

An aerial photograph of a rugged mountain range. The terrain is characterized by a central, prominent peak and several parallel ridges extending outwards. The mountains are covered in dense, light-colored vegetation, likely coniferous forests. The sky is a clear, pale blue. The overall scene depicts a classic continental mountain belt.

# CHAPITRE XIII : La formation du domaine continental

## Leçon 33 : La collision continentale

# Du rifting à l'expansion océanique

Figure a

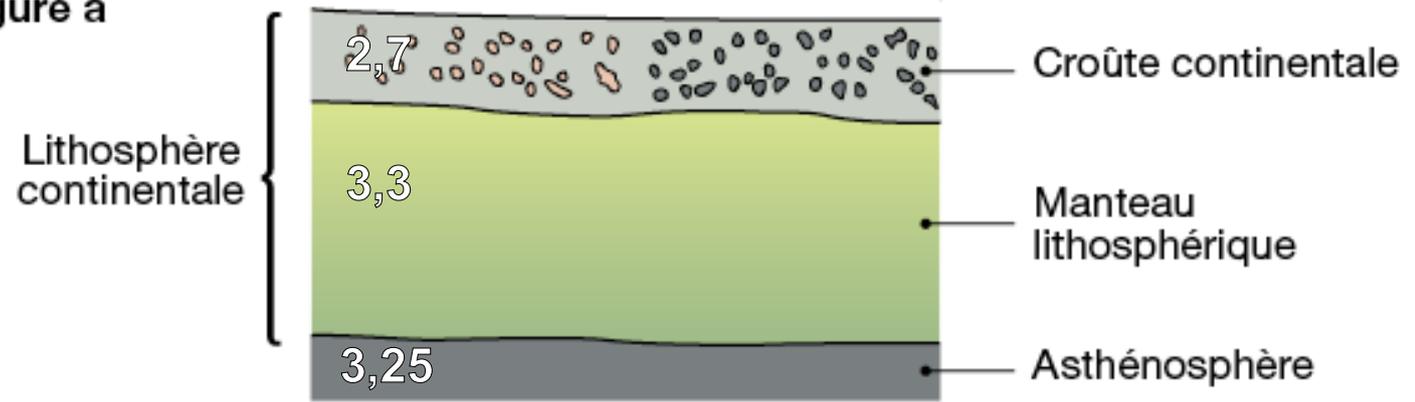


Figure b

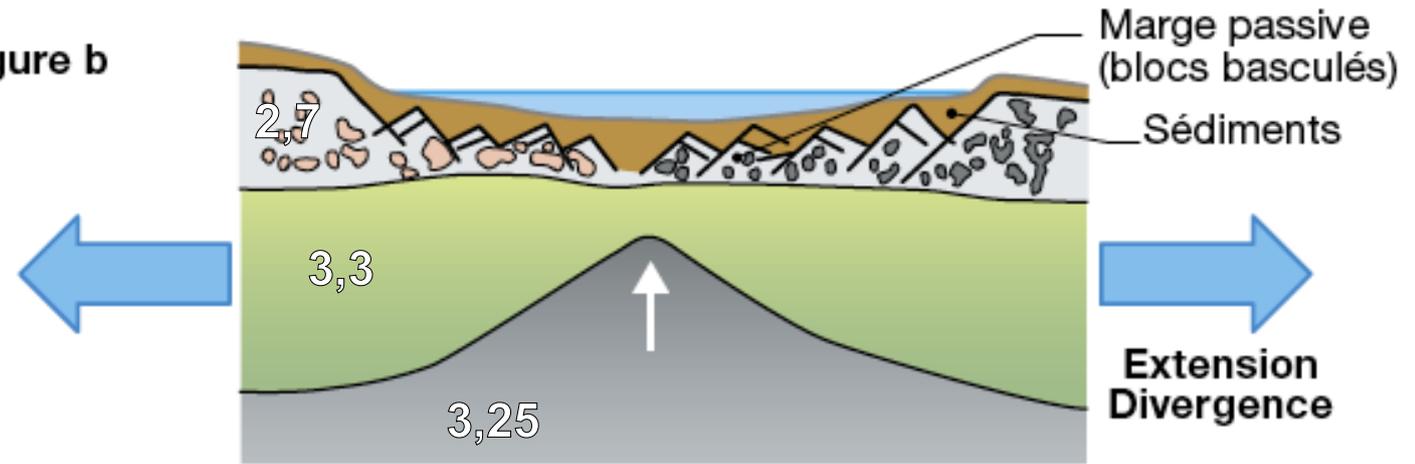
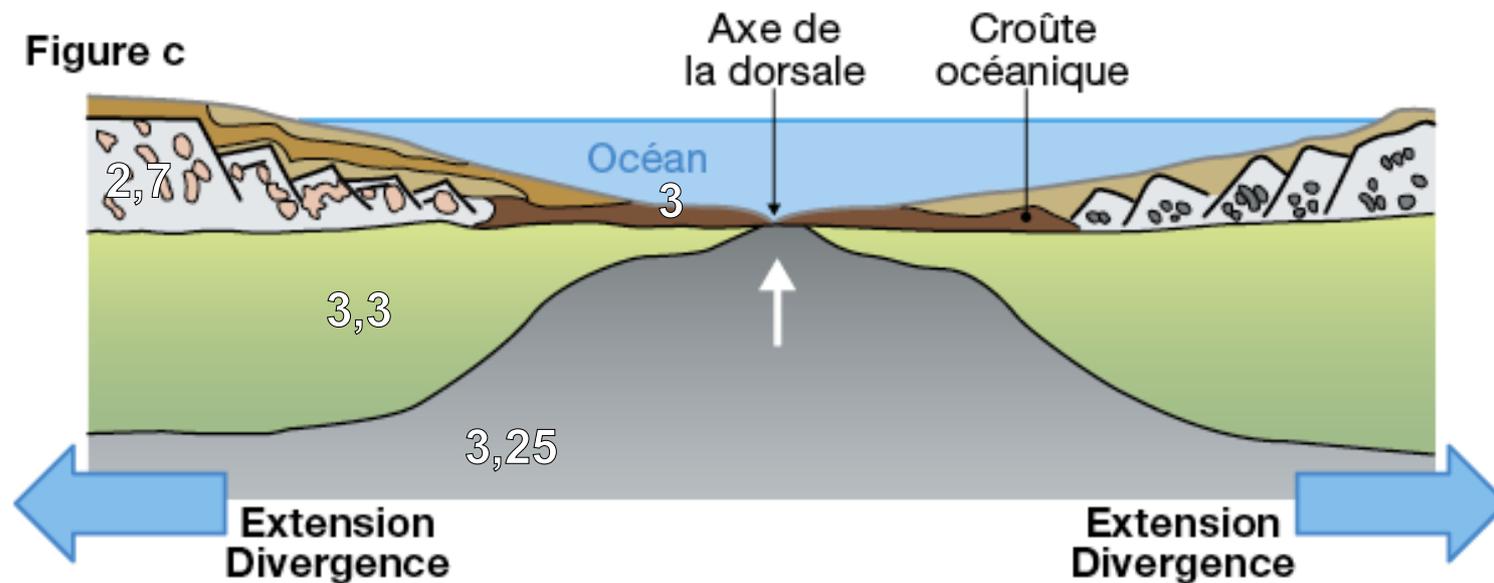
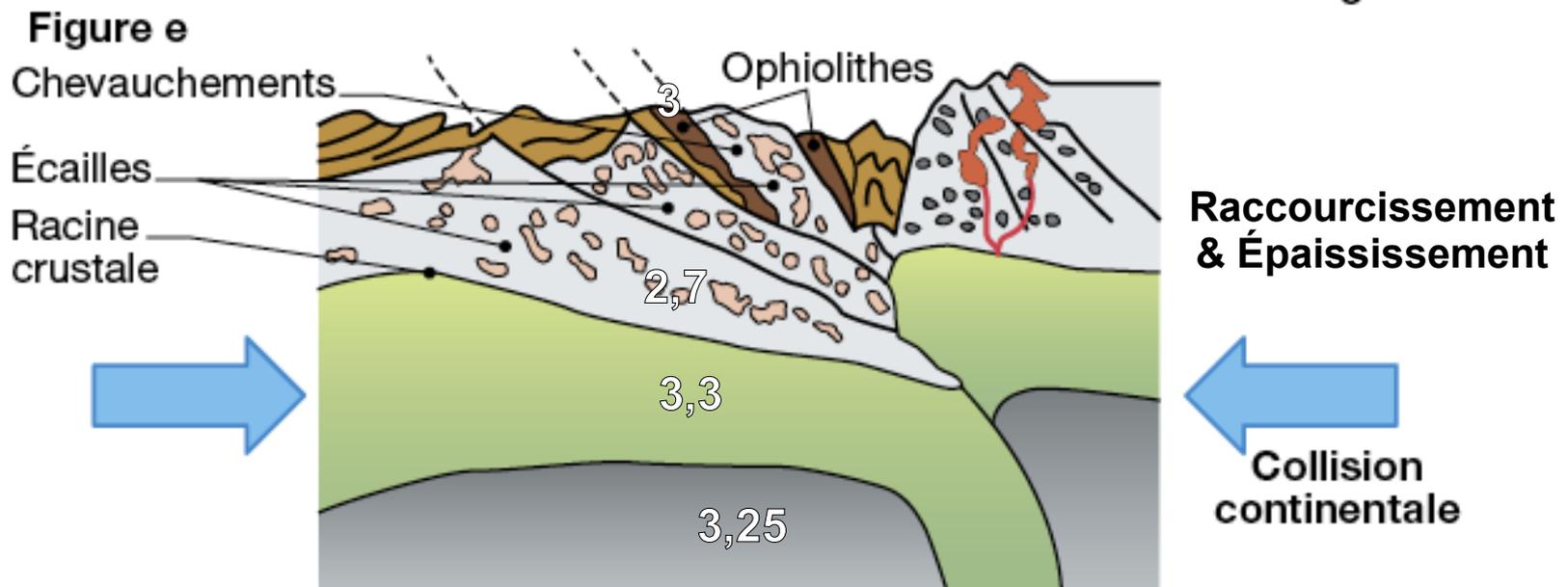
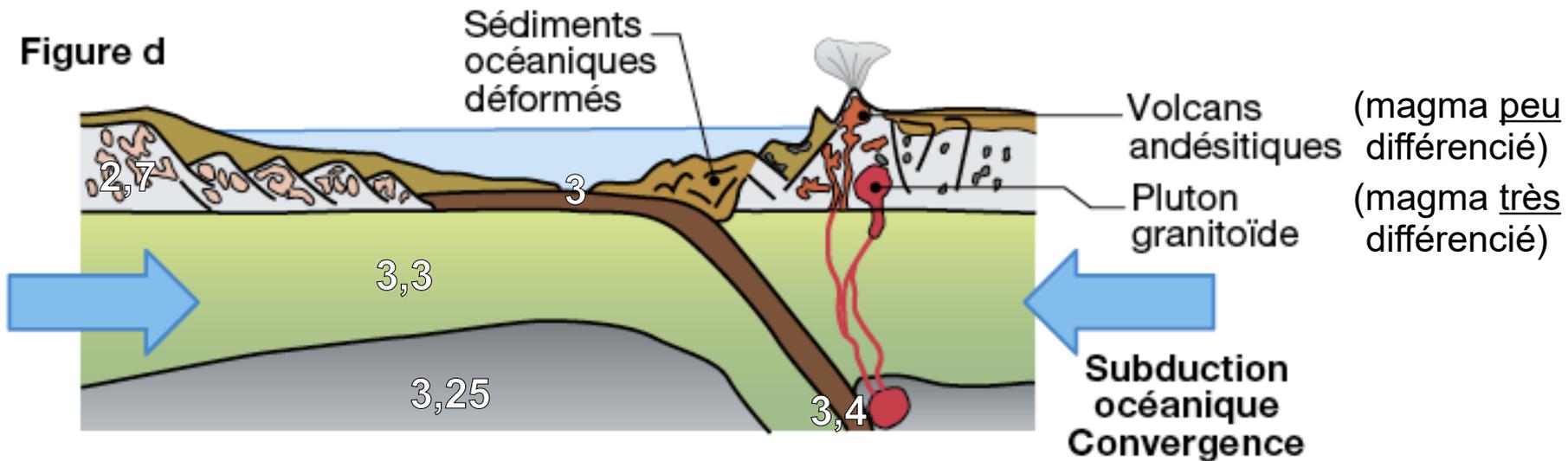


Figure c



# De la subduction à la collision

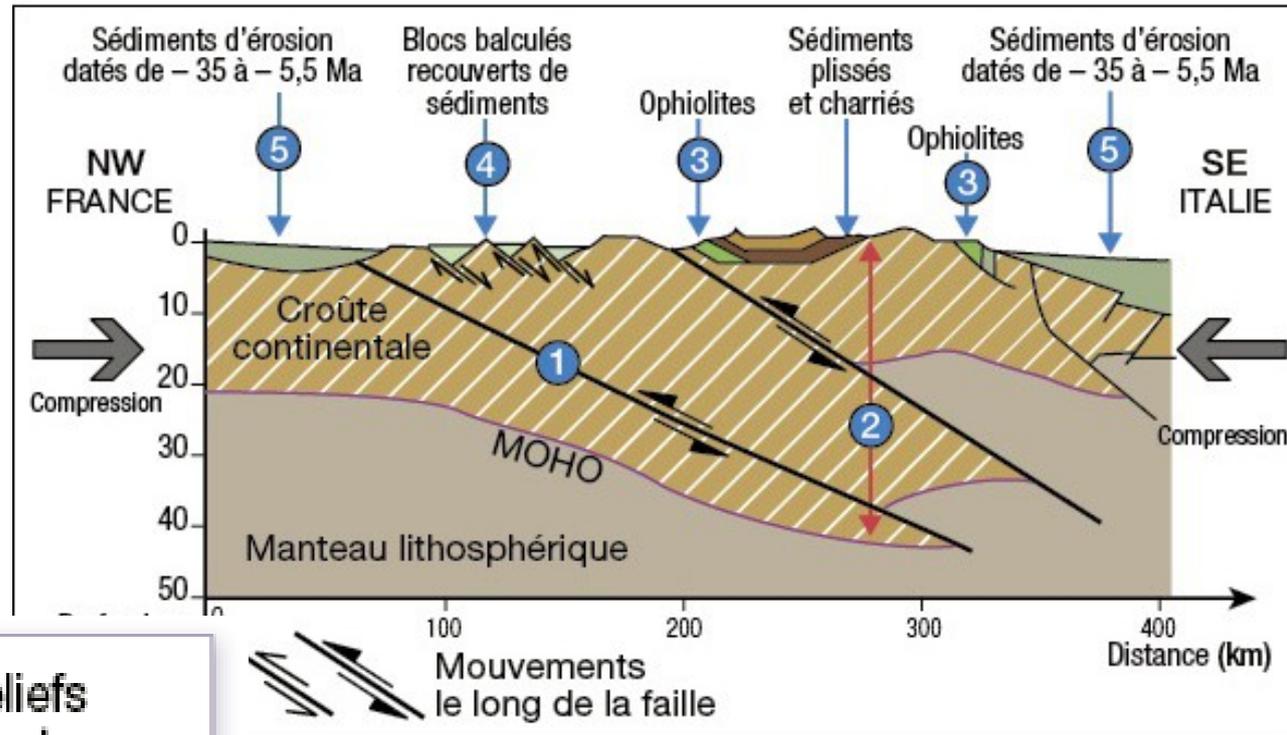


Traction des  
éclogites 3,4

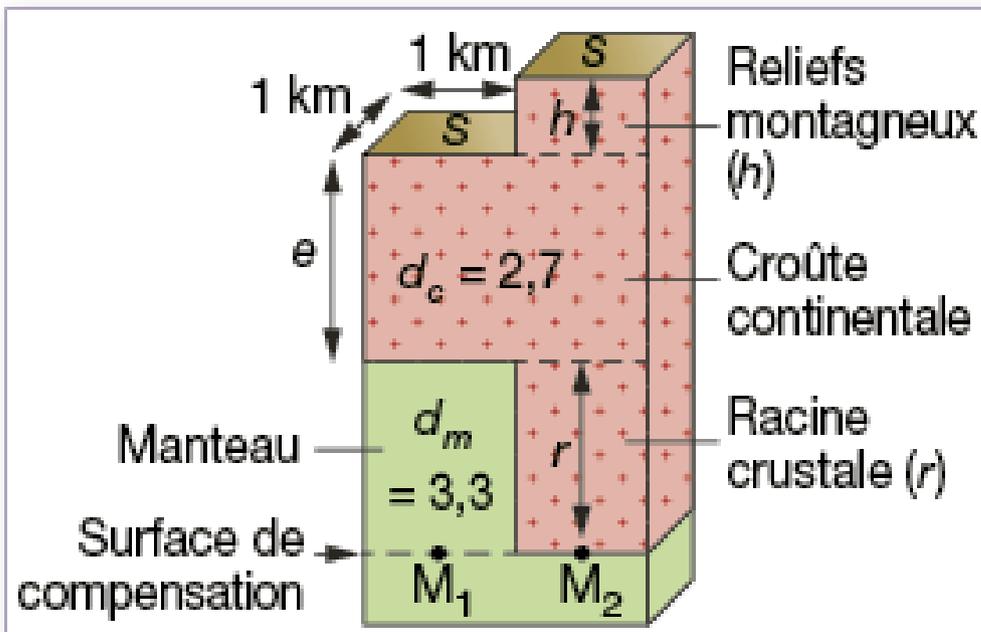
# Orogenèse

- Asymétrique
- Forts reliefs
- Racine crustale
- Ensemble en équilibre isostatique

Coupe schématique interprétée des Alpes

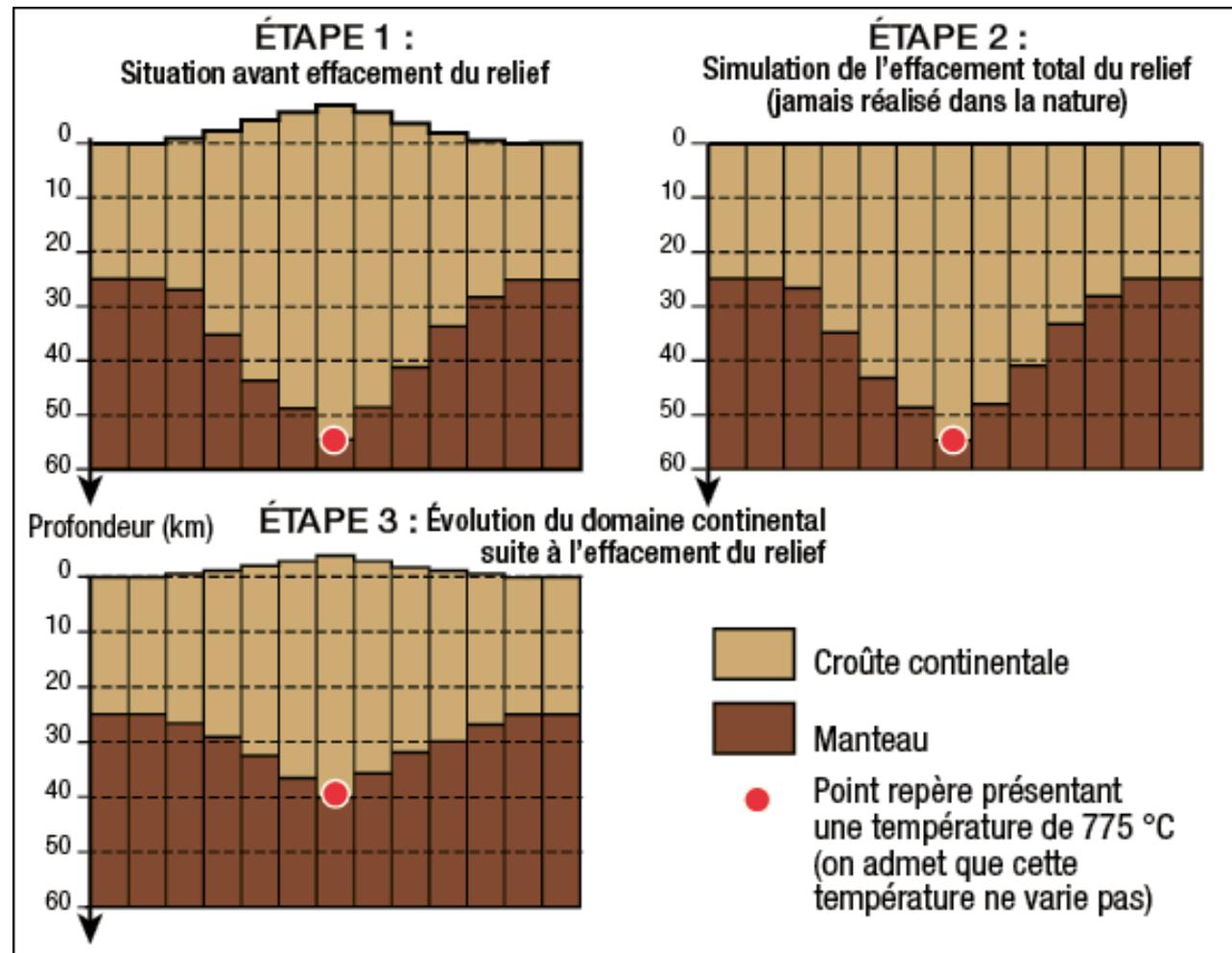


D'après profil ECORS



# Érosion et pénéplanation

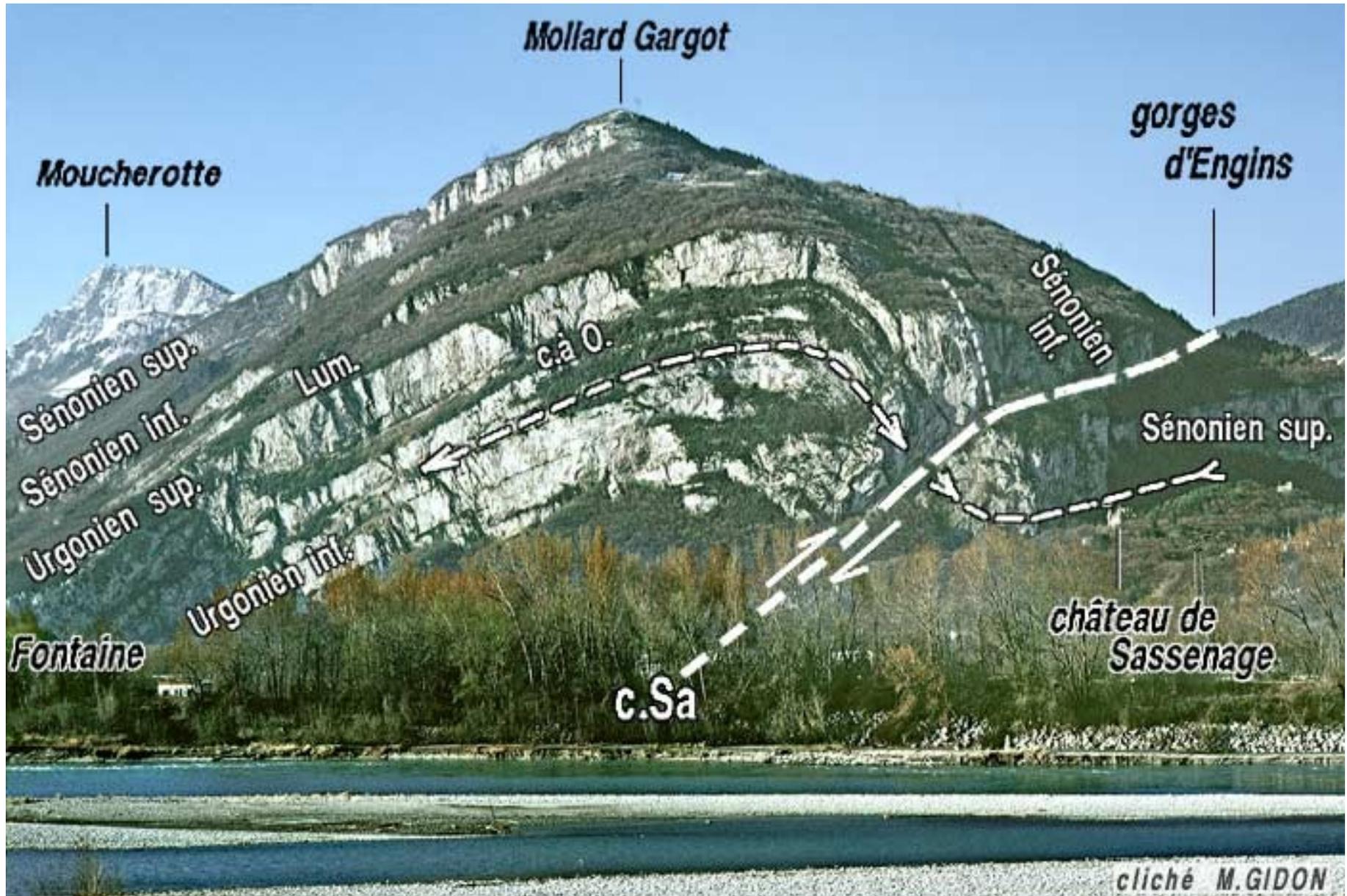
- Rééquilibrage isostatique permanent
- Exhumation de roches profondément enfouies



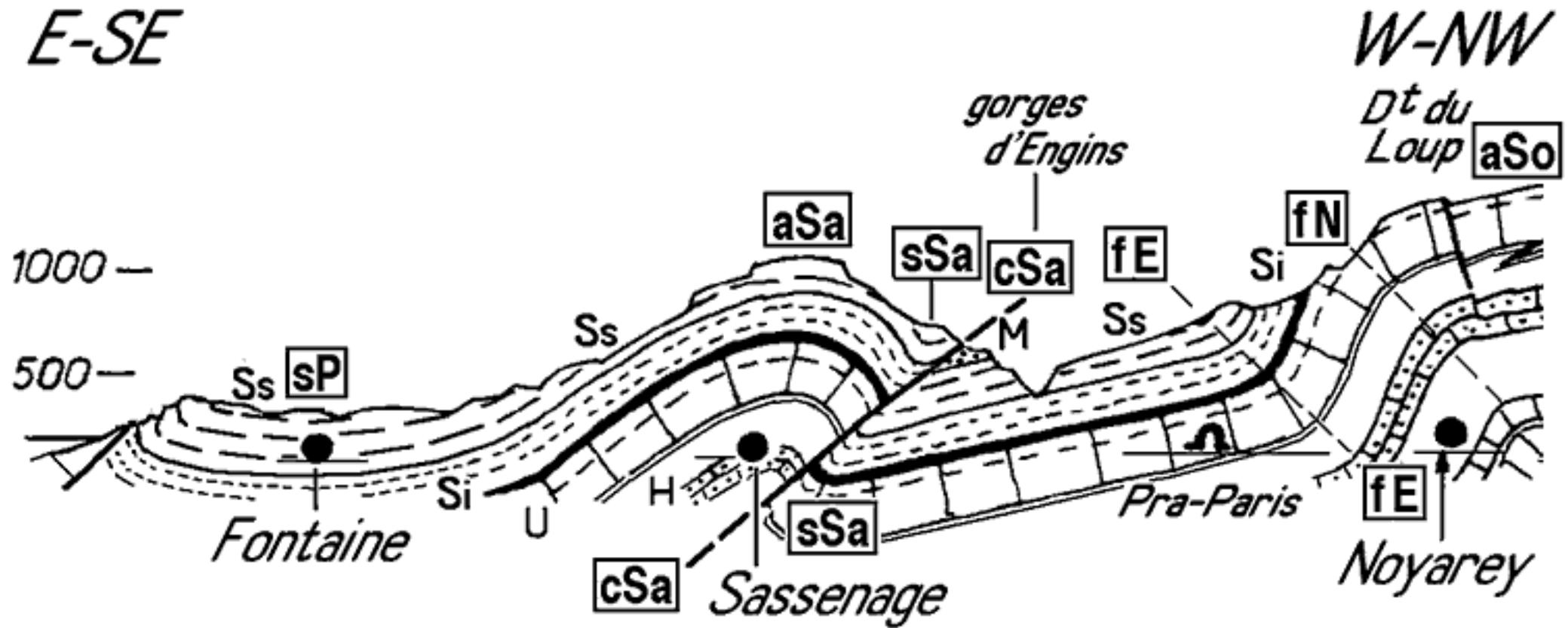
# Structures associées à la collision



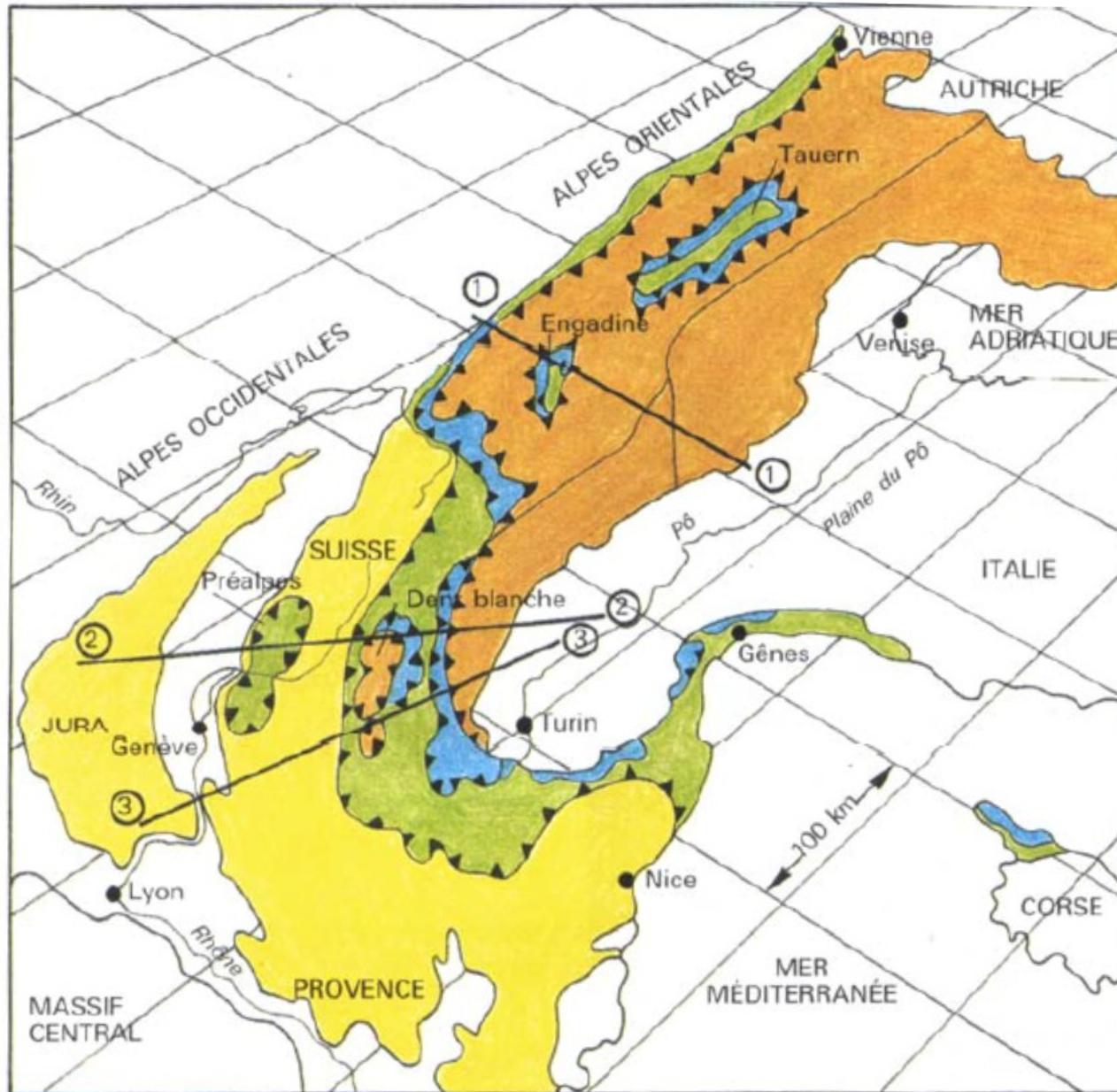
# Structures associées à la collision



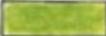
# Structures associées à la collision

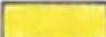


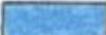
# Structures associées à la collision

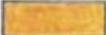


## MARGE EUROPÉENNE

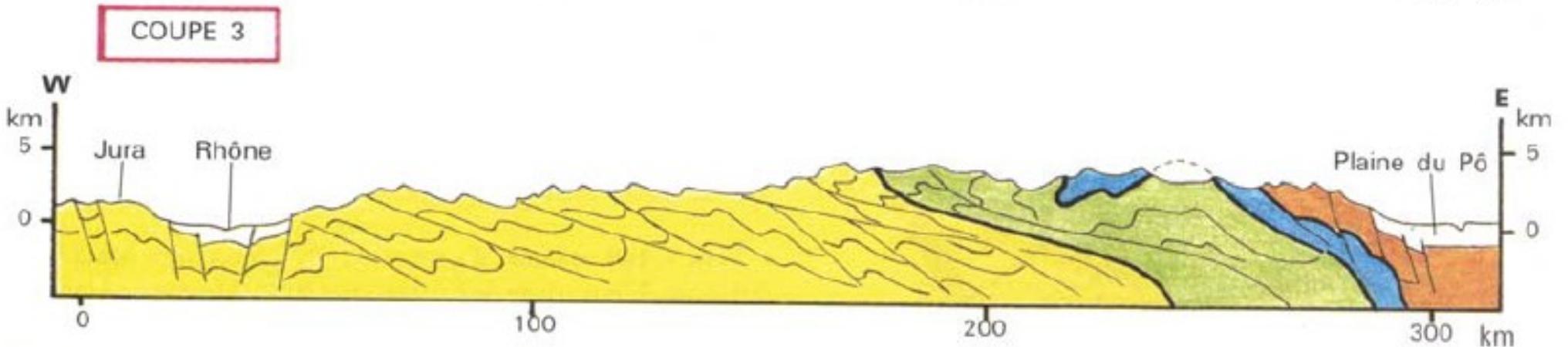
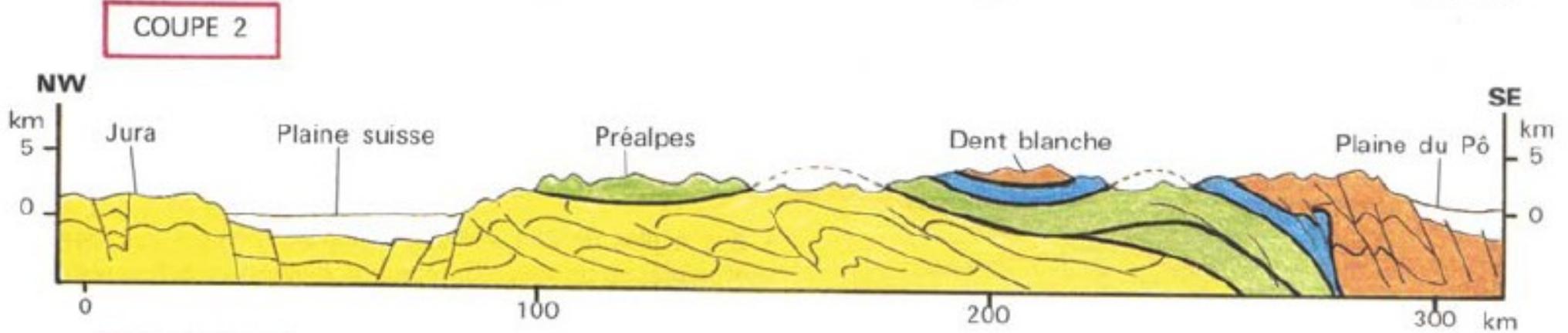
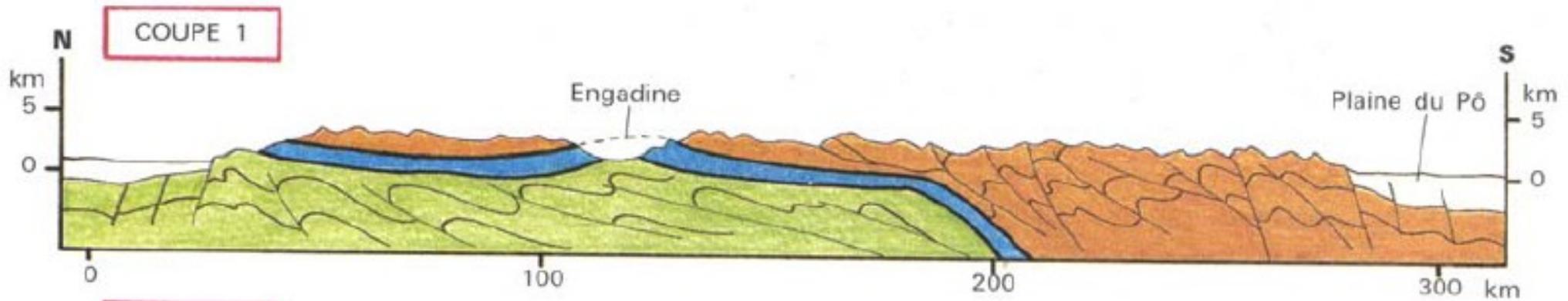
 marge charriée

 marge déformée

 OPHIOLITES

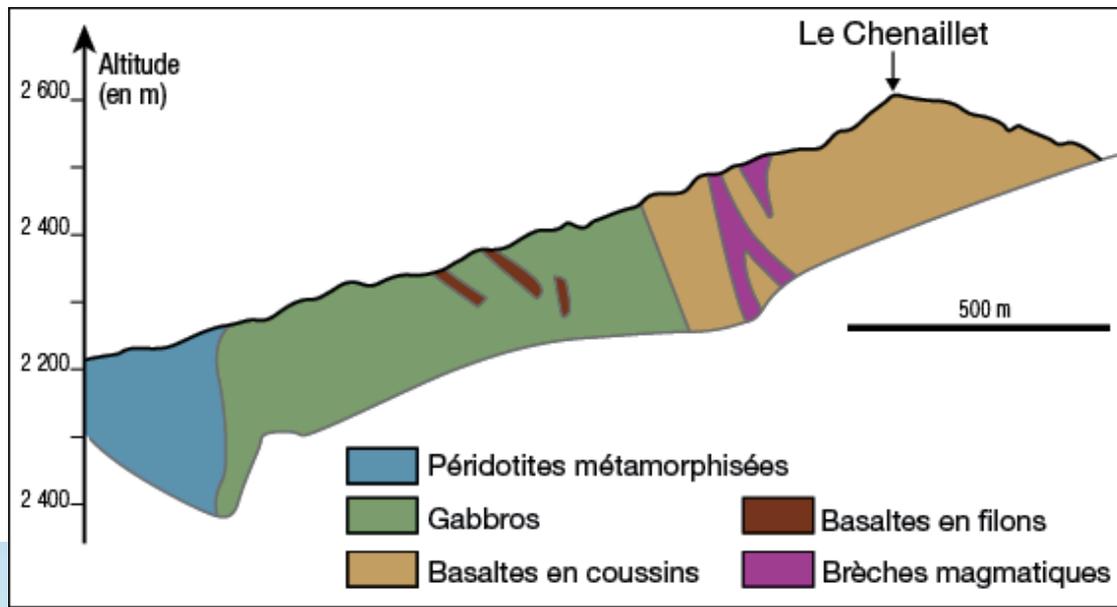
 MARGE AFRICAINE

# Structures associées à la collision



# Ophiolites

- Morceau de lithosphère océanique

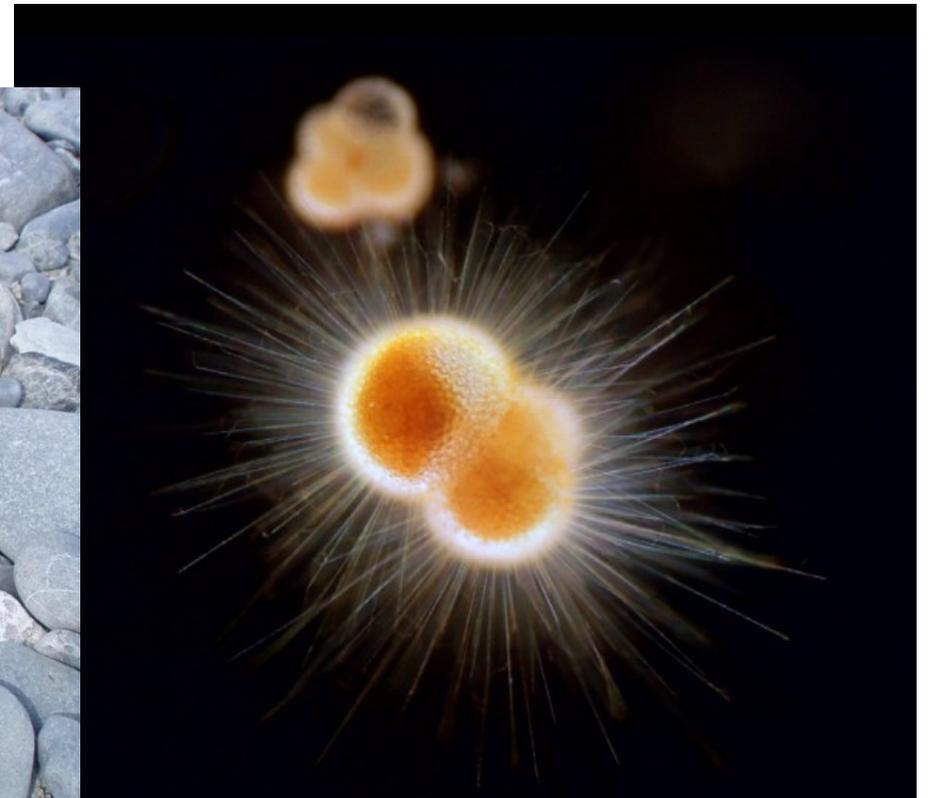


# Radiolarite

- Roche sédimentaire océanique se formant à grande profondeur (en dessous de – 4 000 m)



Radiolarite



Radiolaire vivant

# Gneiss

- Déformations ductiles dans la croûte inférieure
- Foliation



# Migmatite

- Anatexie = fusion partielle ou totale des roches continentales dans la racine crustale

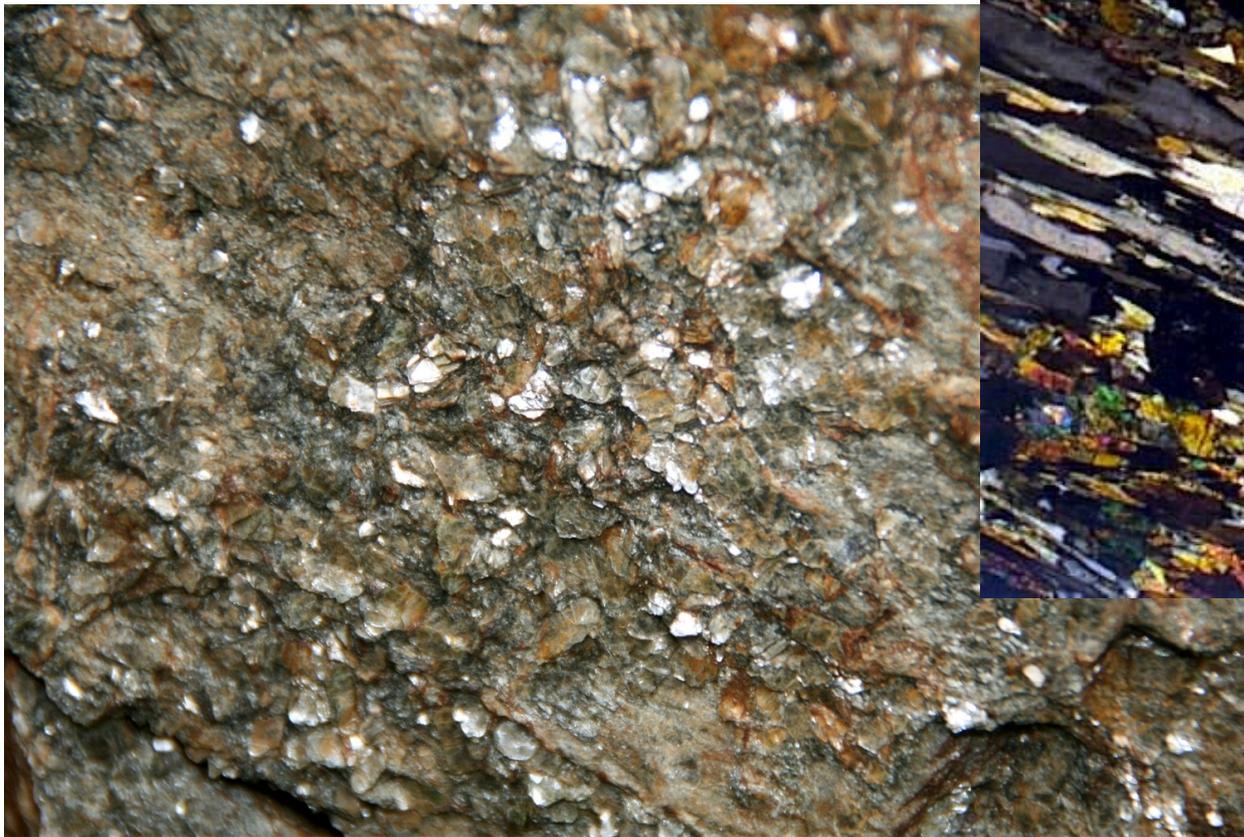


Photographie : Pierre Thomas

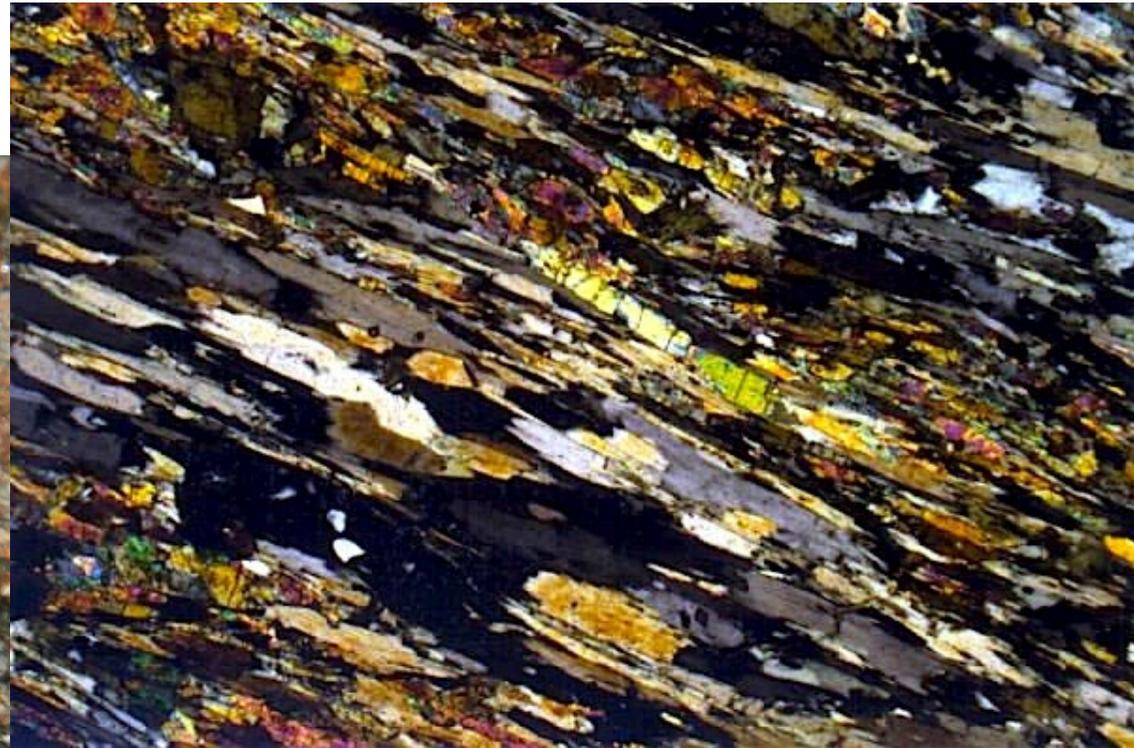
Sand River,  
Afrique du Sud

# Micaschiste

- Métamorphisme d'une roche sédimentaire
- Schistosité



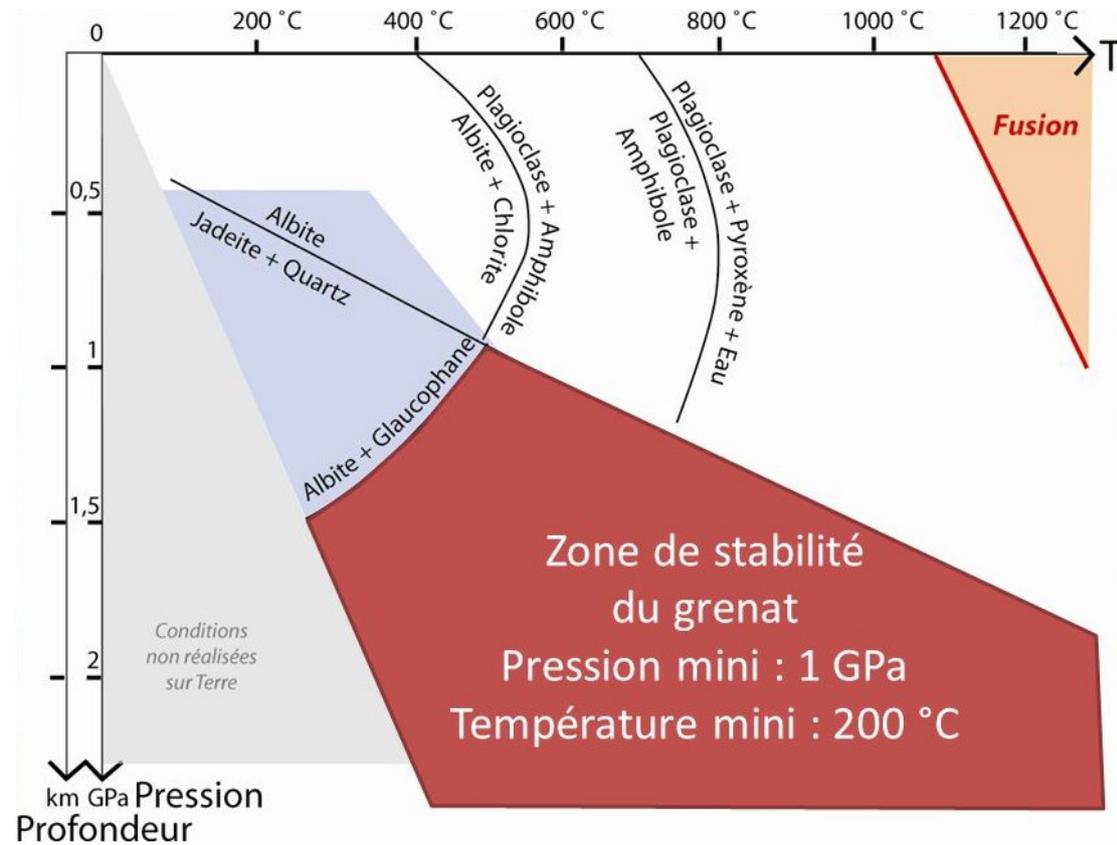
À l'œil nu



Au microscope polarisant

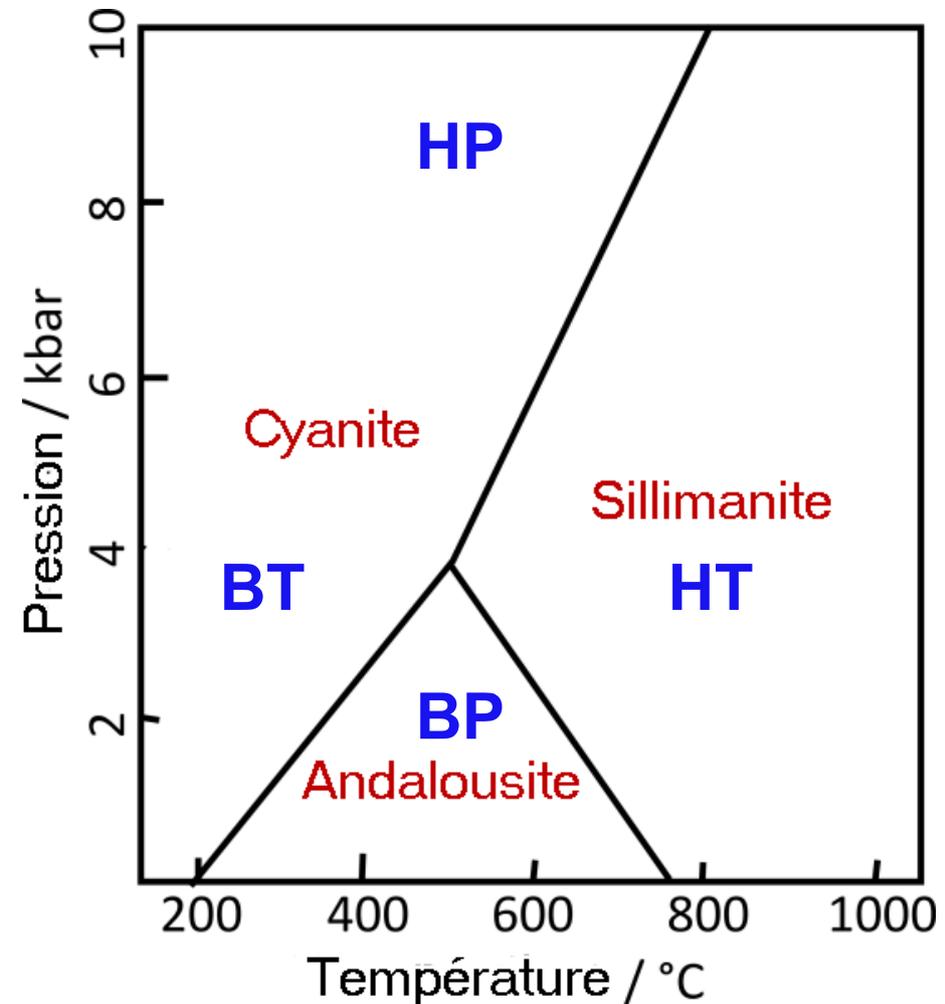
# Grenat

- Généralement associé aux hautes pressions (faciès "éclogite")



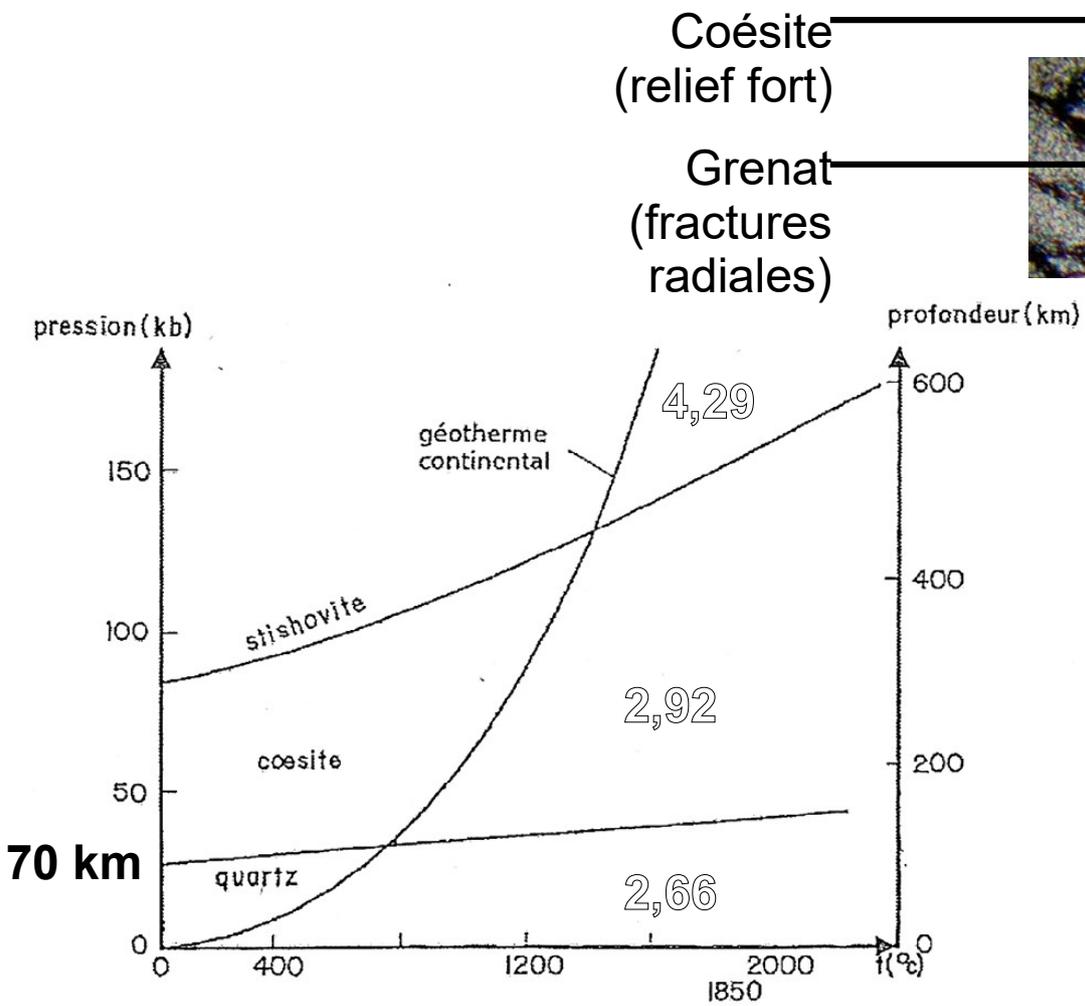
# Disthène (= Cyanite)

- Silicate d'alumine de même composition chimique que la sillimanite et l'andalousite



# Coésite

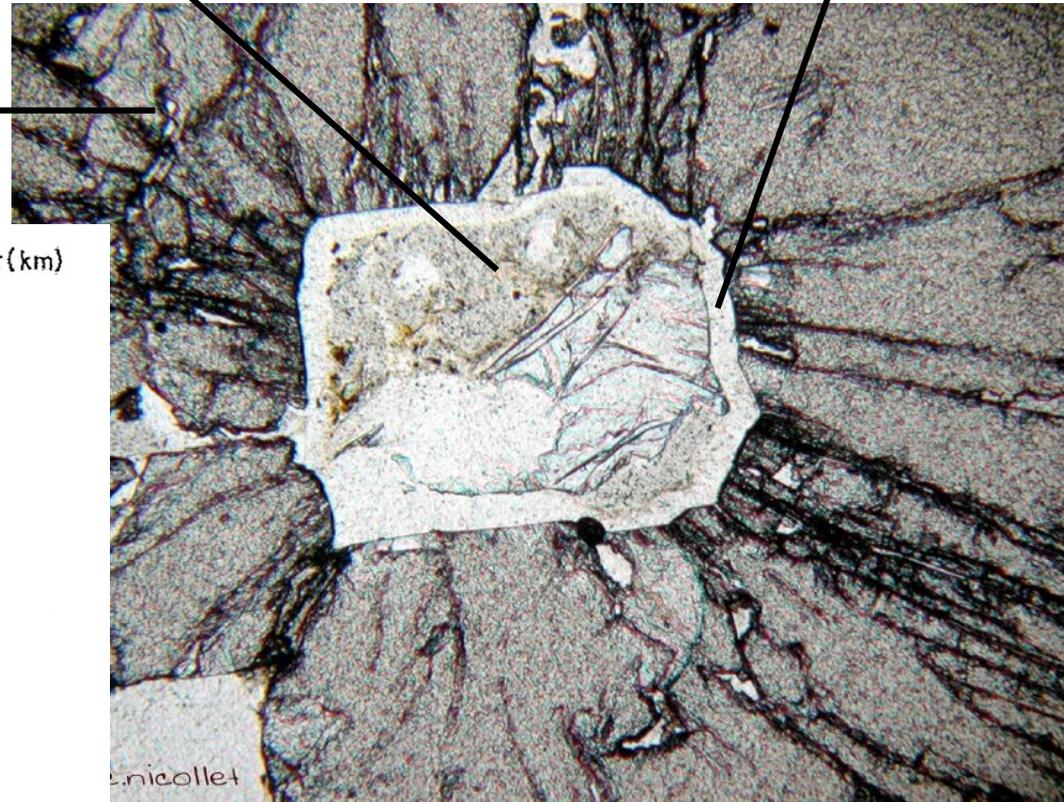
- Métamorphisme d'ultra-haute pression (UHP) du quartz (subduction continentale)



Coésite  
(relief fort)

Grenat  
(fractures radiales)

Quartz  
(relief nul)



Quartzite à coésite (Dora Maira), LPNA