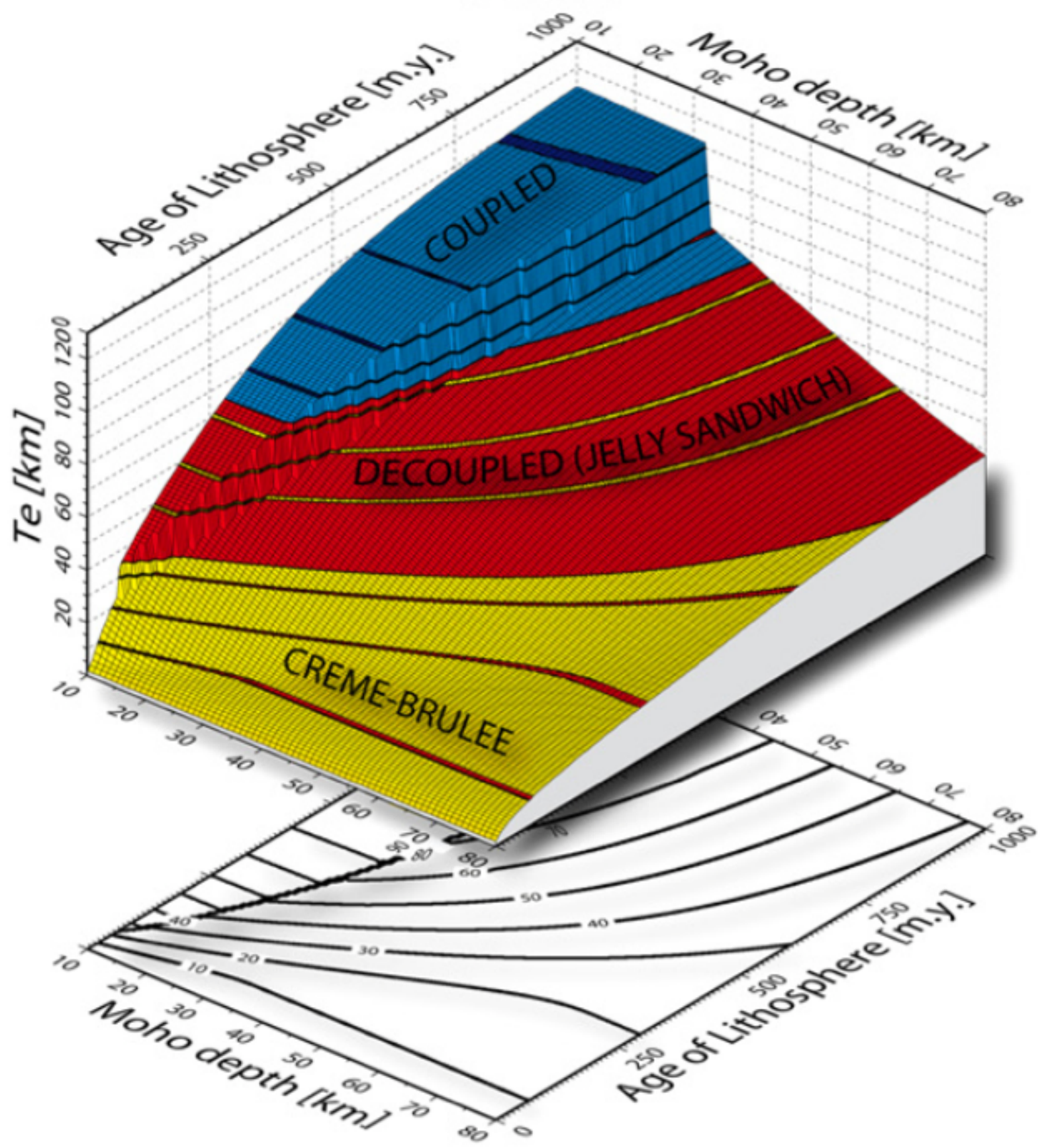
(b) Continental lithosphere

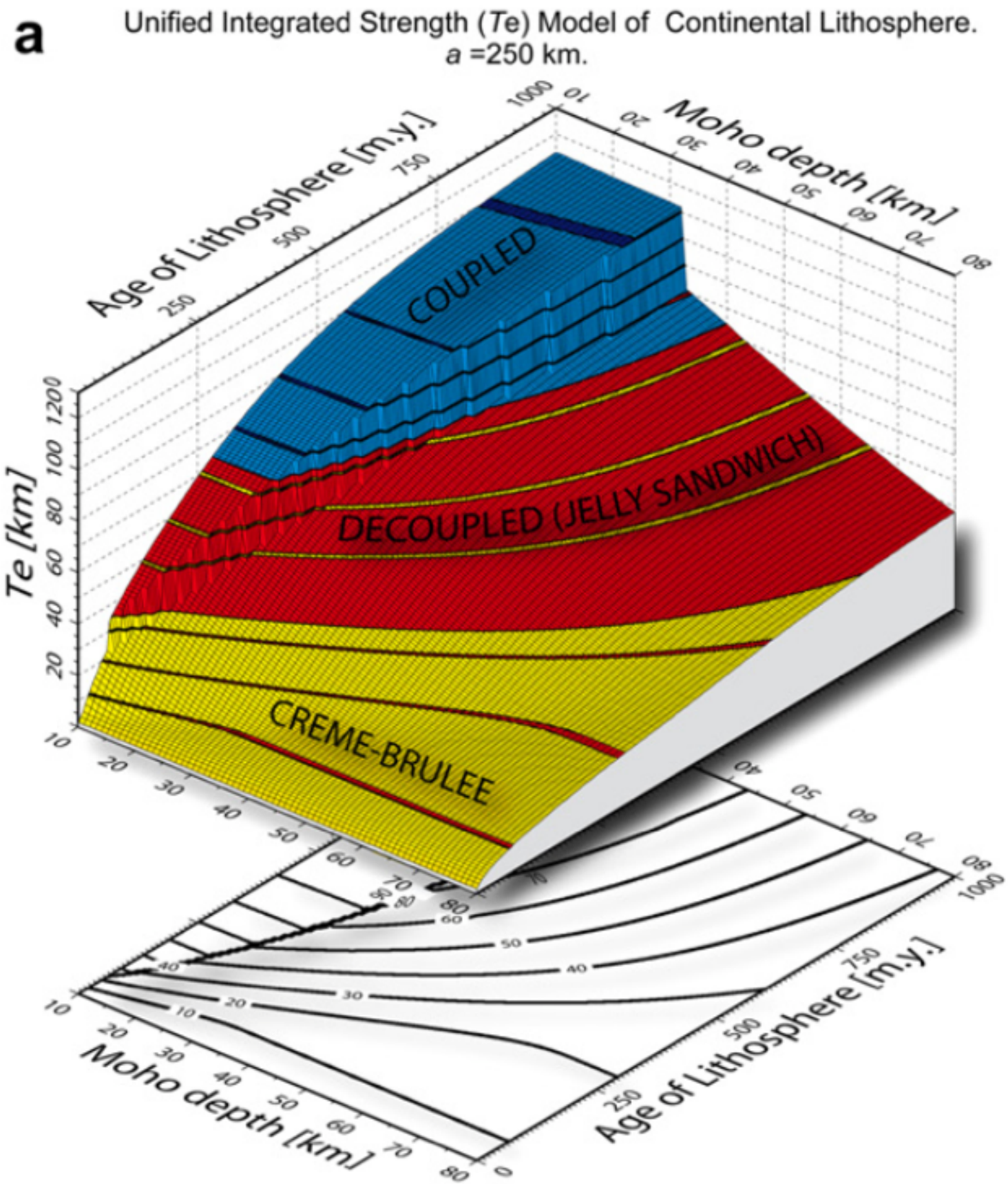


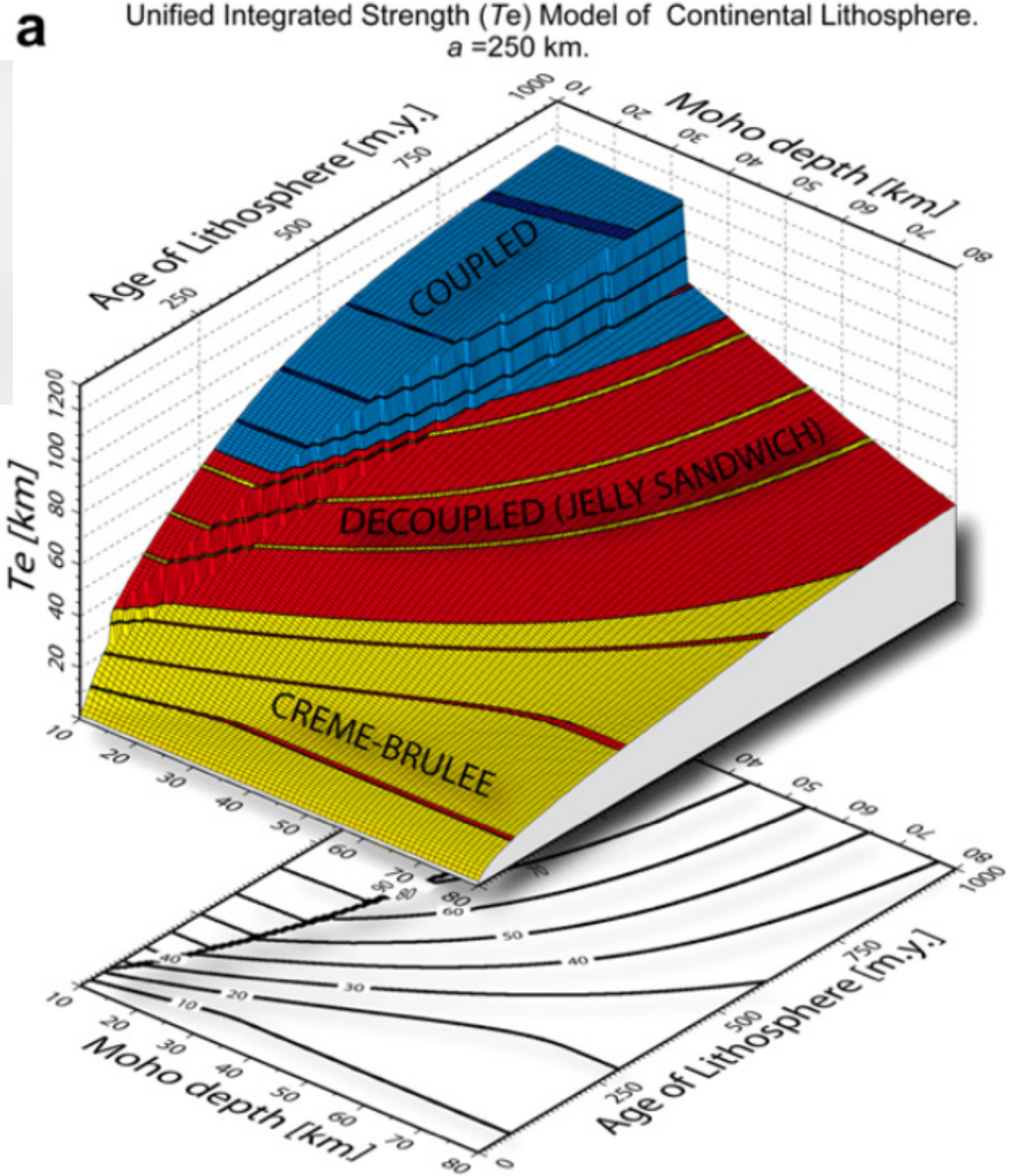
Burov & Diament (1994)

a

Unified Integrated Strength (*Te*) Model of Continental Lithosphere.
a =250 km.




a
Unified Integrated Strength (Te) Model of Continental Lithosphere.
a =250 km.
Age of Lithosphere [m.y.]
Moho depth [km]
Te [km]
COUPLED
DECOUPLED (JELLY SANDWICH)
CREME-BRULEE


a
Unified Integrated Strength (Te) Model of Continental Lithosphere.
a =250 km.
Age of Lithosphere [m.y.]
Moho depth [km]
Te [km]
COUPLED
DECOUPLED (JELLY SANDWICH)
CREME-BRULEE

A physical explanation of the relation between flank uplifts and the breakup unconformity at rifted continental margins

Jean Braun, Christopher Beaumont
Department of Oceanography, Dalhousie University, Halifax B3H 4J1, Canada

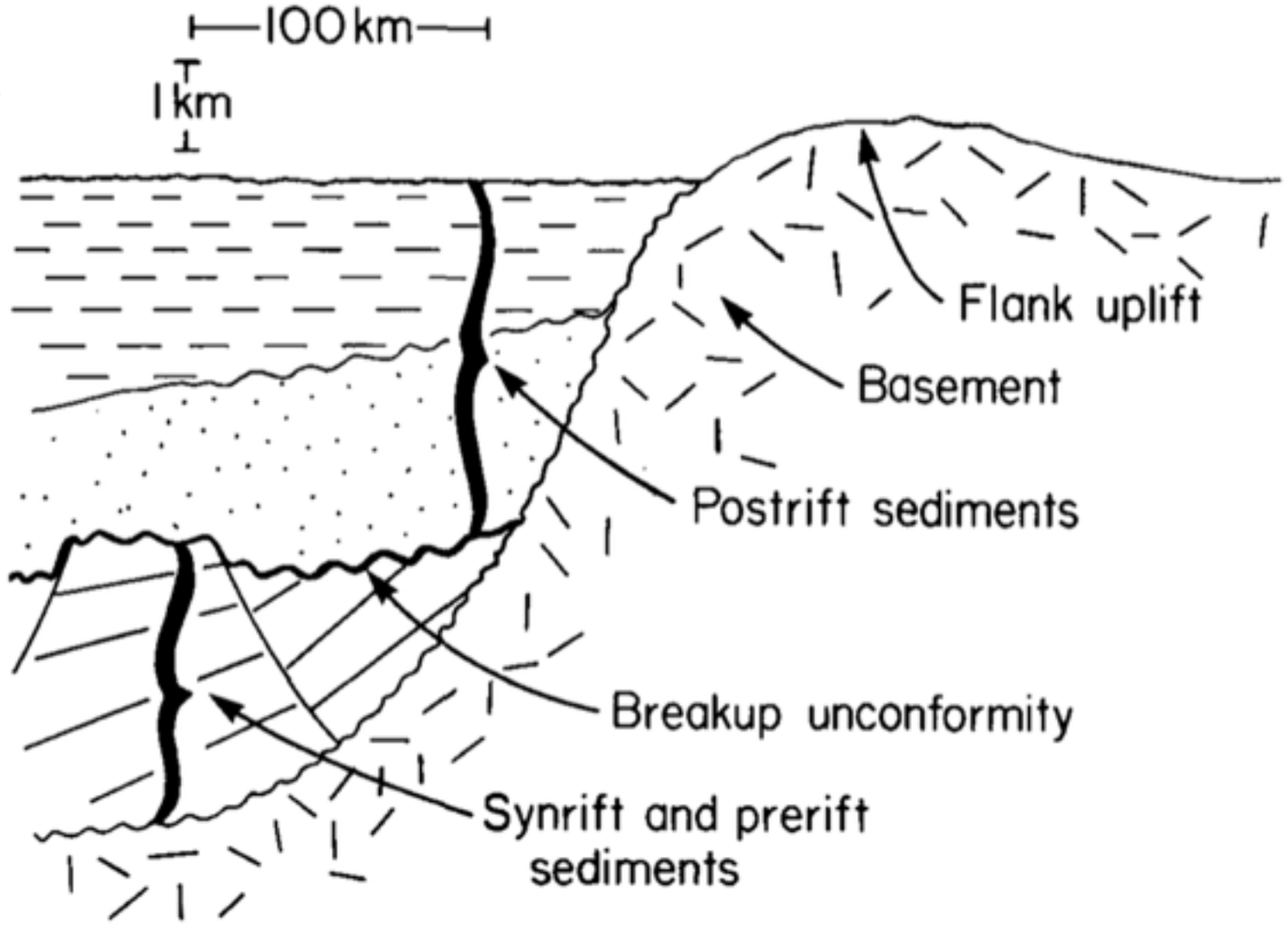


Figure 1. Diagram illustrating typical features of simple rifted continental margin.

A physical explanation of the relation between flank uplifts and the breakup unconformity at rifted continental margins

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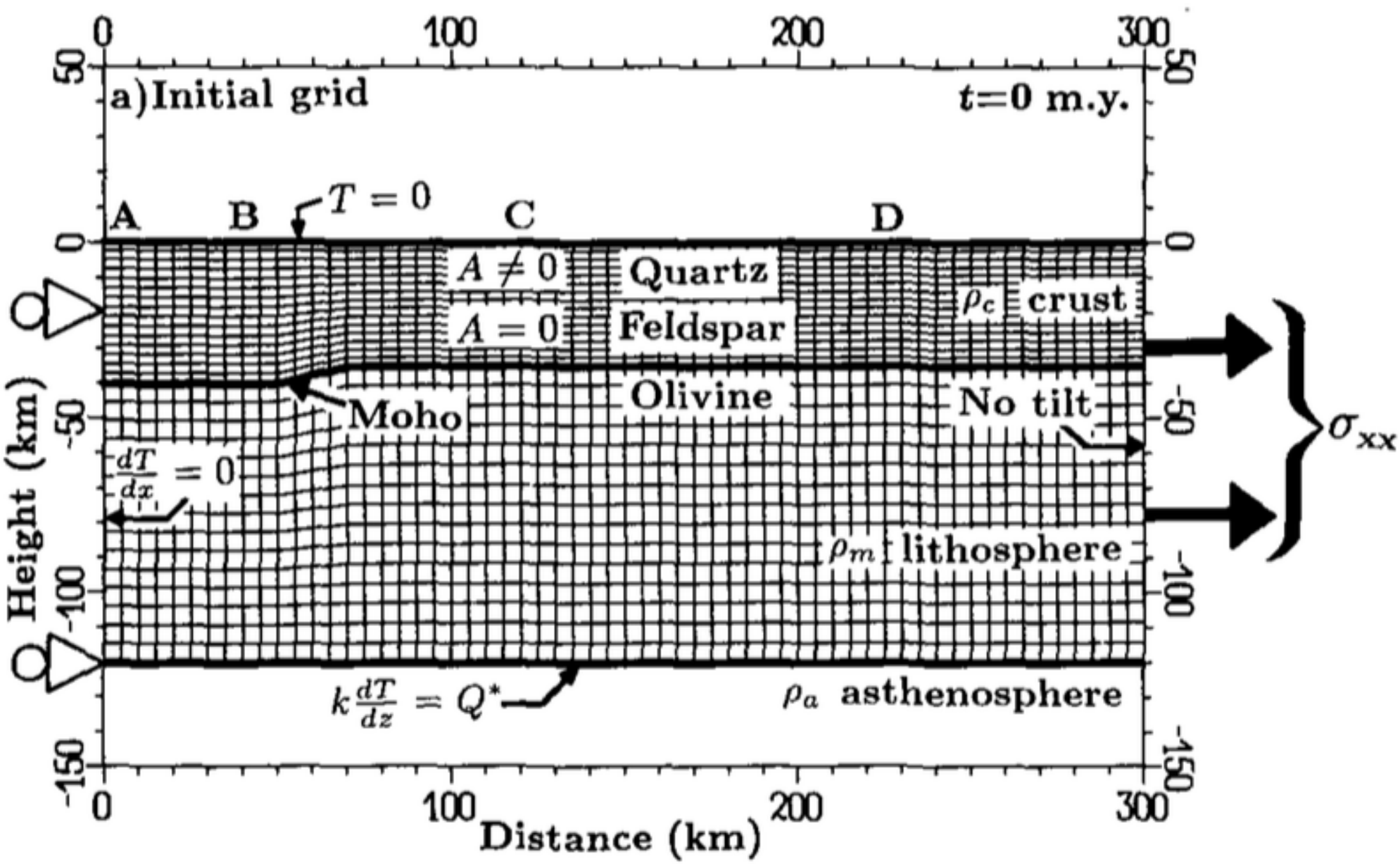

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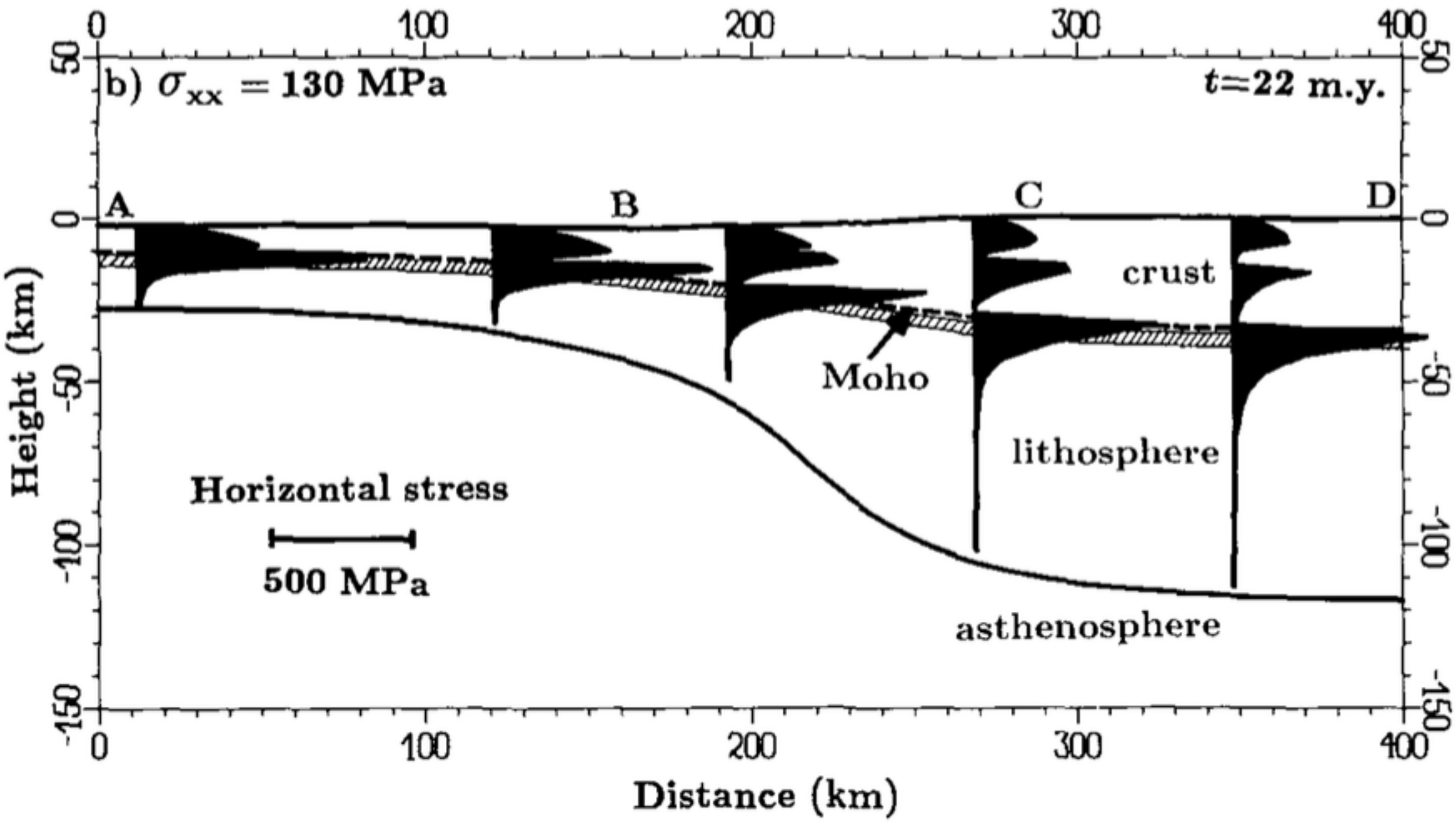
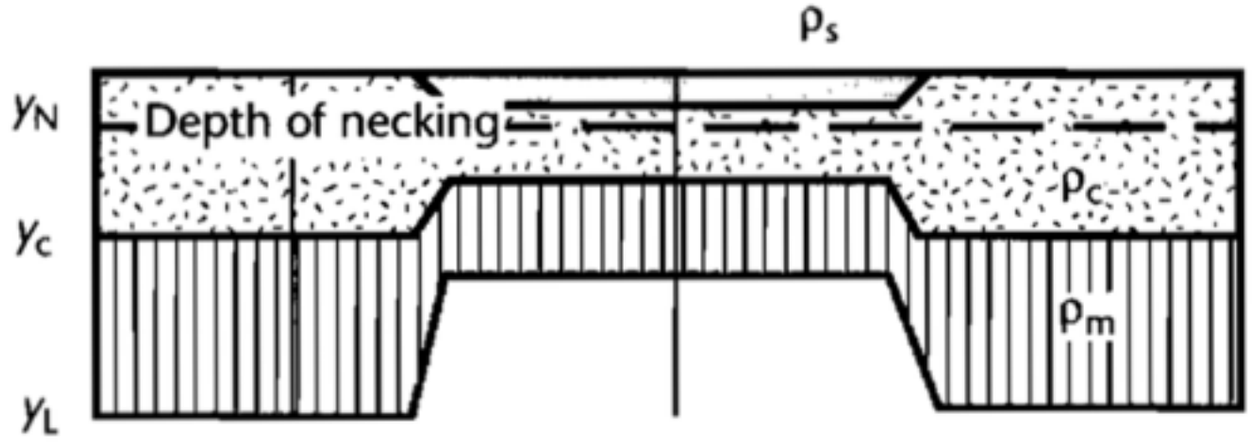
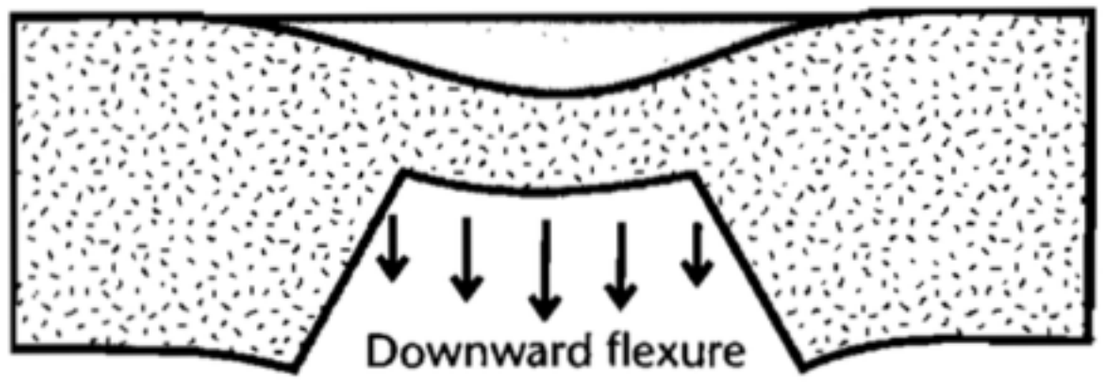


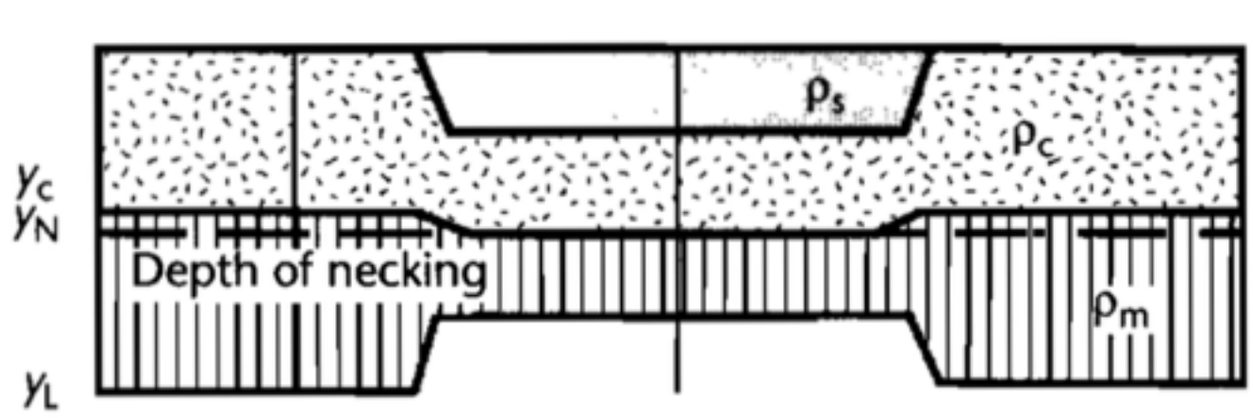
(a) **SHALLOW NECKING DEPTH**

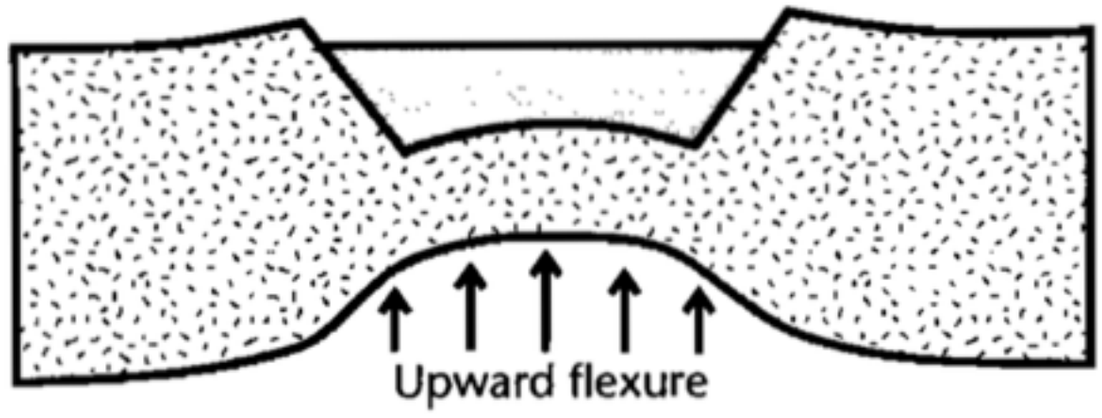


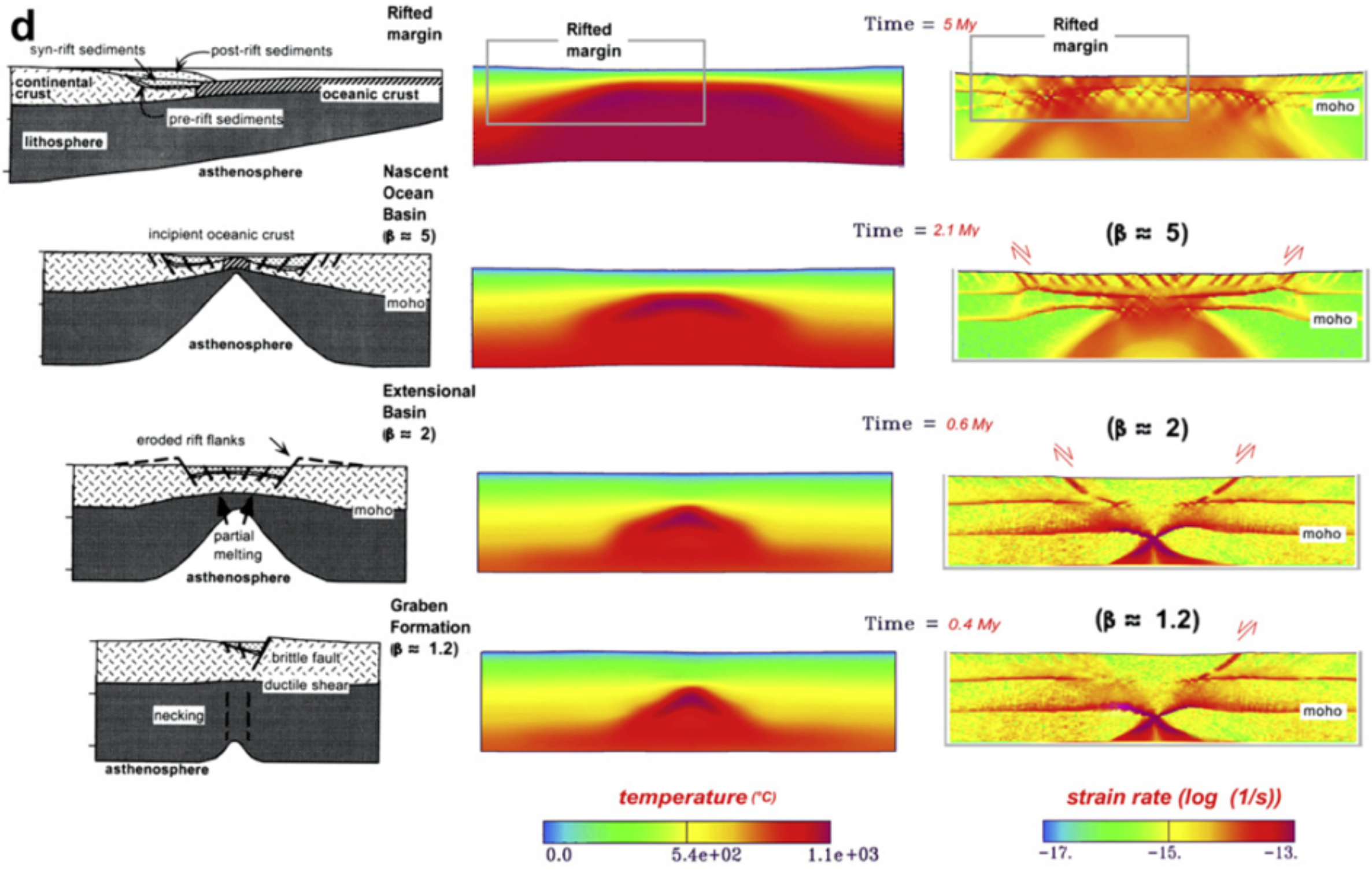
Regional isostatic response



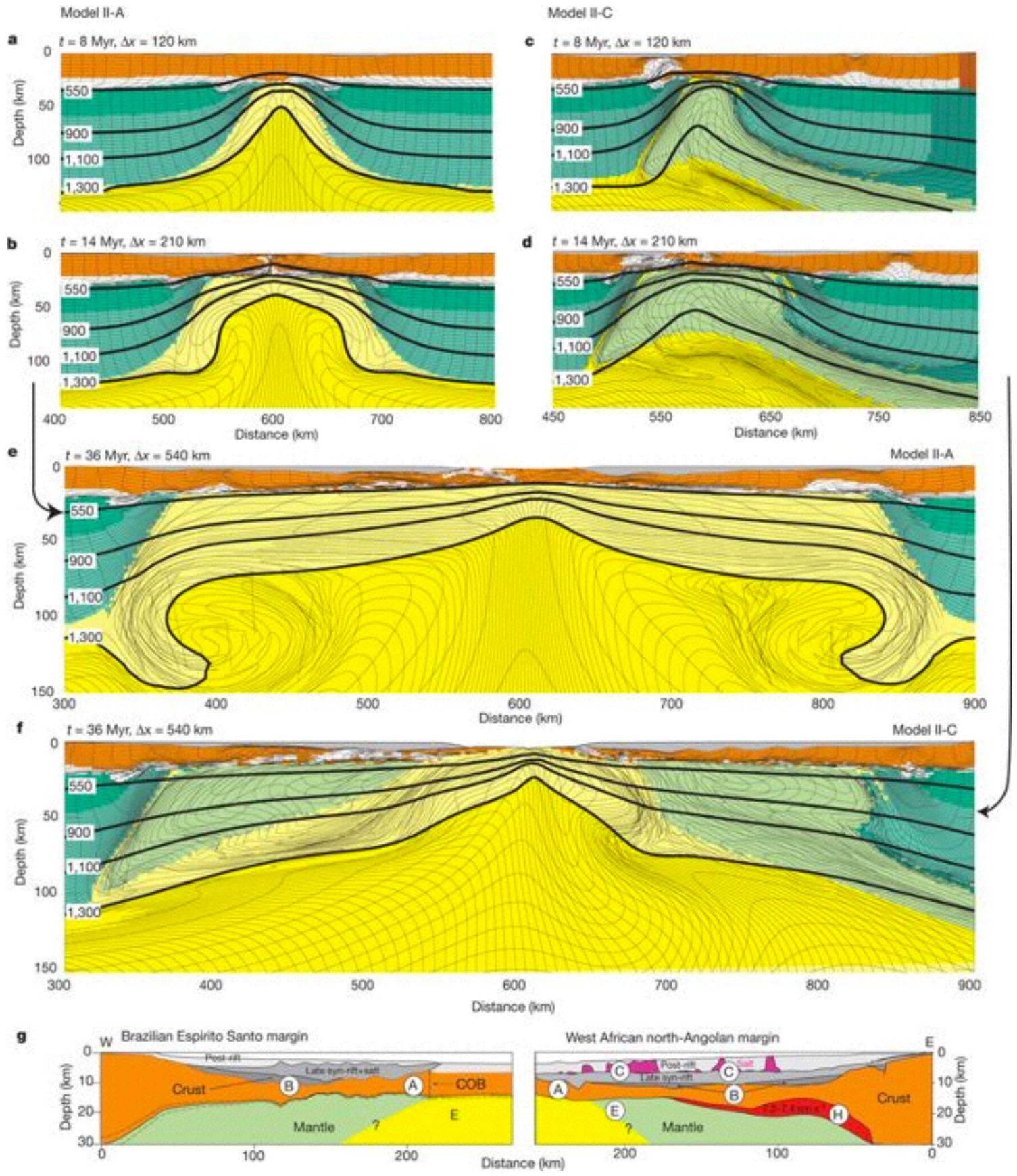
(b) **DEEP NECKING DEPTH**



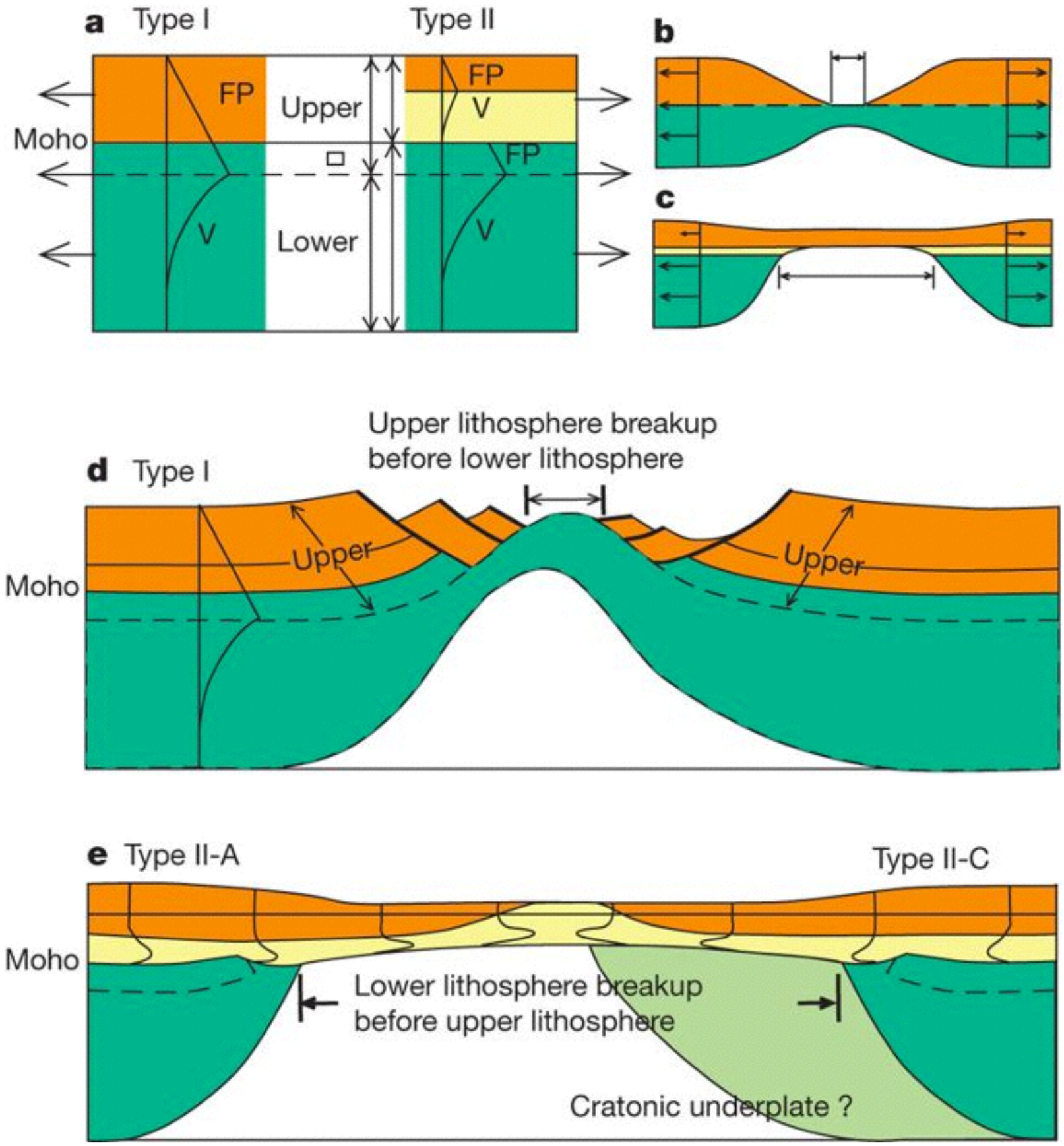




Burov & Poliakov (2001)



Huismans & Beaumont (2011)



Huismans & Beaumont (2011)