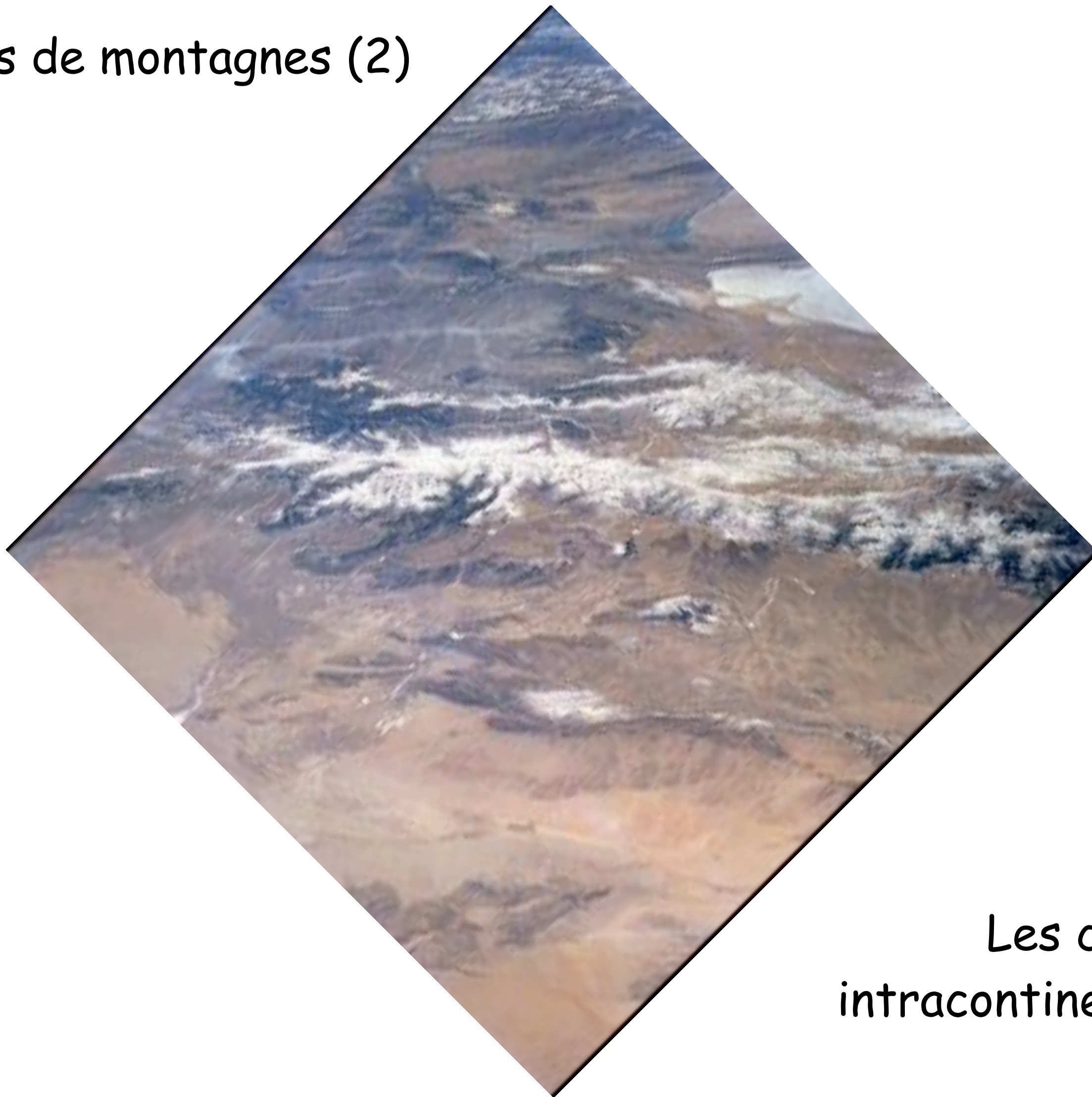
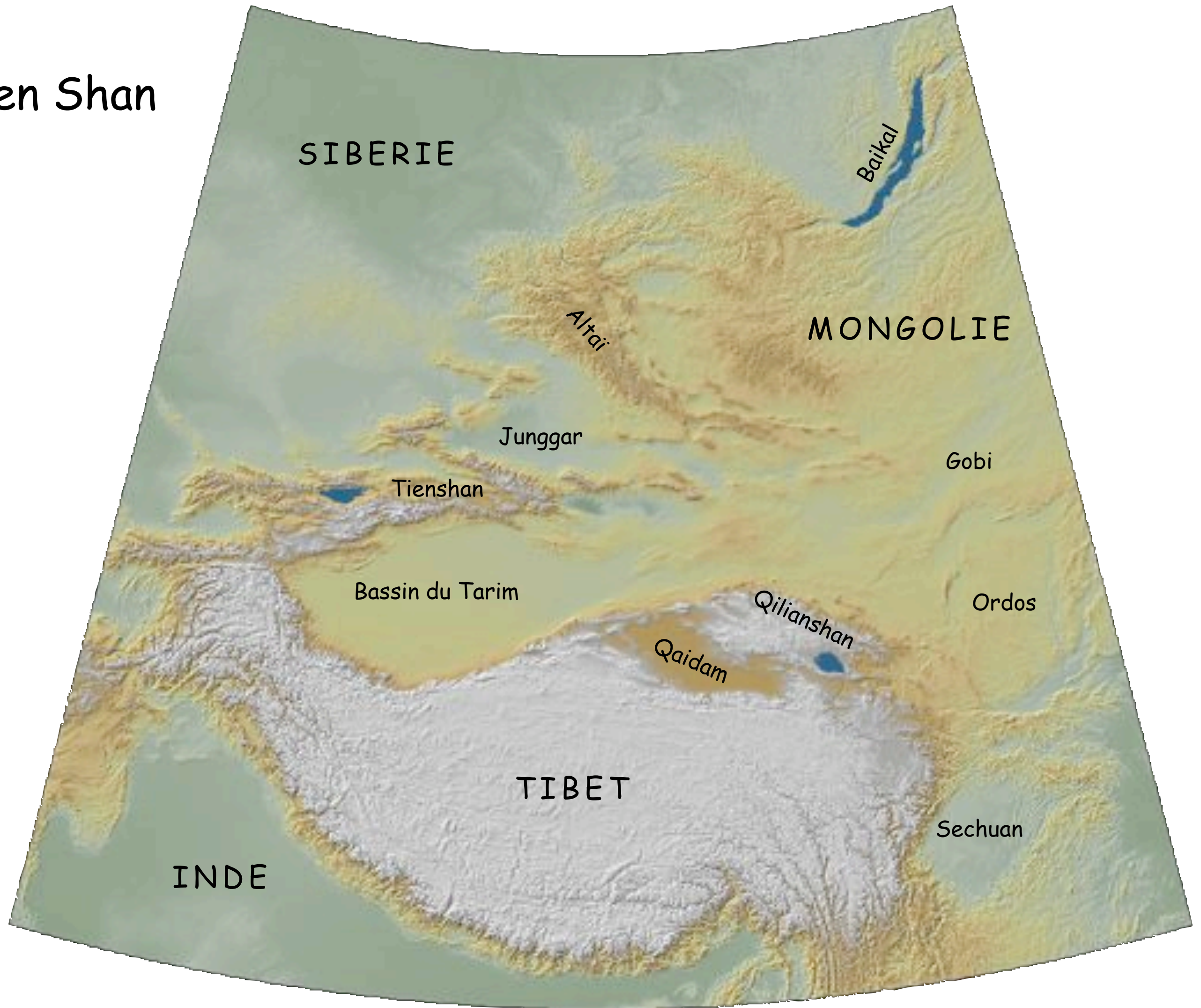


Les chaînes de montagnes (2)

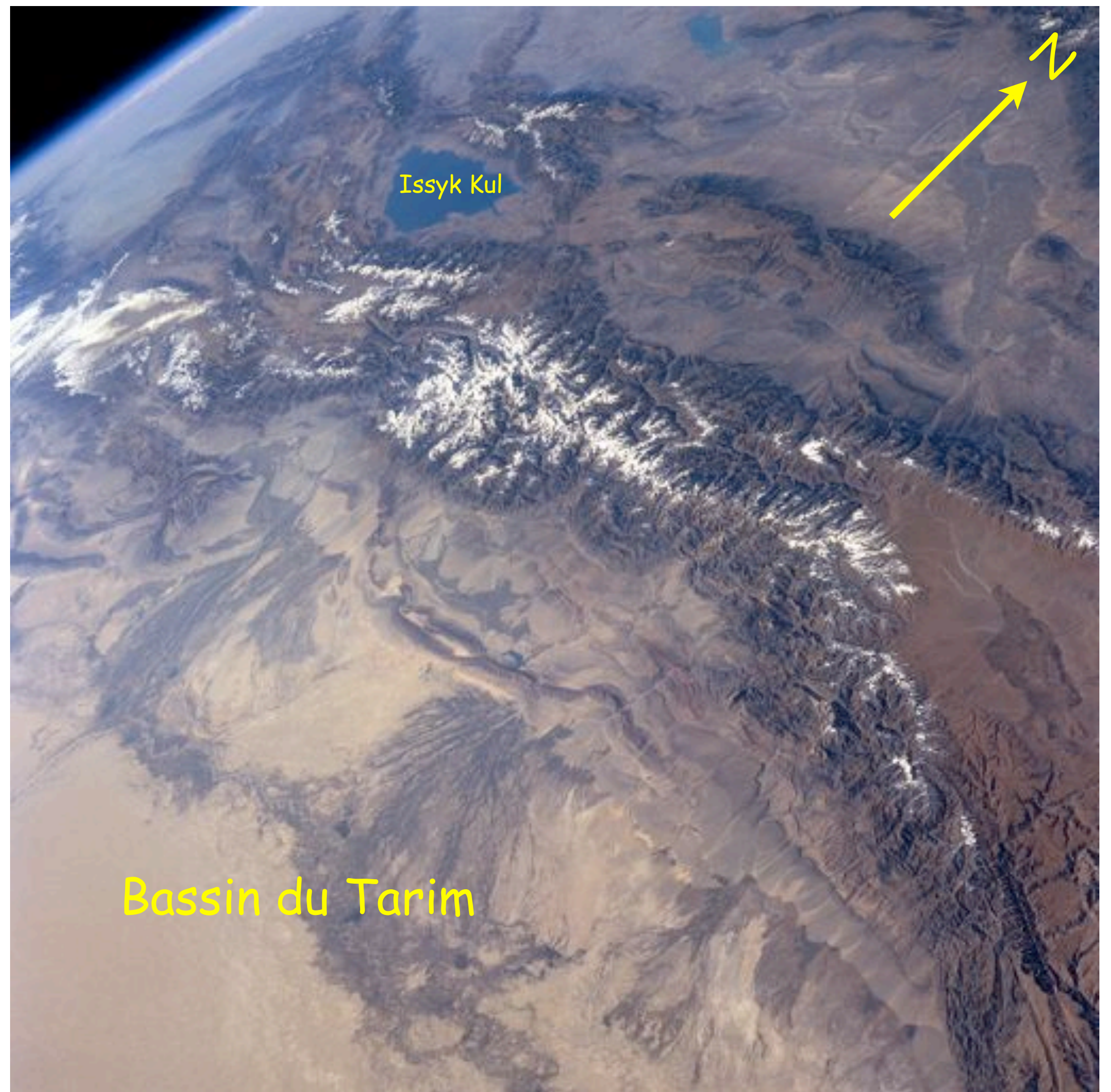


Les chaînes
intracontinentales

Localisation Tien Shan



Chaîne du Tien Shan



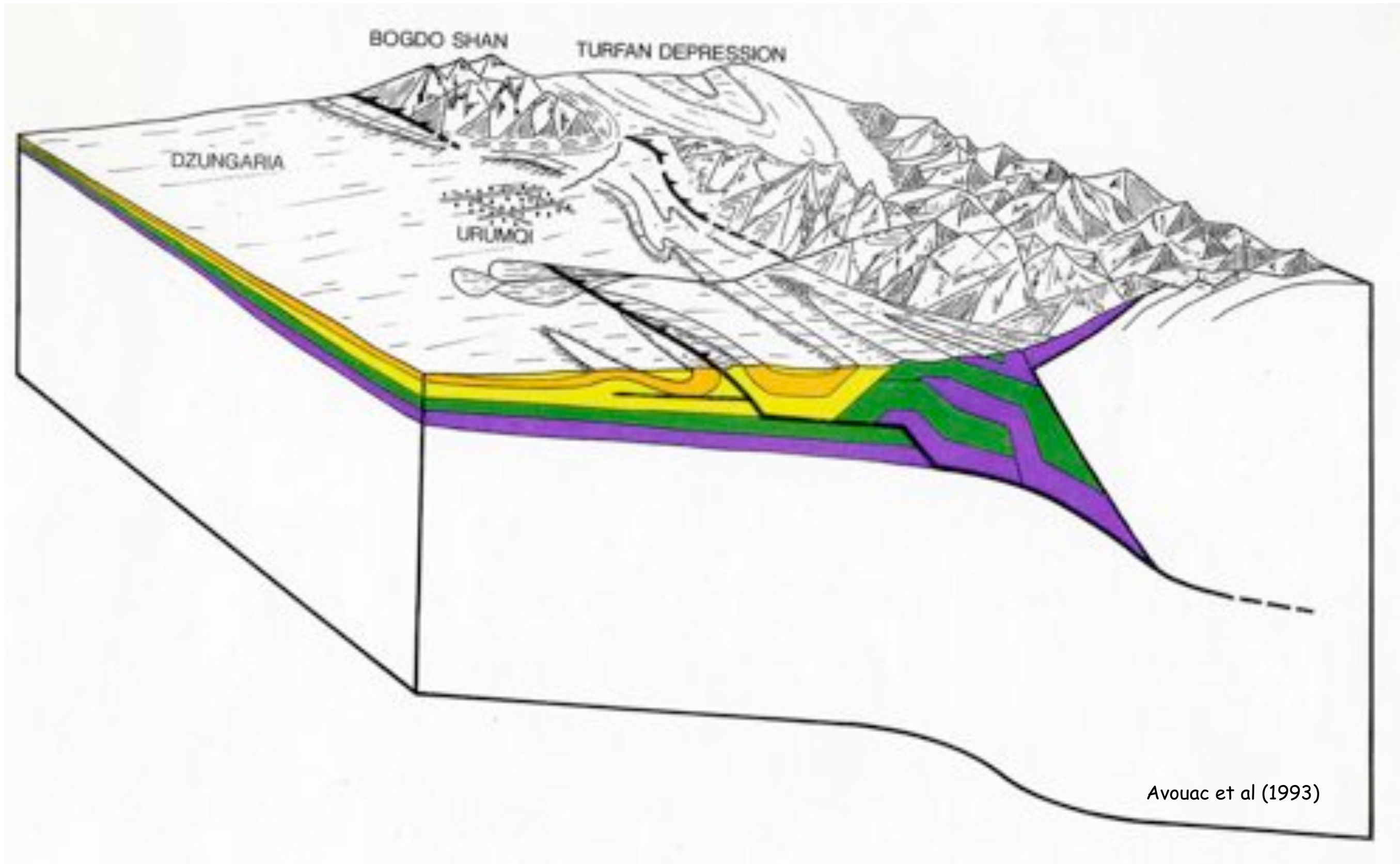
Versant sud



Versant nord



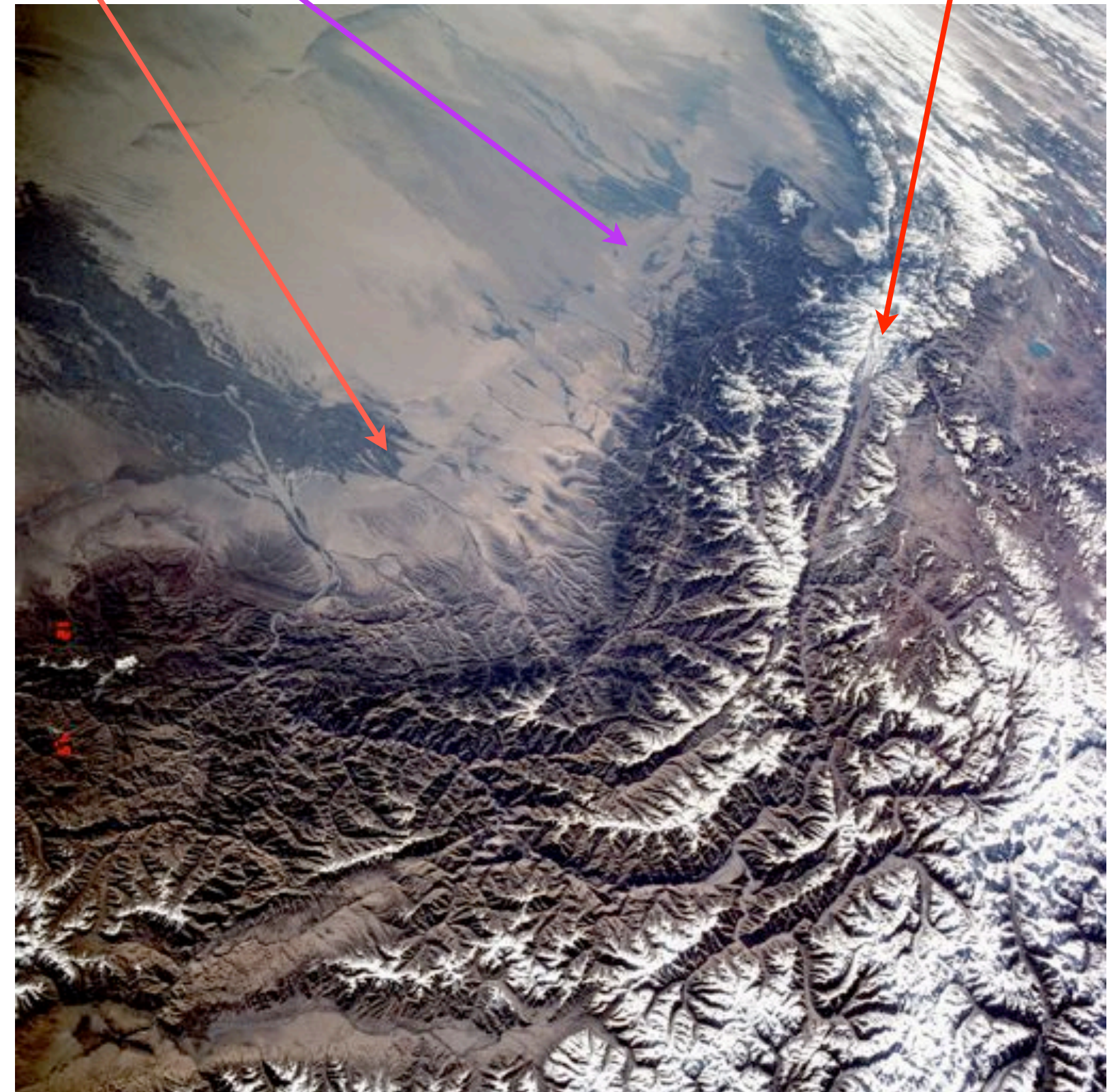
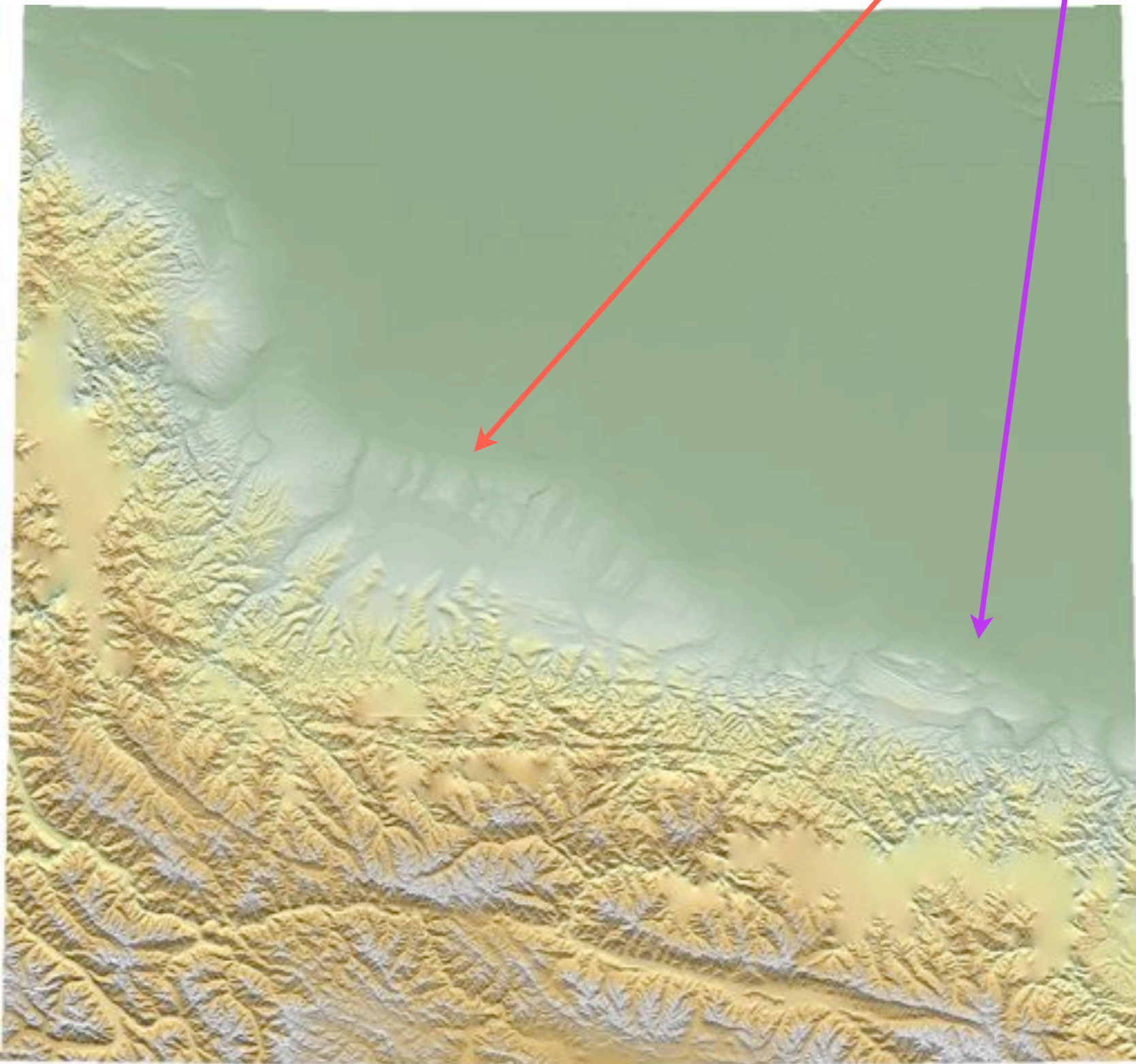
Coupe versant nord

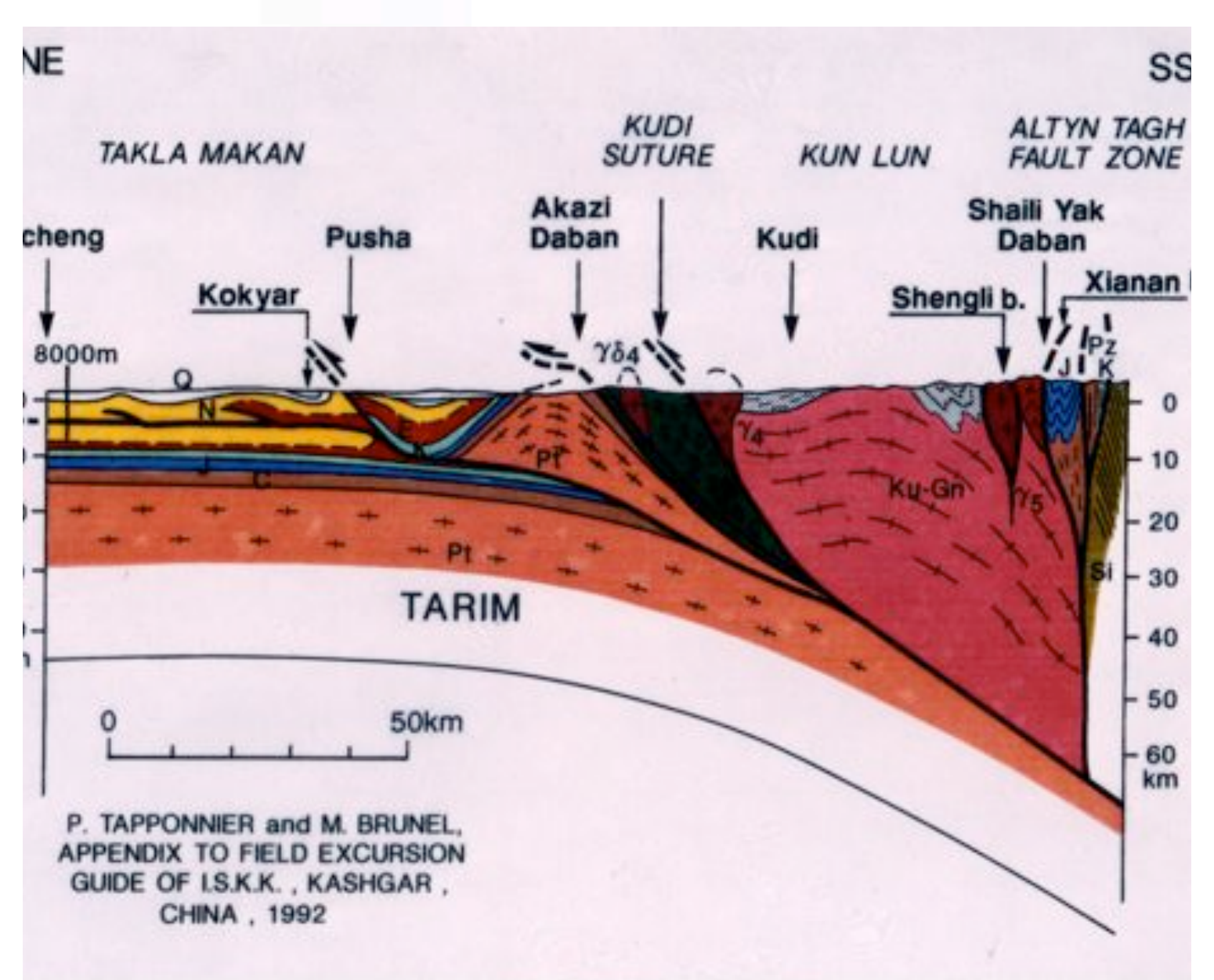
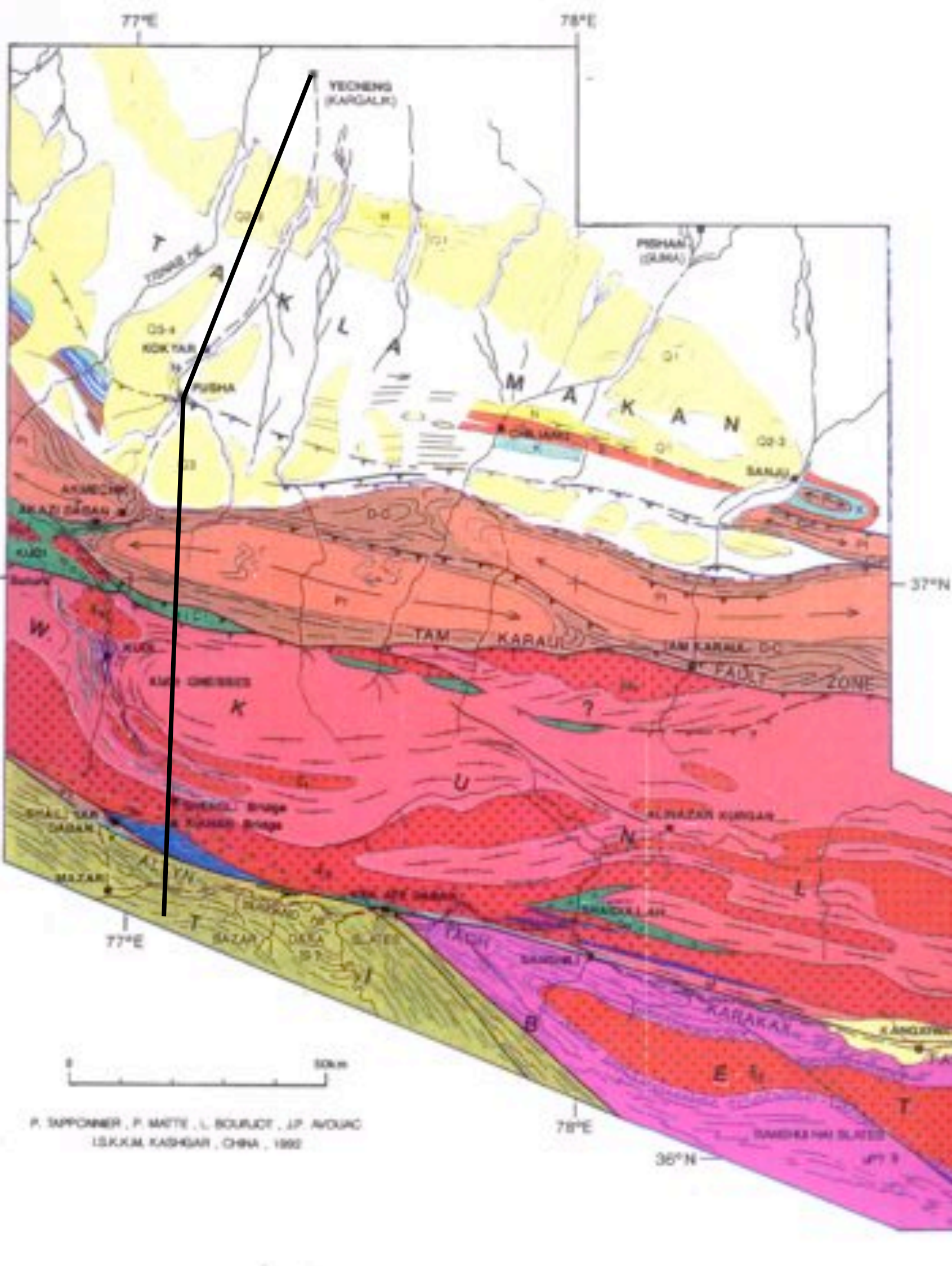


Bord nord-ouest du Tibet

Plis en formation

F. Altyn Tagh



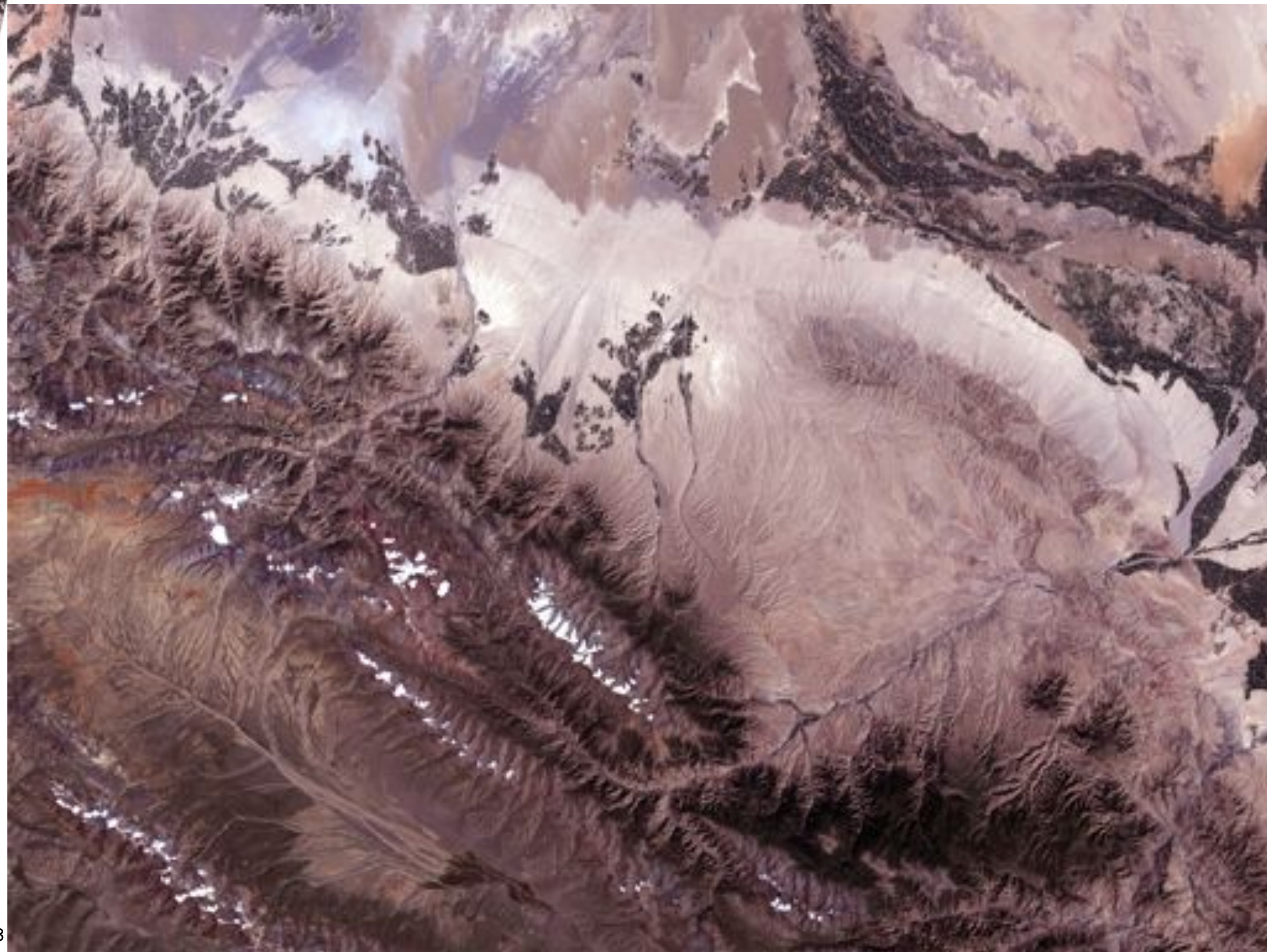
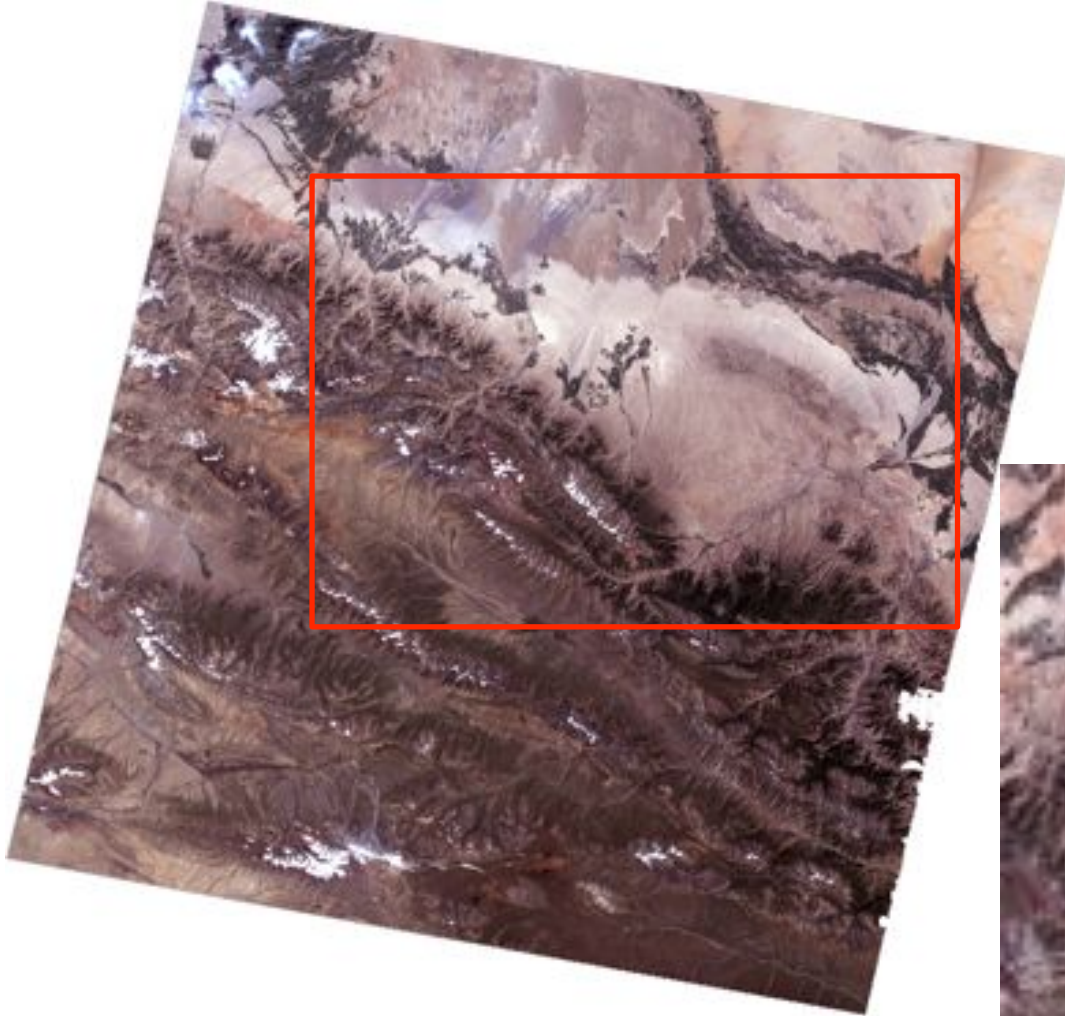


Pli dans le bassin du Tarim

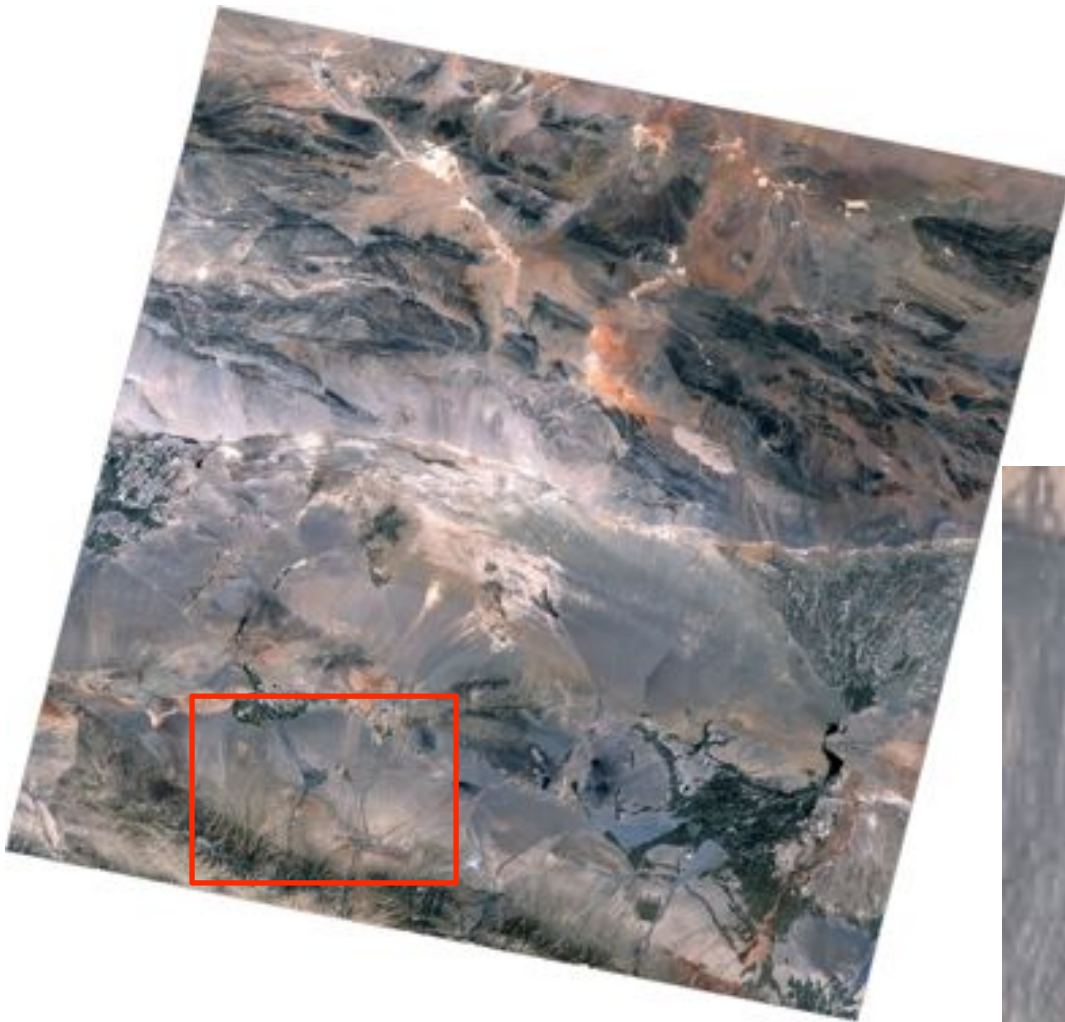


<https://zulu.ssc.nasa.gov/mrsid/mrsid.pl>

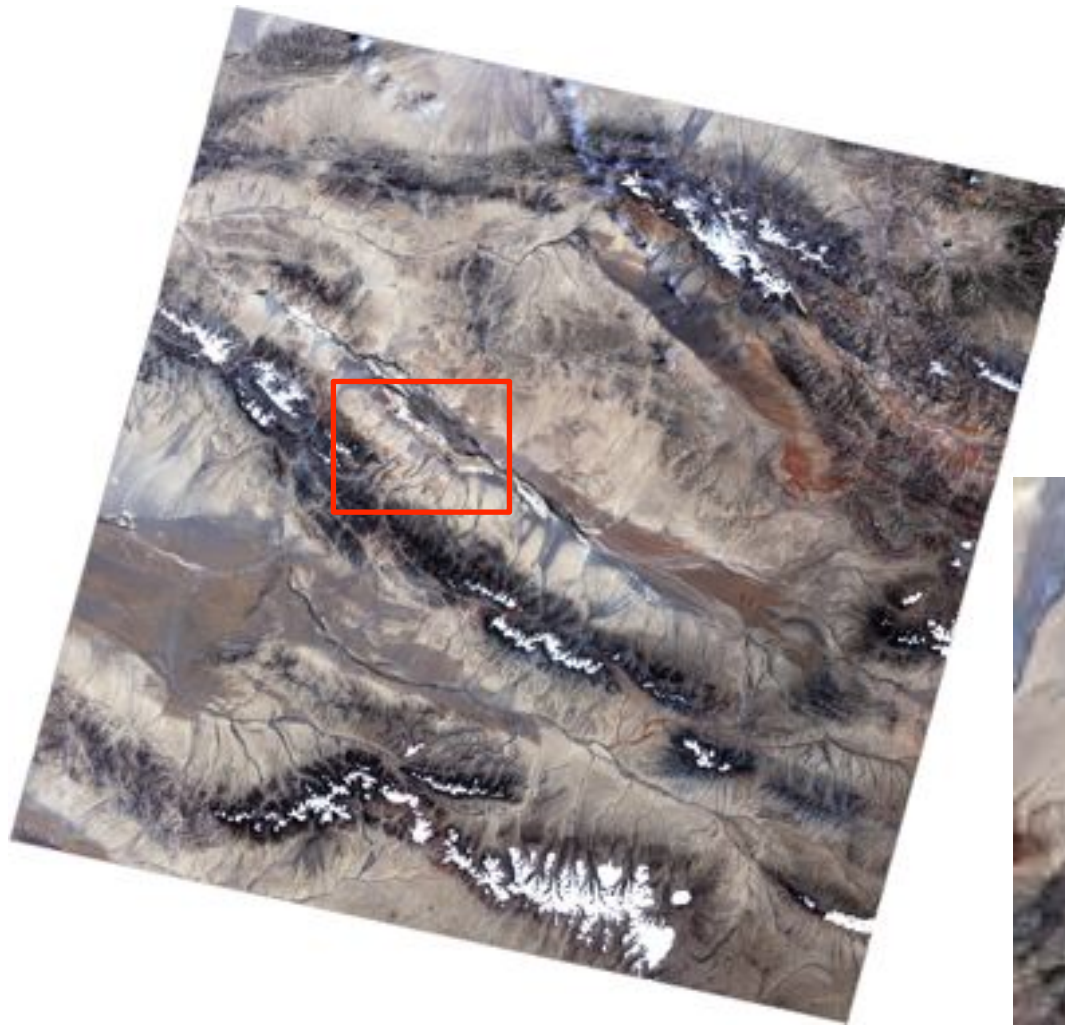
Qilian Shan



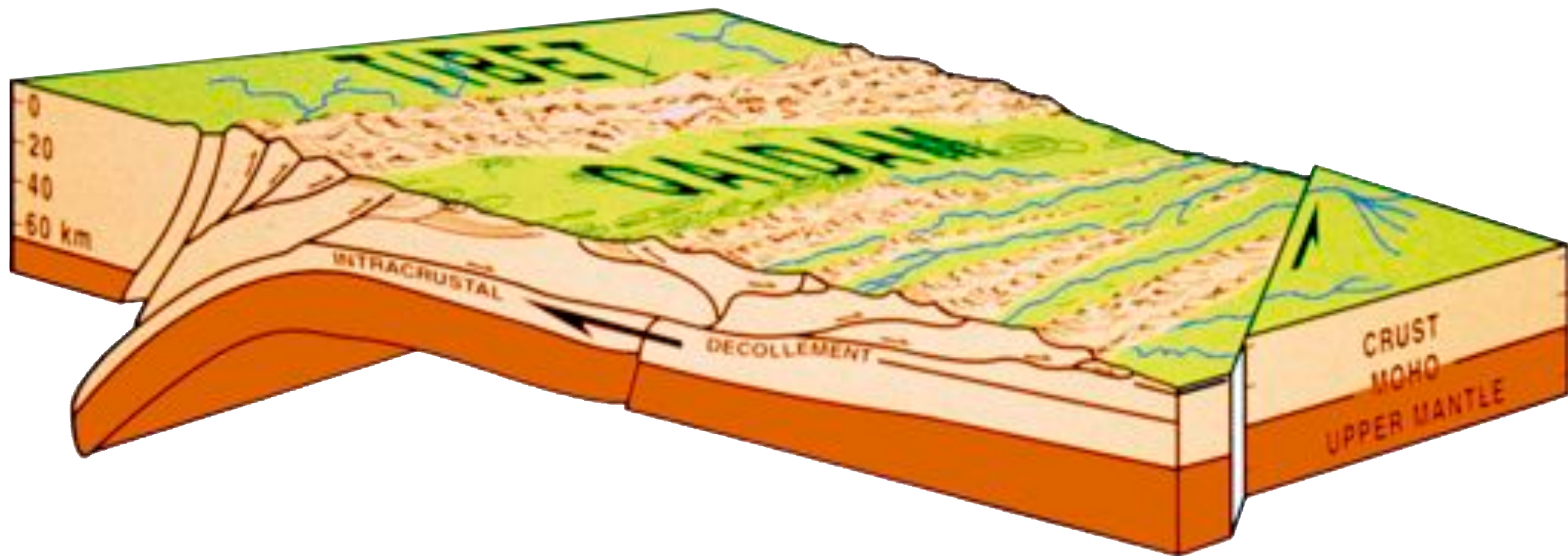
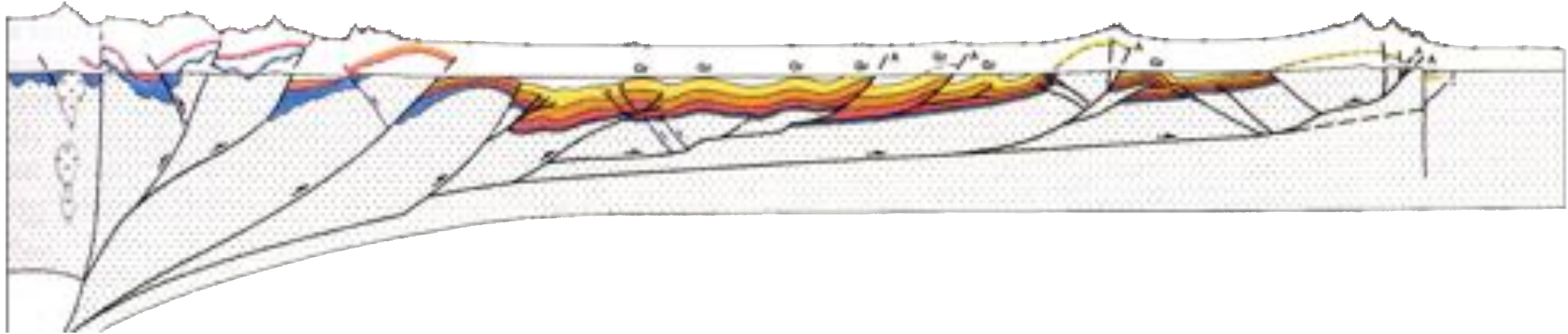
Plis en avant de la chaîne



Plis dans la chaîne

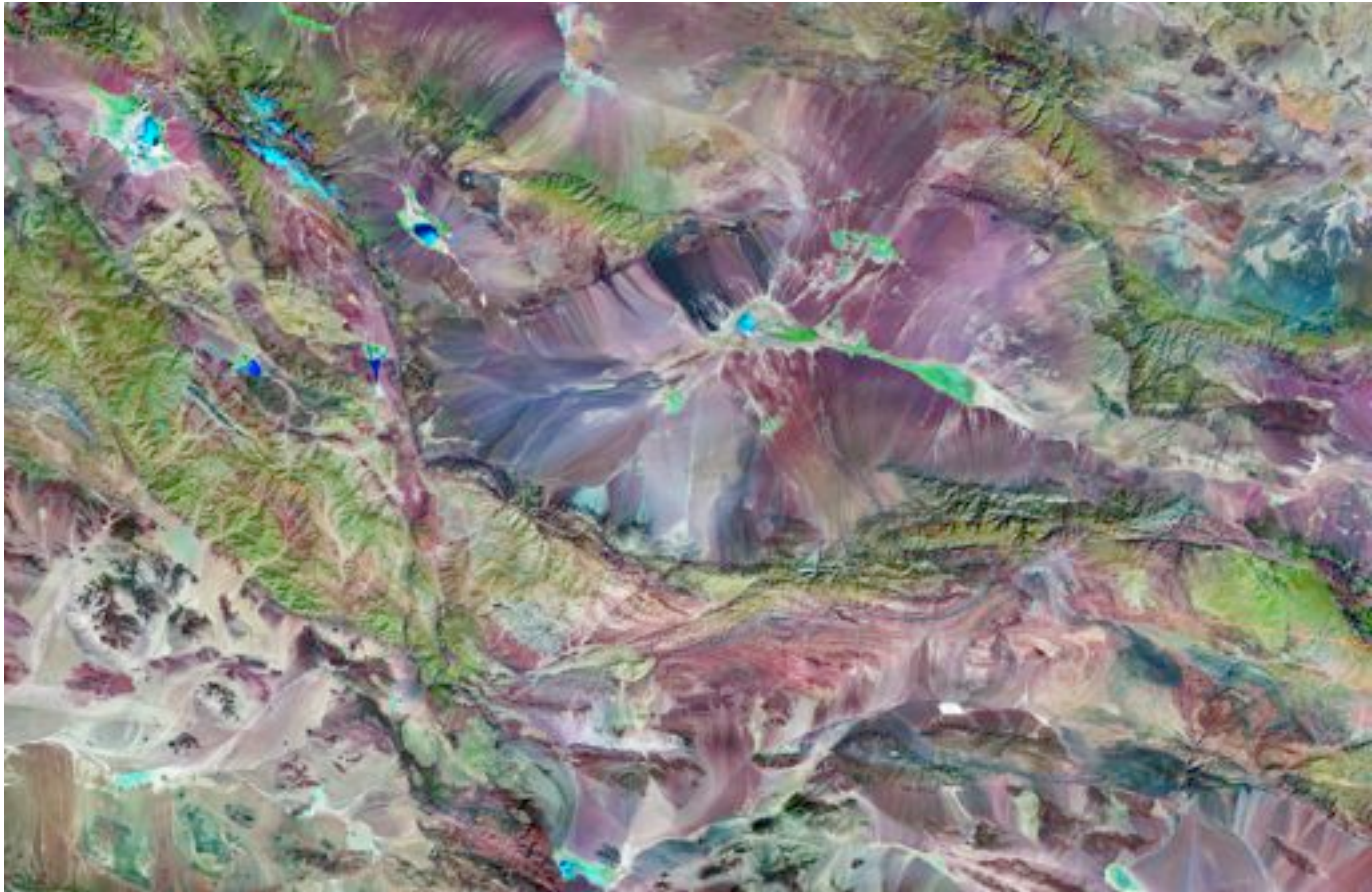


Coupes Qilian Shan



d'après Meyer et al. (1998)

Landsat 7



<https://zulu.ssc.nasa.gov/mrsid/mrsid.pl>

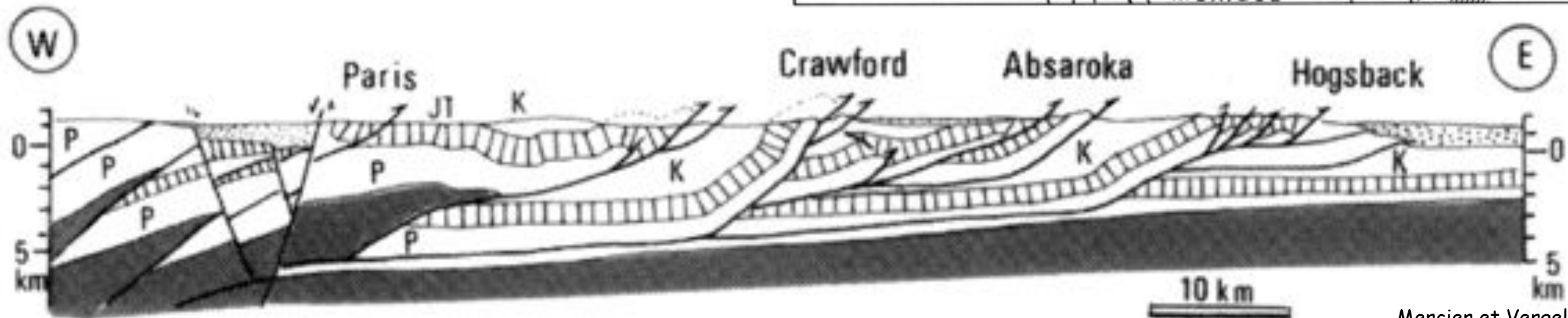
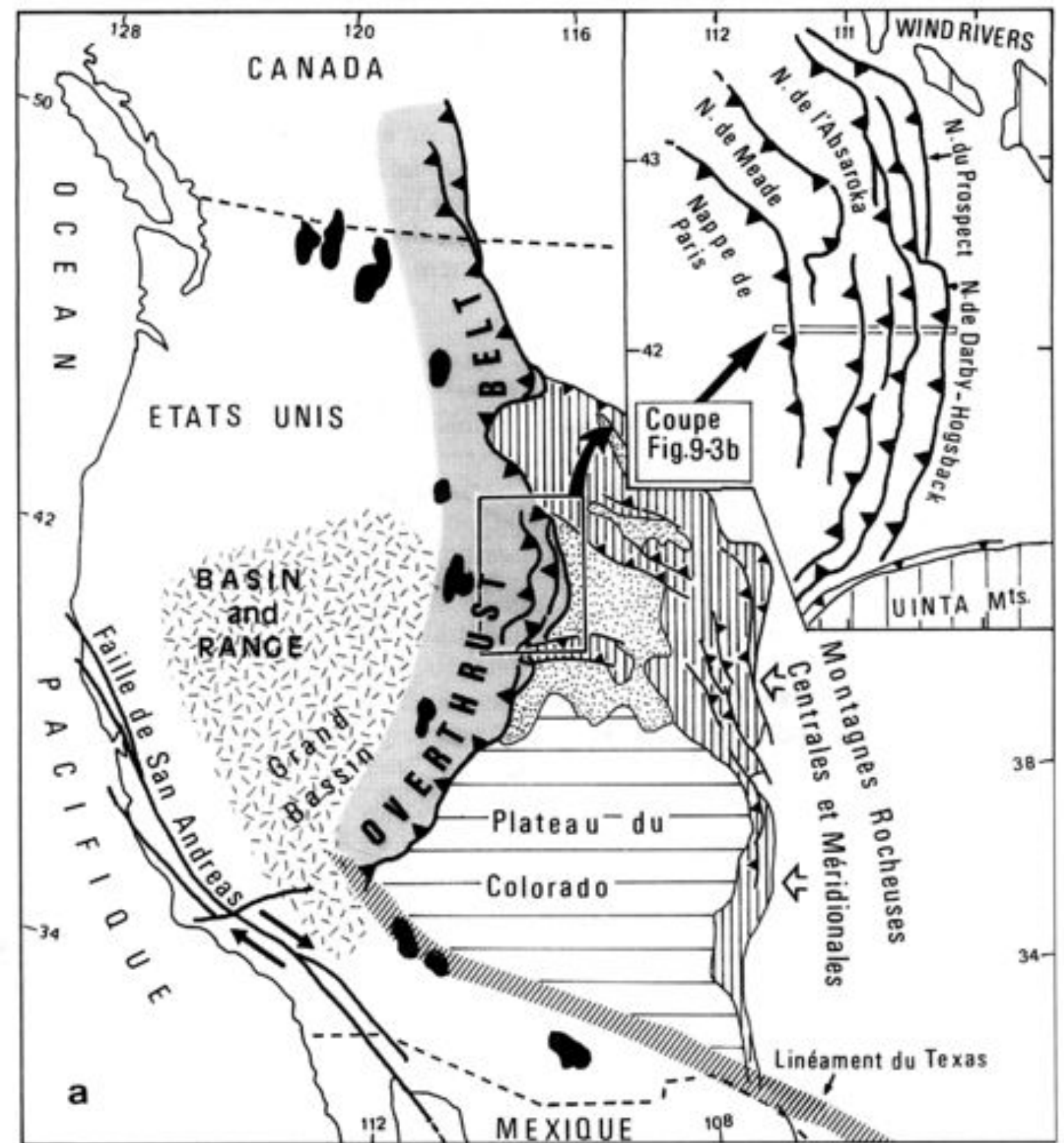
L'ouest américain



Nombreuses failles inverses à faible pendage dans la Cordillère



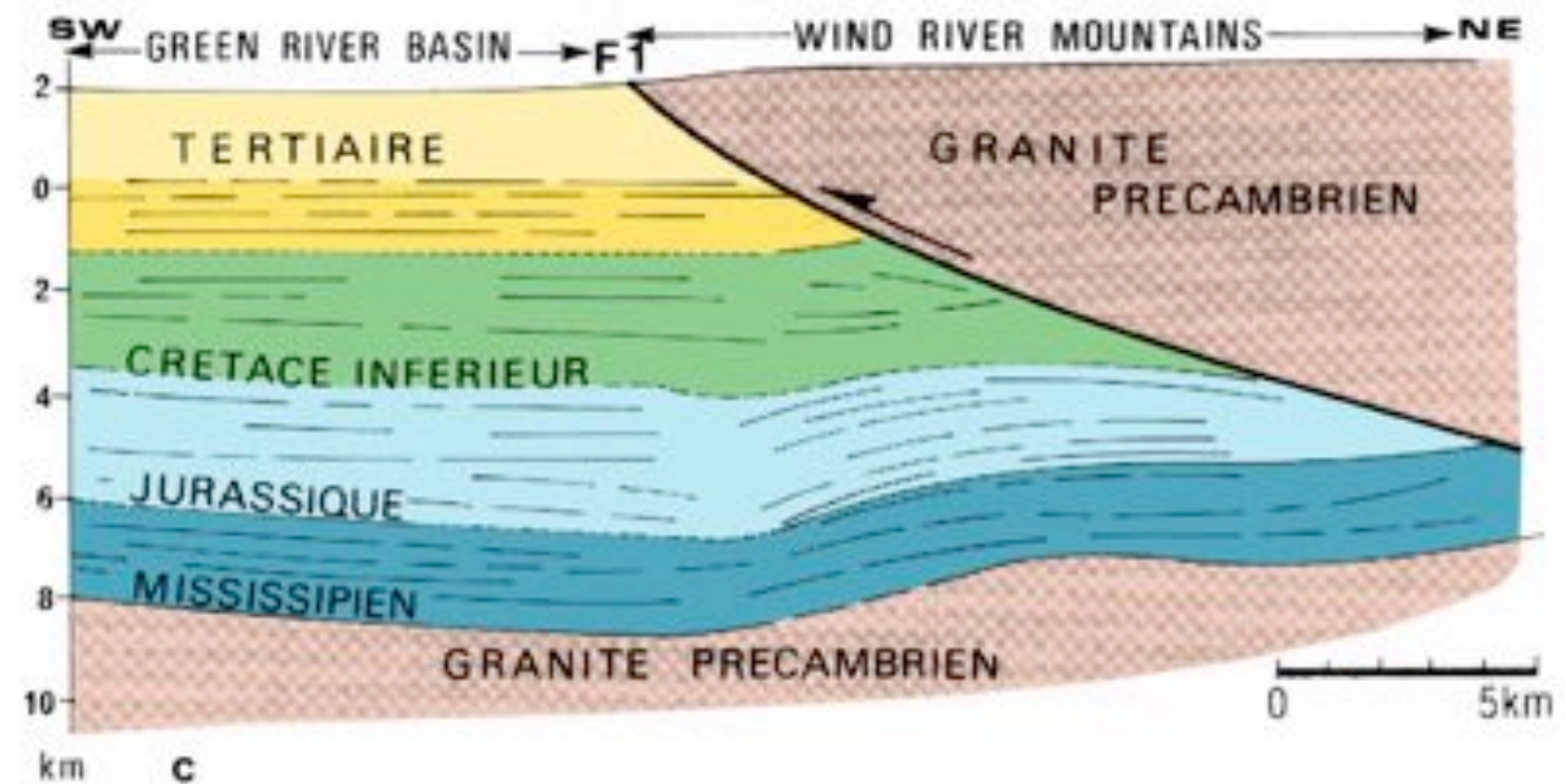
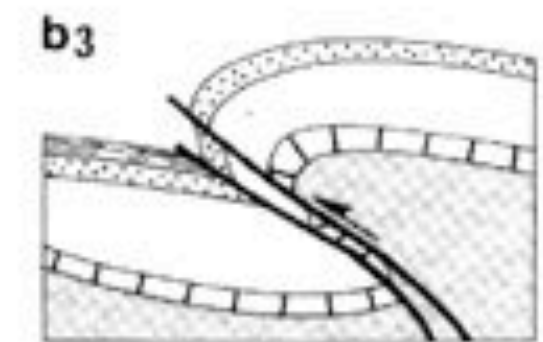
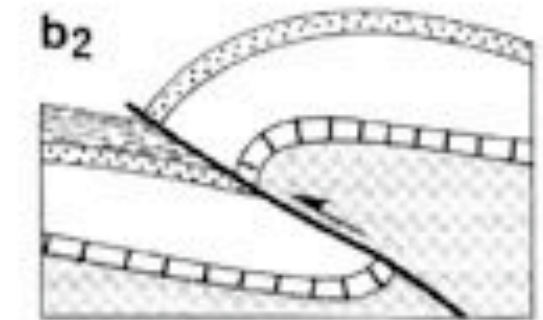
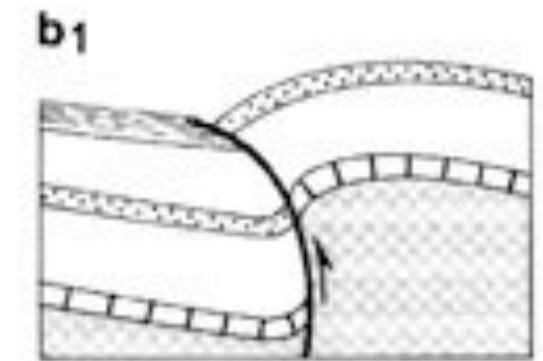
Raccourcissement important



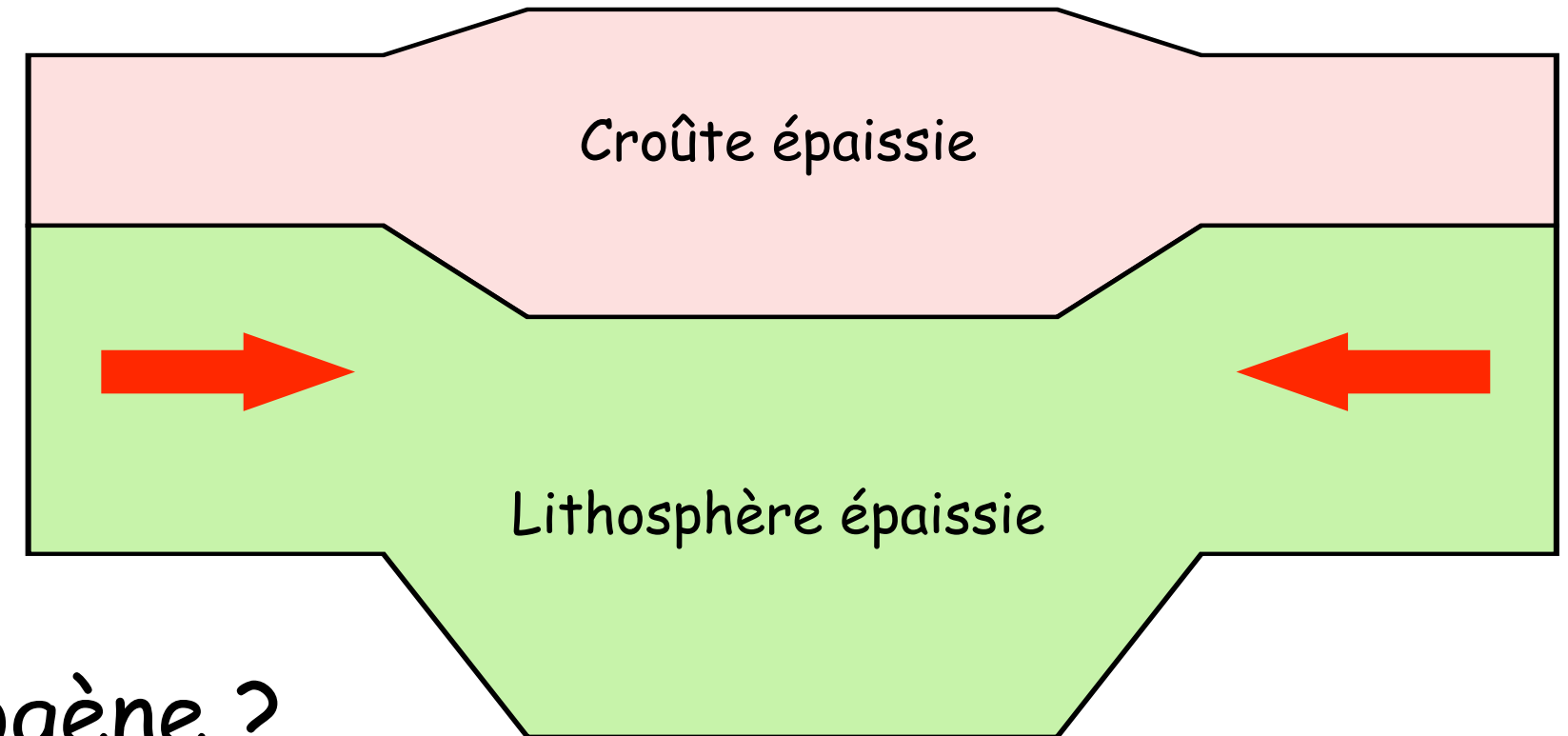
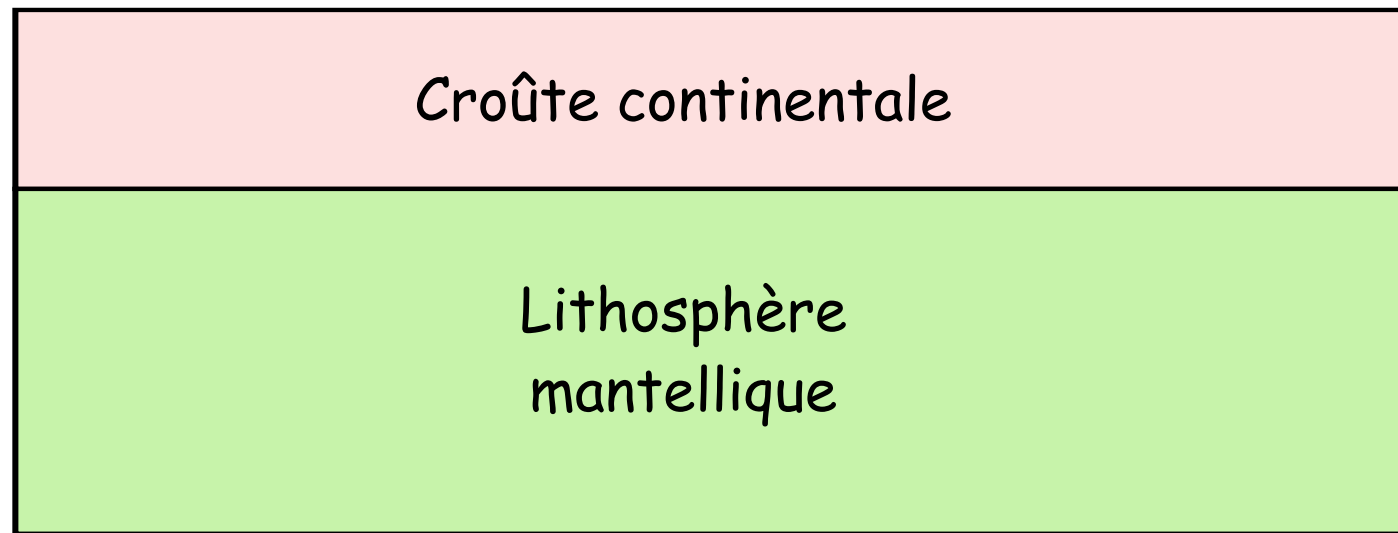
Peu de failles inverses à fort pendage dans les Rocheuses



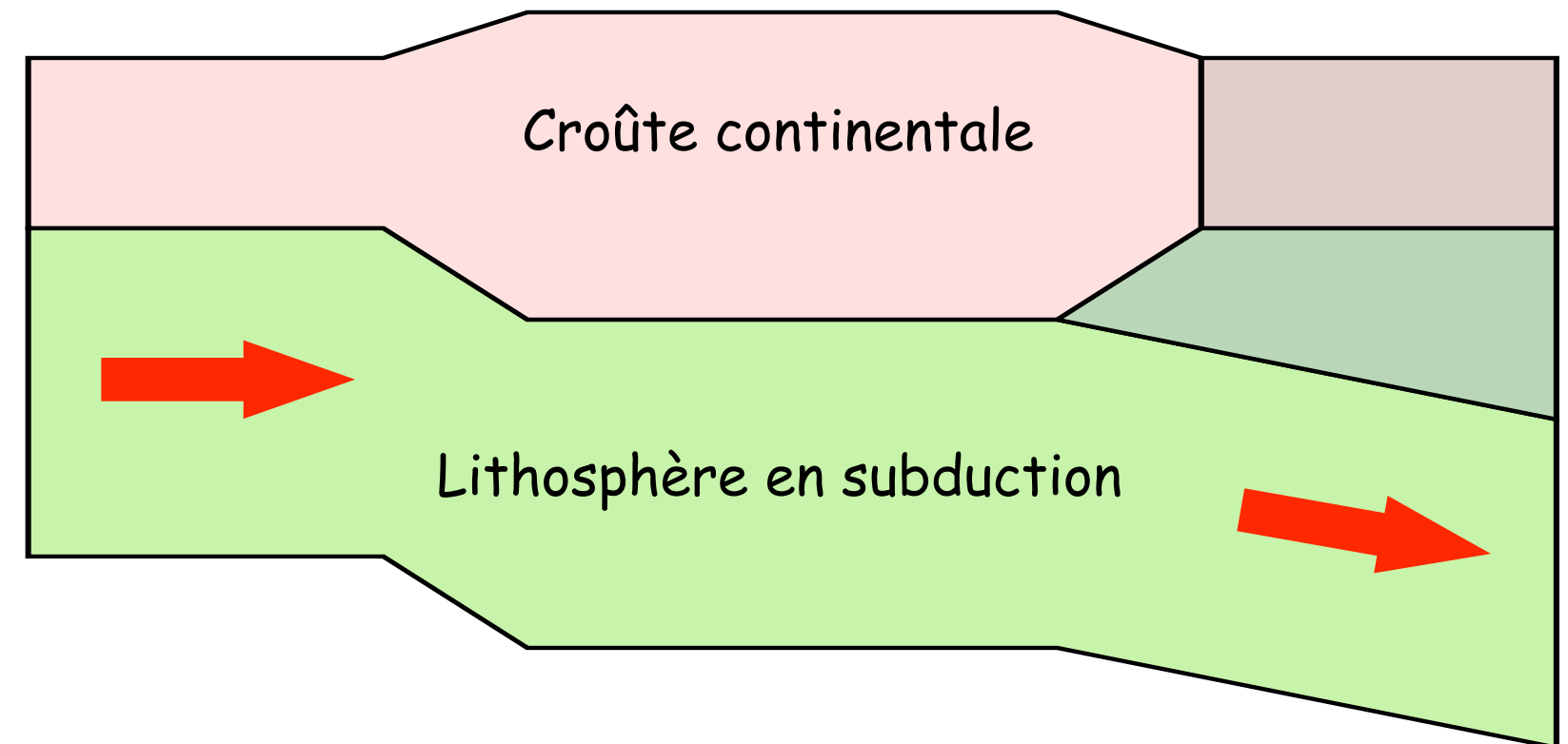
Raccourcissement plus faible



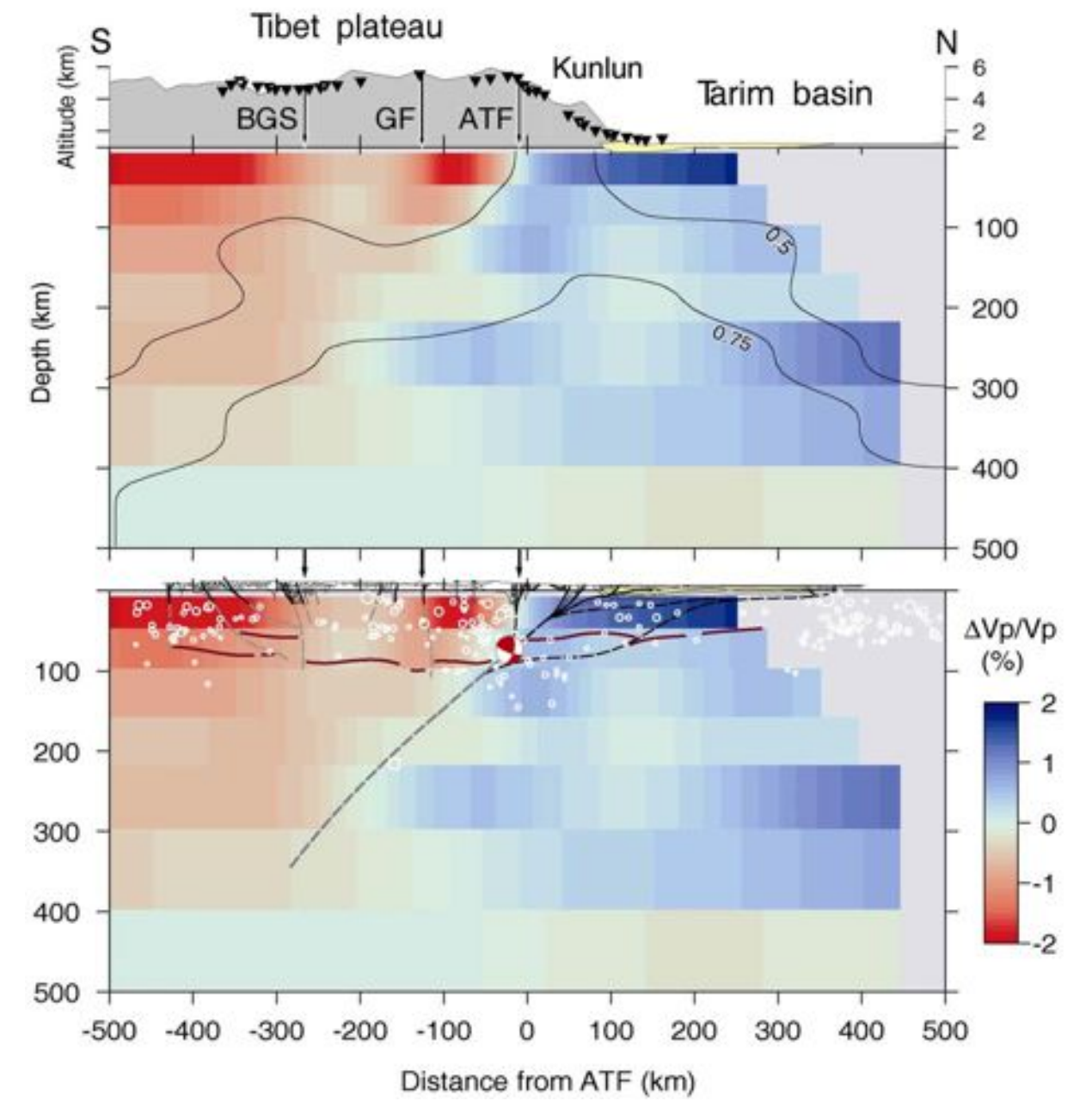
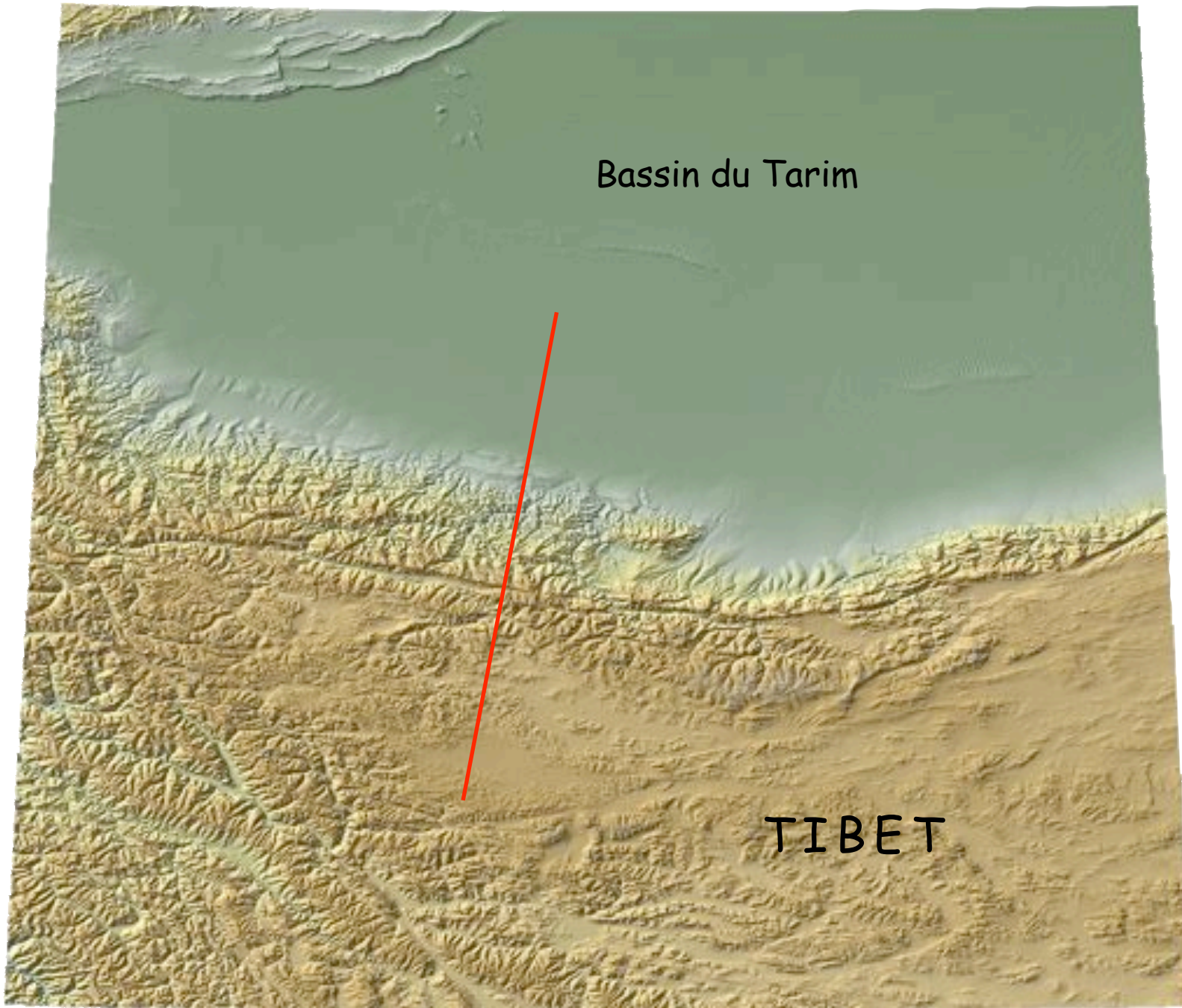
Comment raccourcir la lithosphère continentale ?



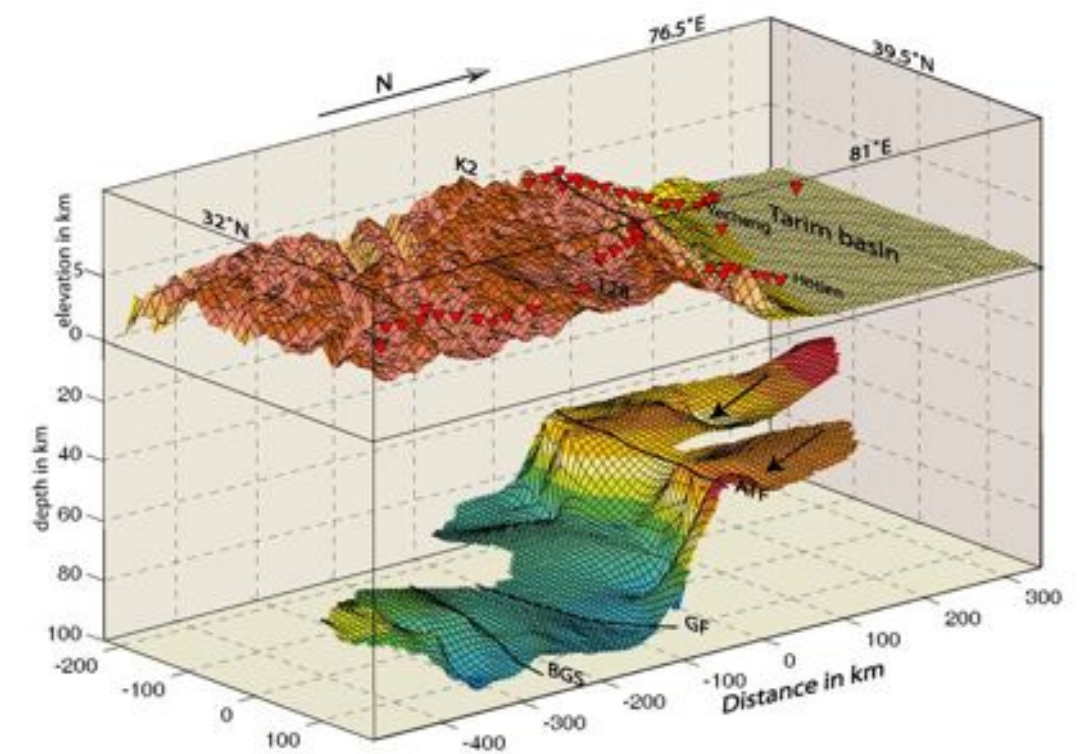
Raccourcissement homogène ?
ou
subduction intracontinentale ?



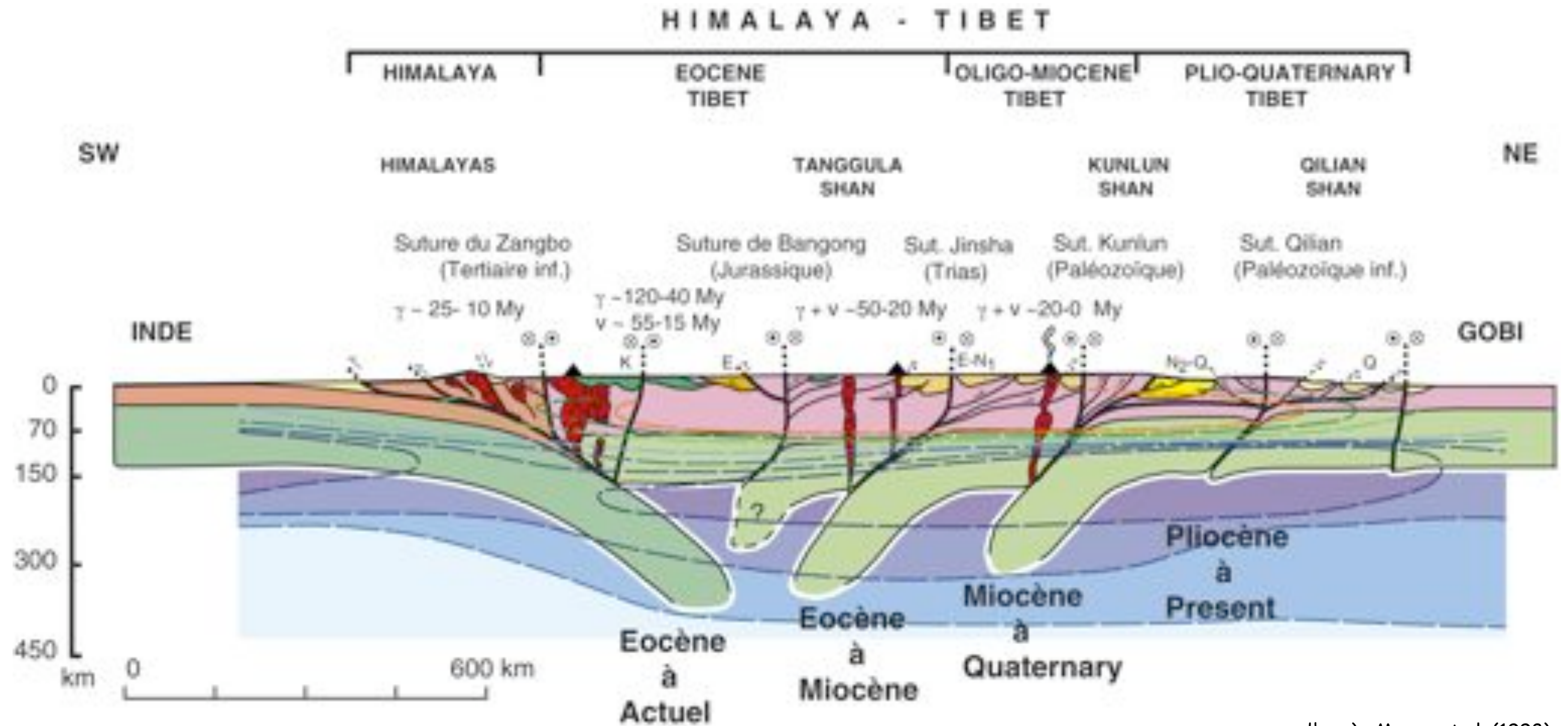
Apport de la tomographie



Wittlinger et al. (2004)



Coupe à l'échelle lithosphérique



d'après Meyer et al. (1998)

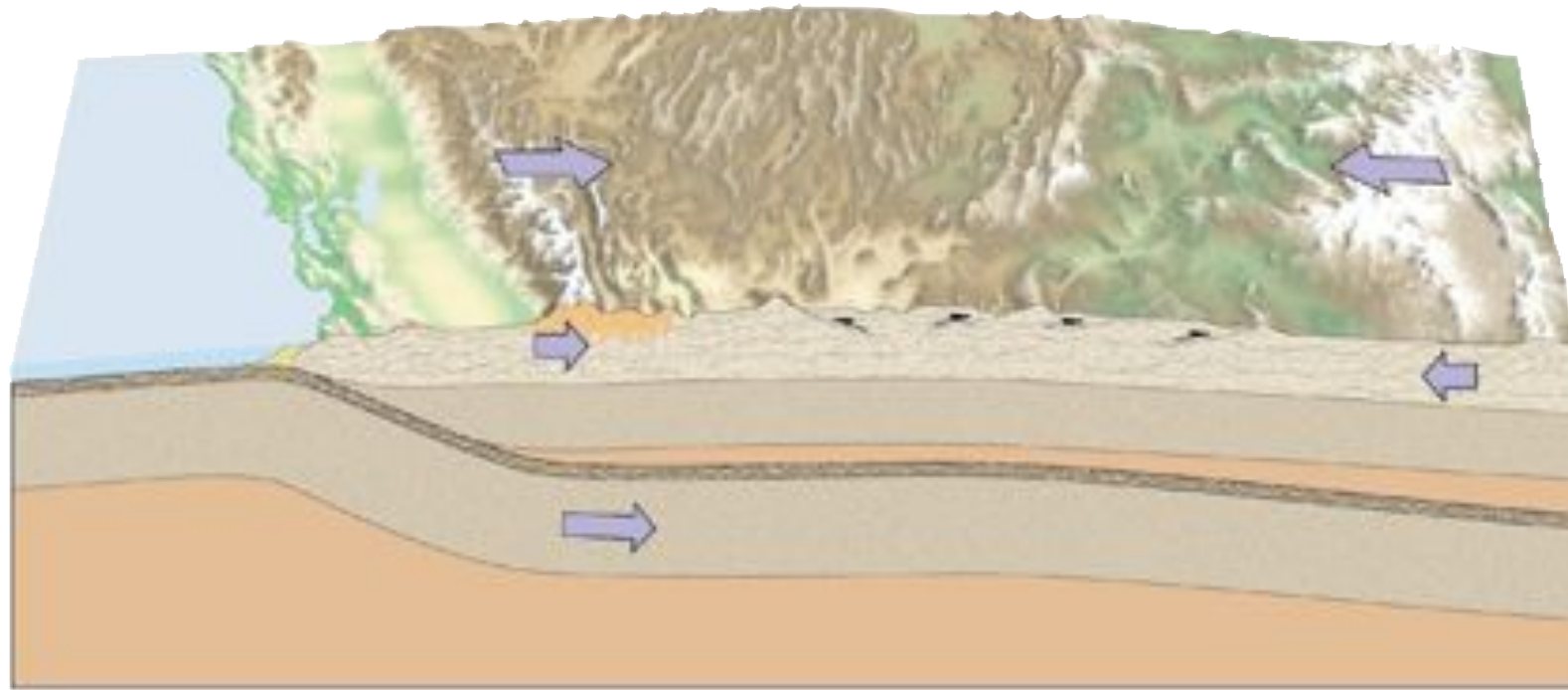
Les chaînes de montagnes (3)



<http://earth.jsc.nasa.gov/sseop/efs/photoinfo.pl?PHOTO=STS068-214-43>

Les chaînes de subduction

Influence du pendage de la subduction ?



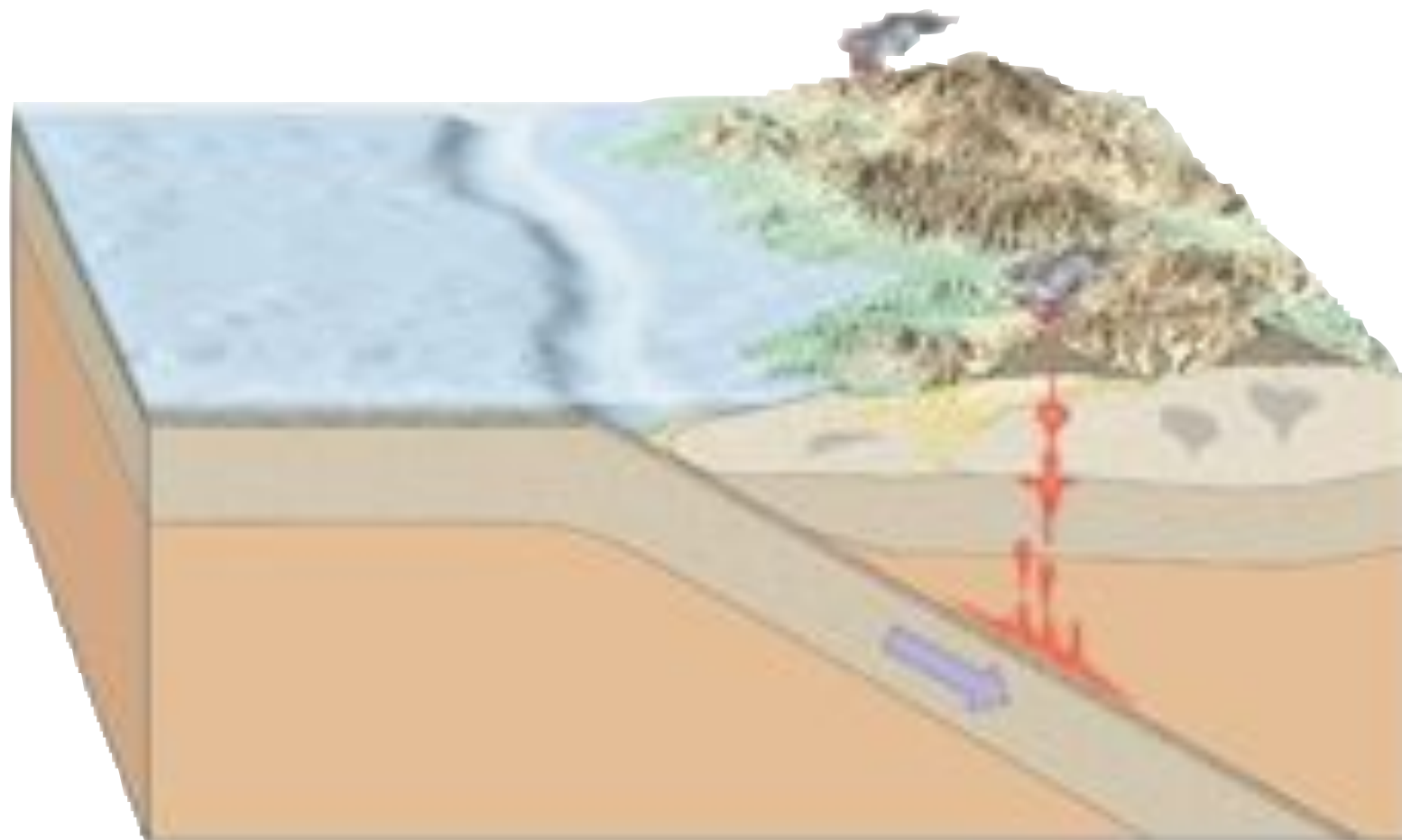
Pendage faible



Couplage fort



Déformations importantes



Pendage fort



Couplage faible

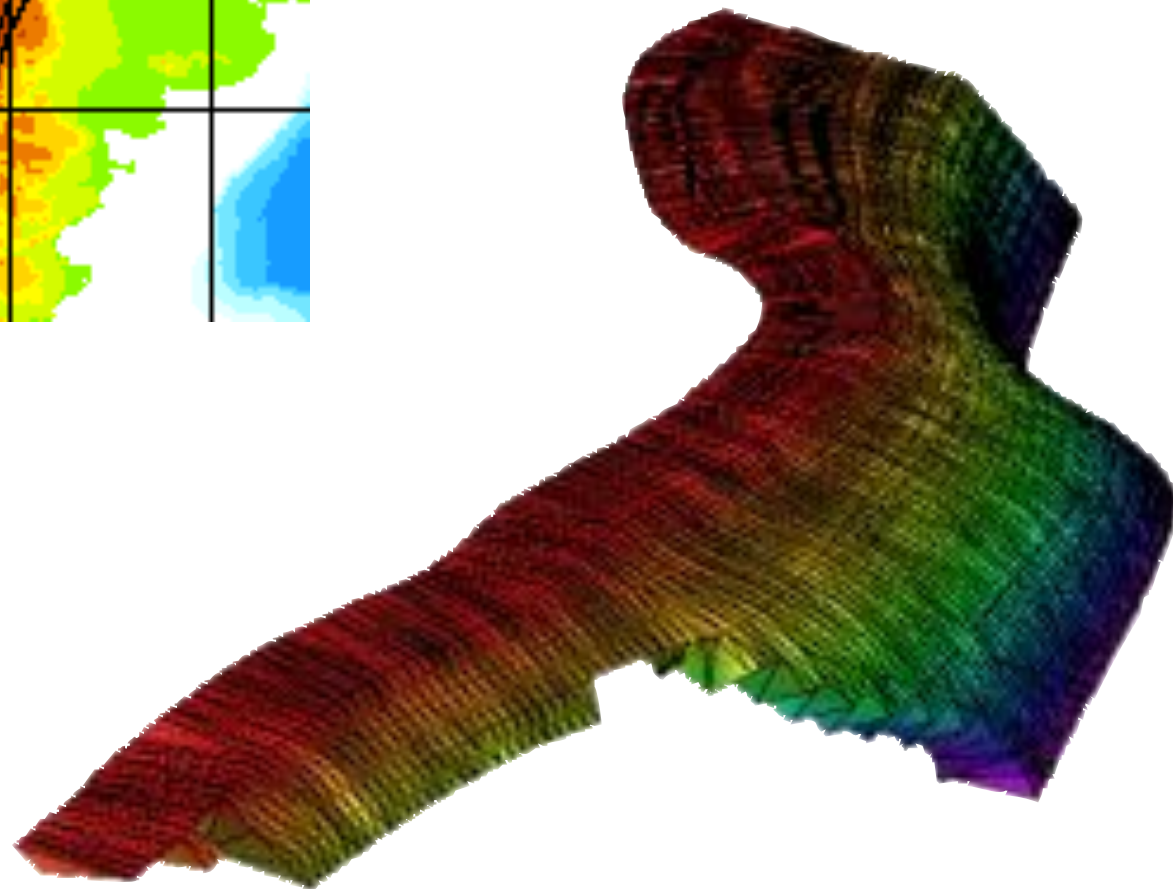
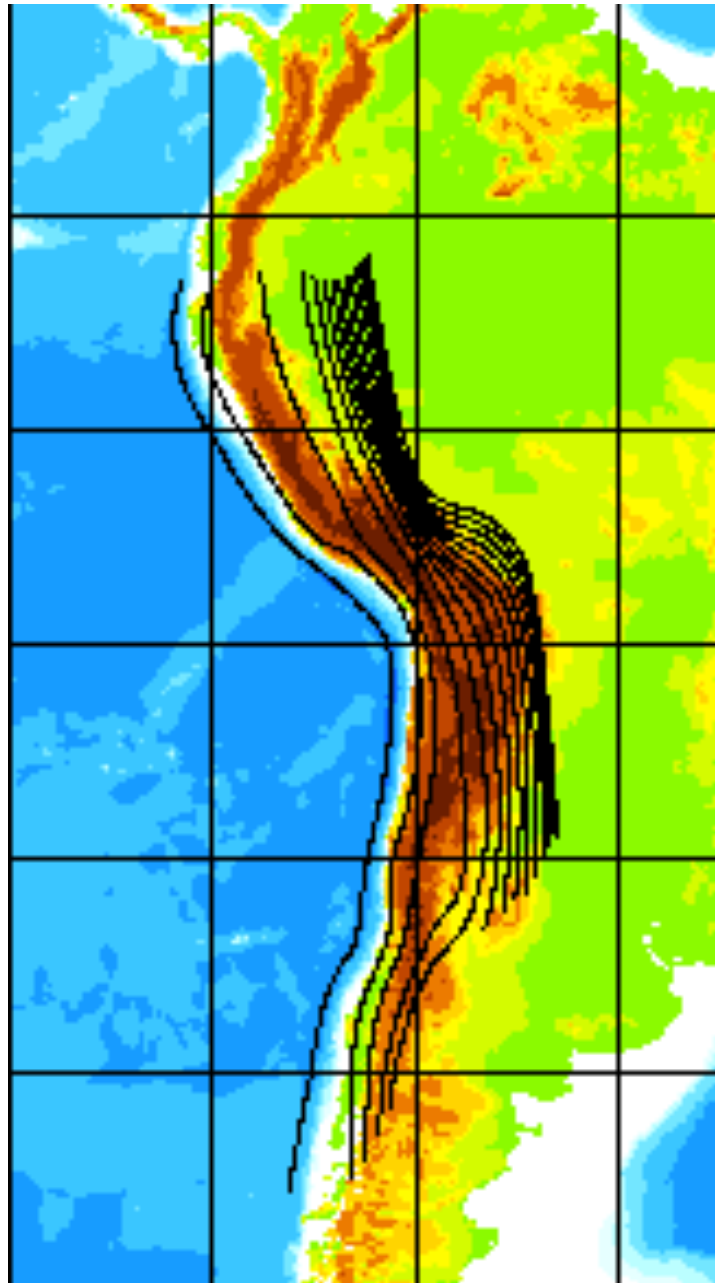


Déformations modérées



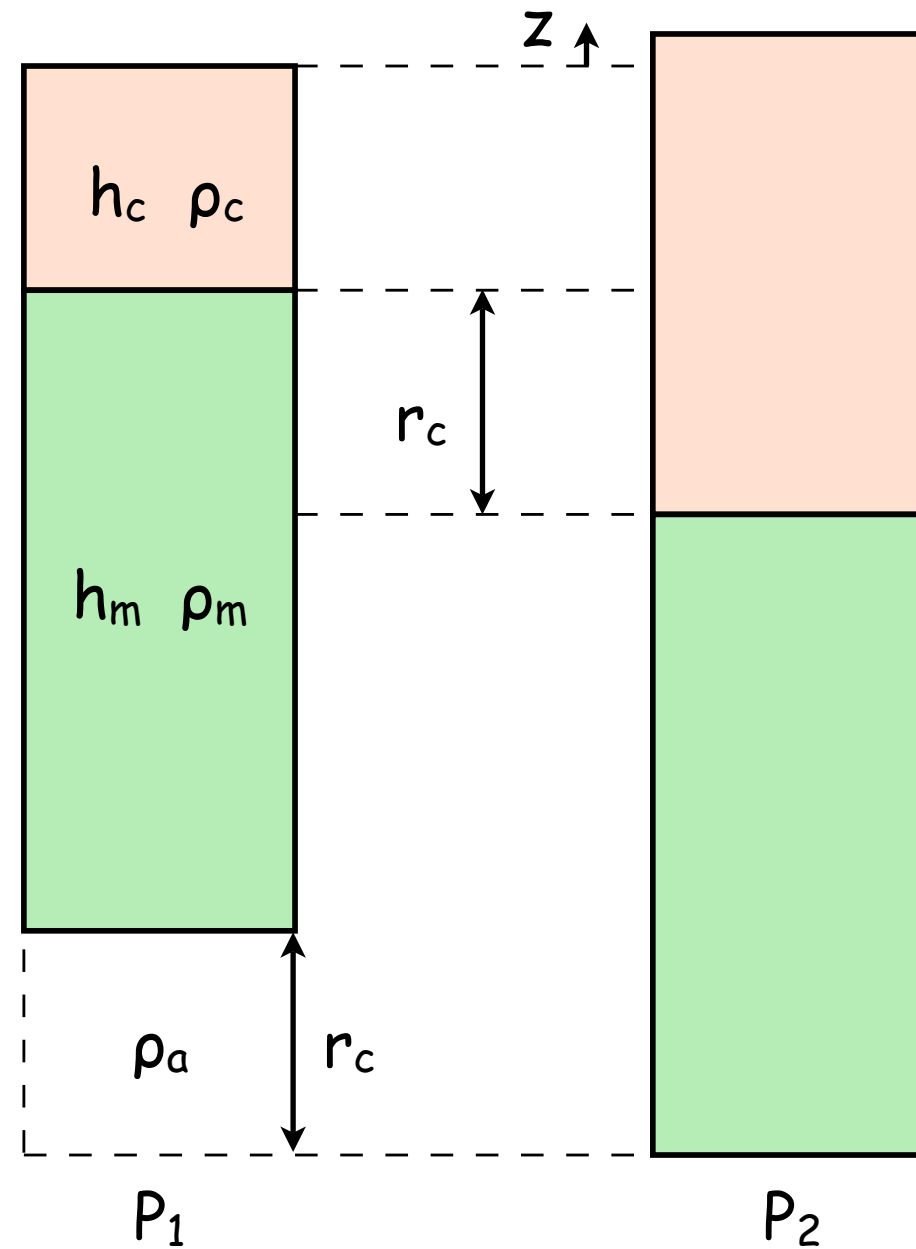
Volcanisme

Exemple : les Andes



Principe de l'isostasie

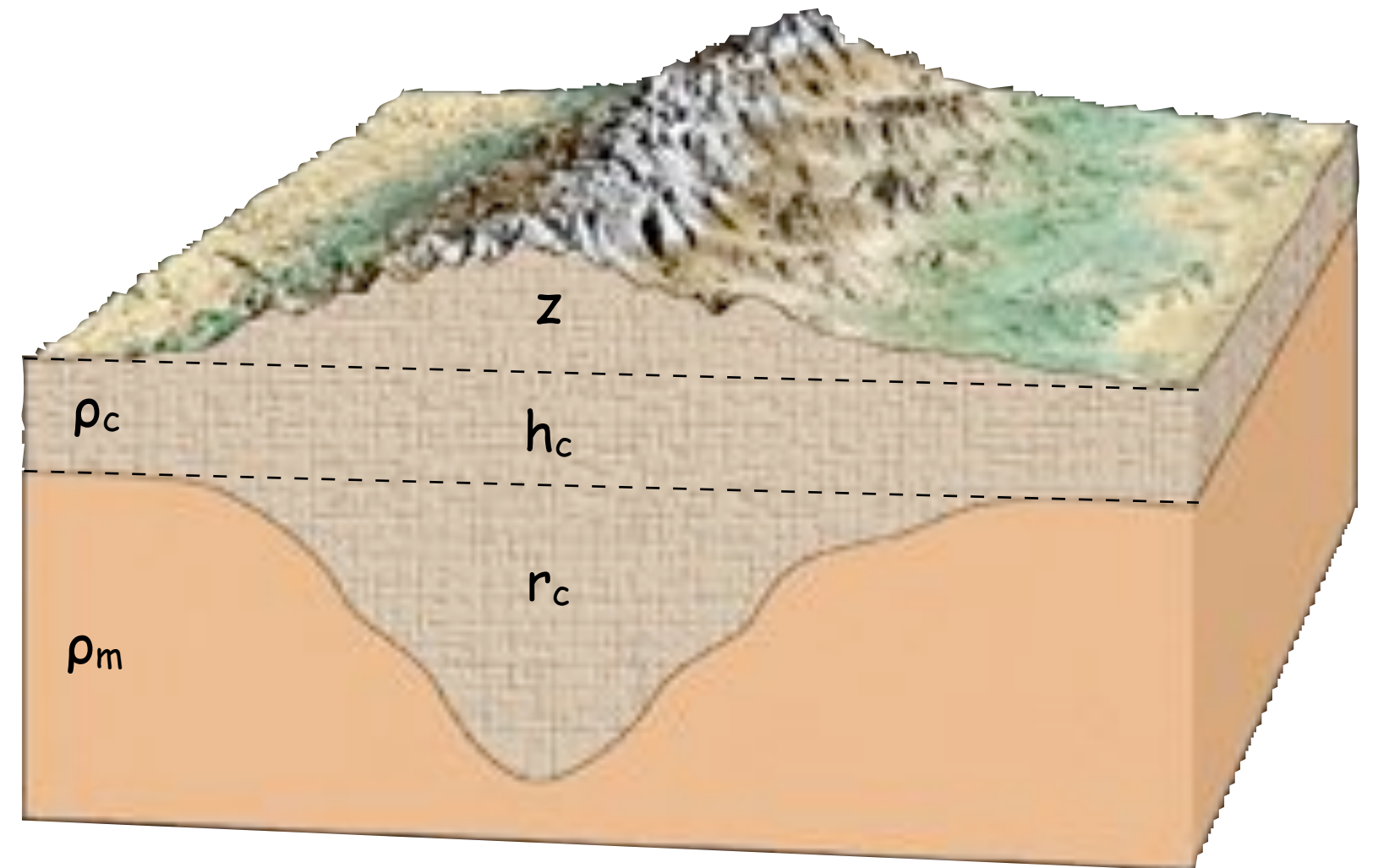
Croûte épaissie \Rightarrow topographie + racine crustale



$$P_1 = g.(r_c.\rho_a + h_m.\rho_m + h_c.\rho_c)$$

$$P_2 = g.[h_m.\rho_m + (h_c + r_c + z).\rho_c]$$

$$P_1 = P_2 \Rightarrow z = r_c.[(\rho_a/\rho_c) - 1]$$

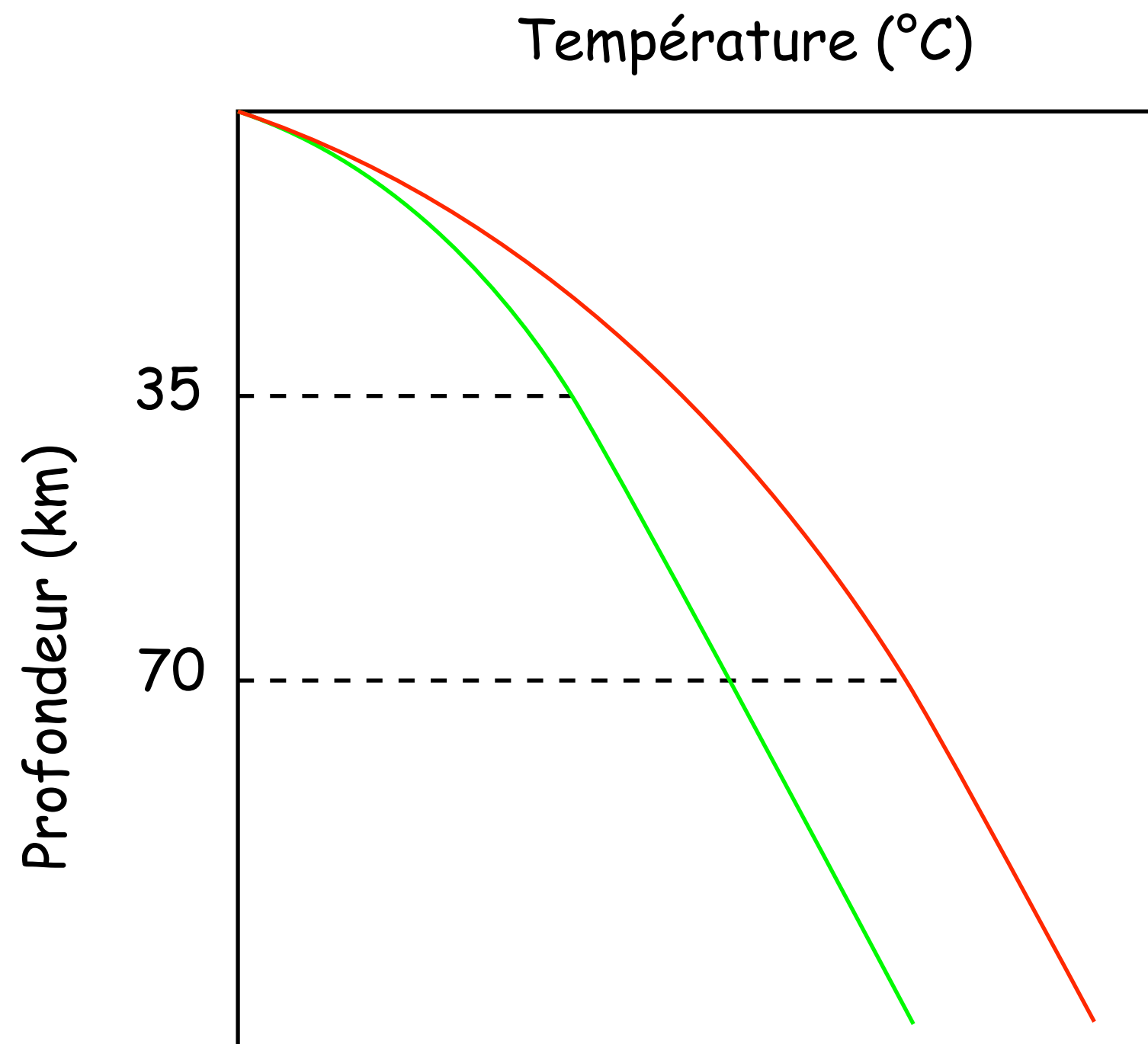
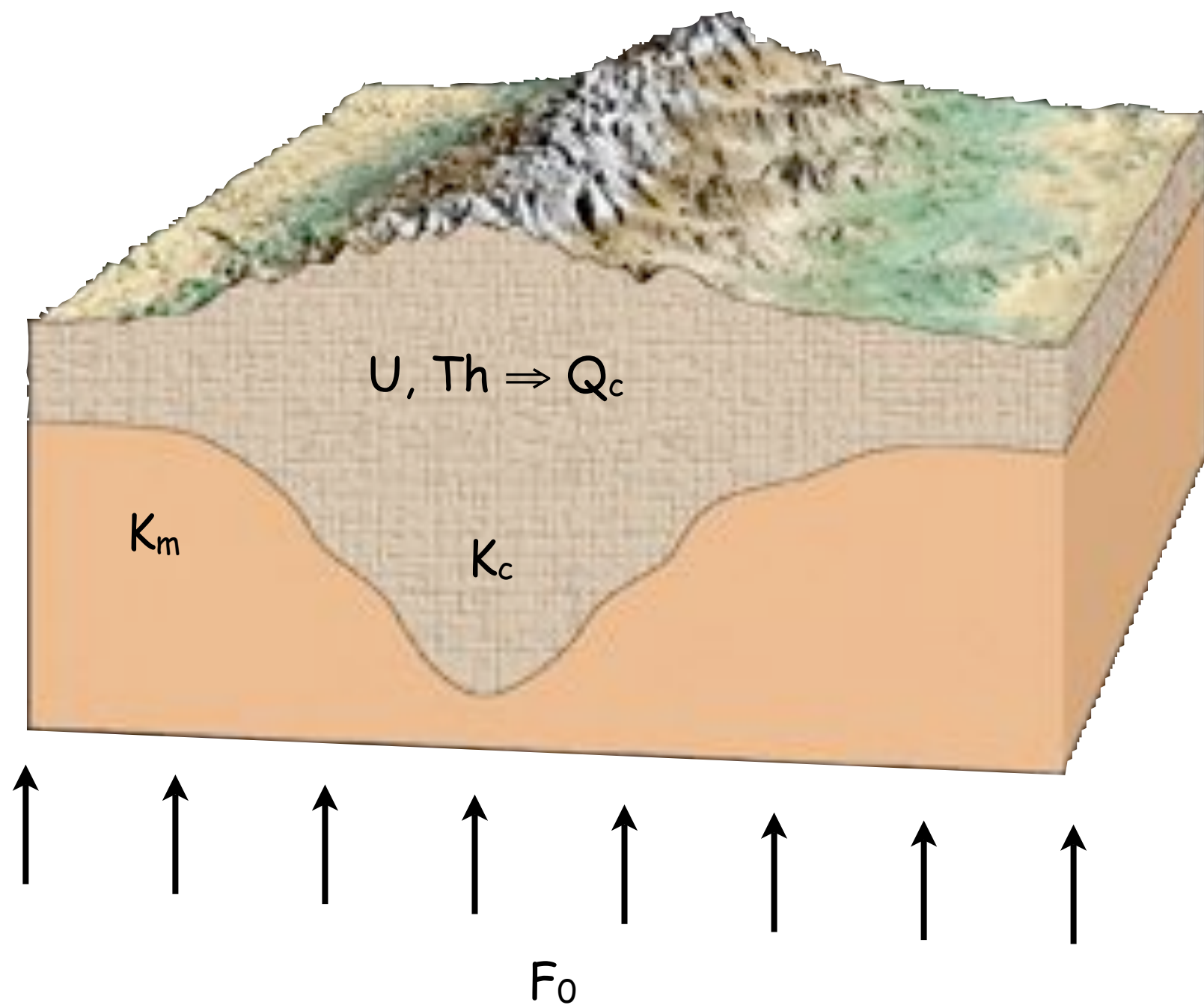


$$\rho_c = 2.8 \cdot 10^3 \text{ kg.m}^{-3} \text{ et } \rho_c = 3.2 \cdot 10^3 \text{ kg.m}^{-3}$$



$$z = r_c/7$$

Conséquences thermiques



$$F_0 \approx 10^{-2} \text{ Wm}^{-2}$$

$$K_c \approx 2.5 \text{ Wm}^{-1}\text{K}^{-1}$$

$$K_c \approx 3 \text{ W Wm}^{-1}\text{K}^{-1}$$

$$Q_c \approx 1.0 \cdot 10^{-6} \text{ Wm}^{-3}$$

$$Q_m \approx 0$$