

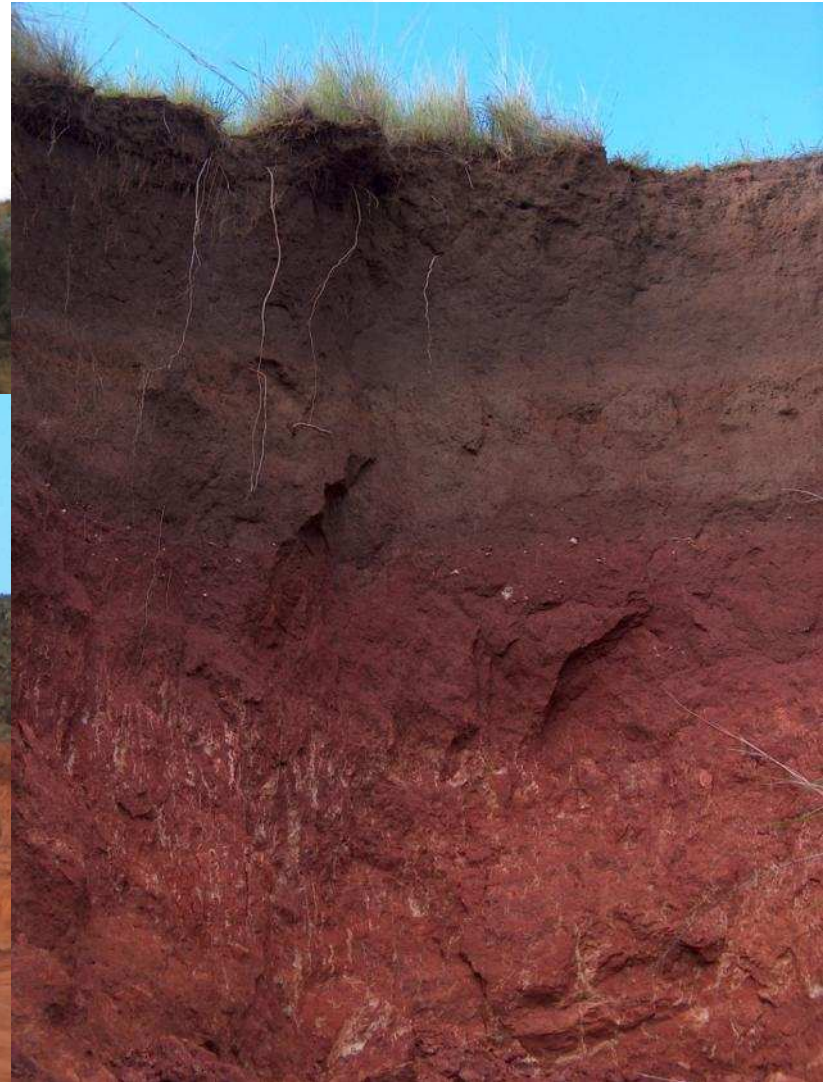


La formation du sol : altération et formation de minéraux.

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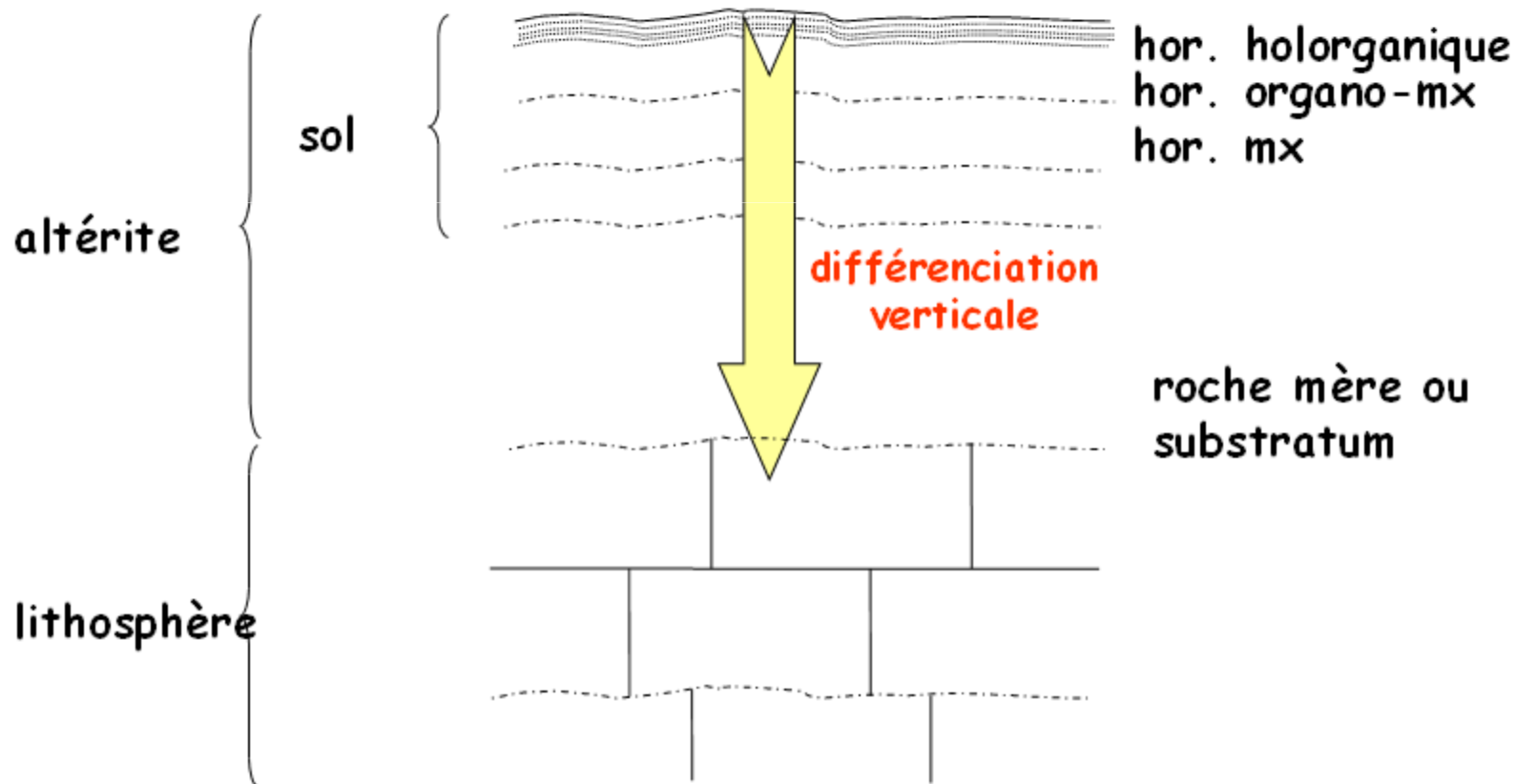


**La Formation des sols :
quels mécanismes pour expliquer l'altération ?**

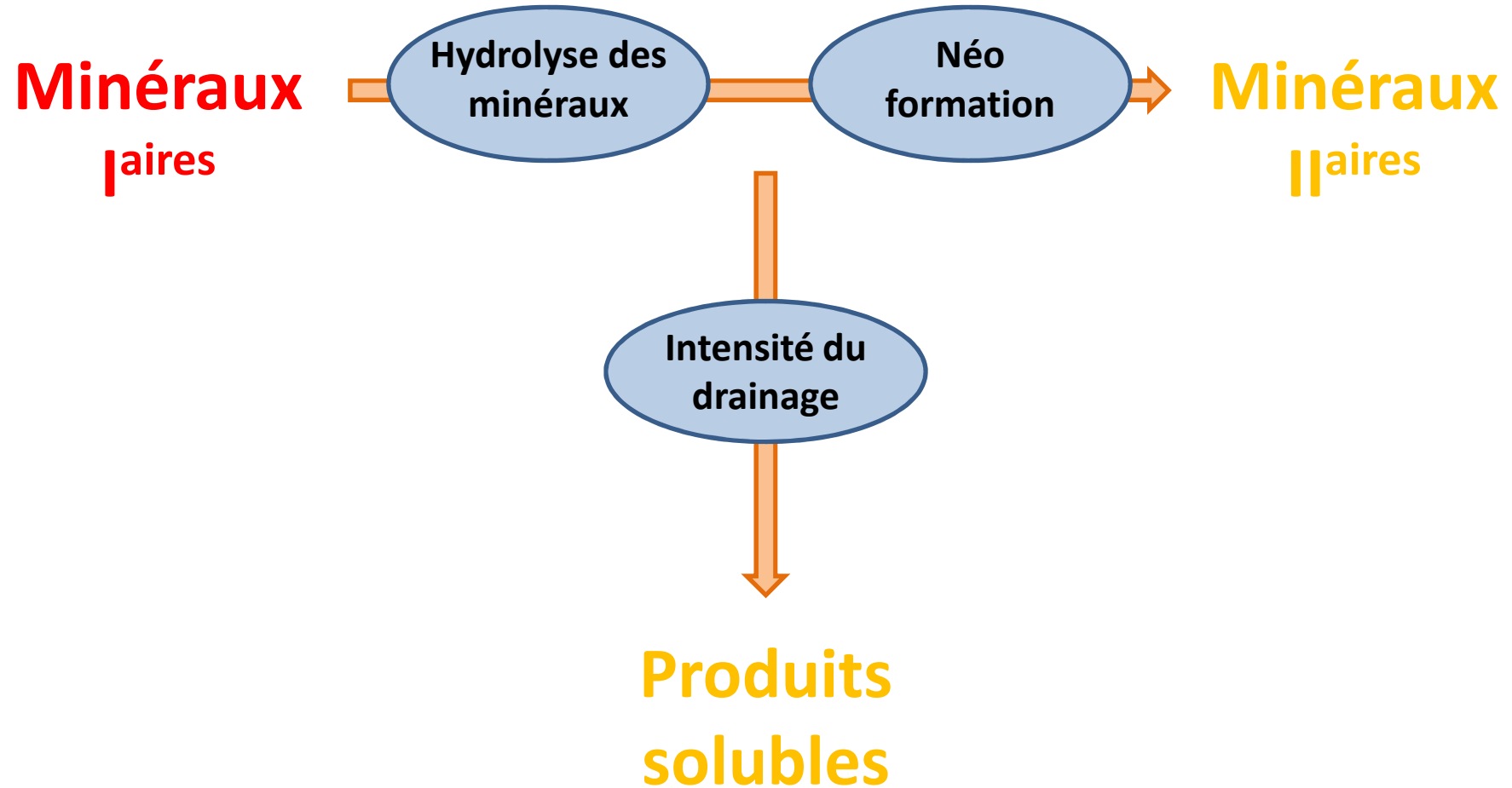
Altération et pédogenèse

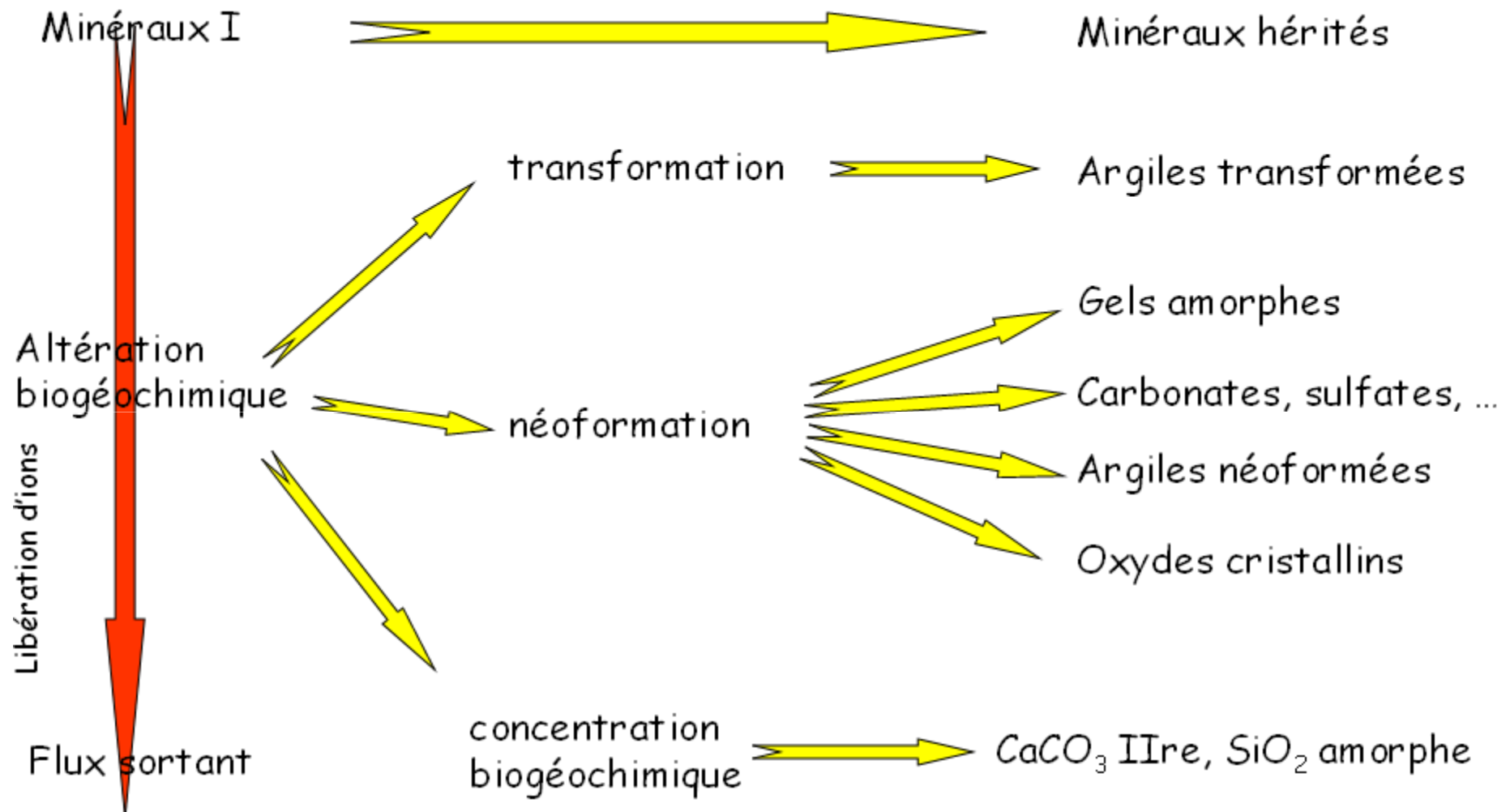
Altération : création
(hydrolyse, acidolyse, oxydo-réduction) ➡ **SOL**

Erosion : destruction

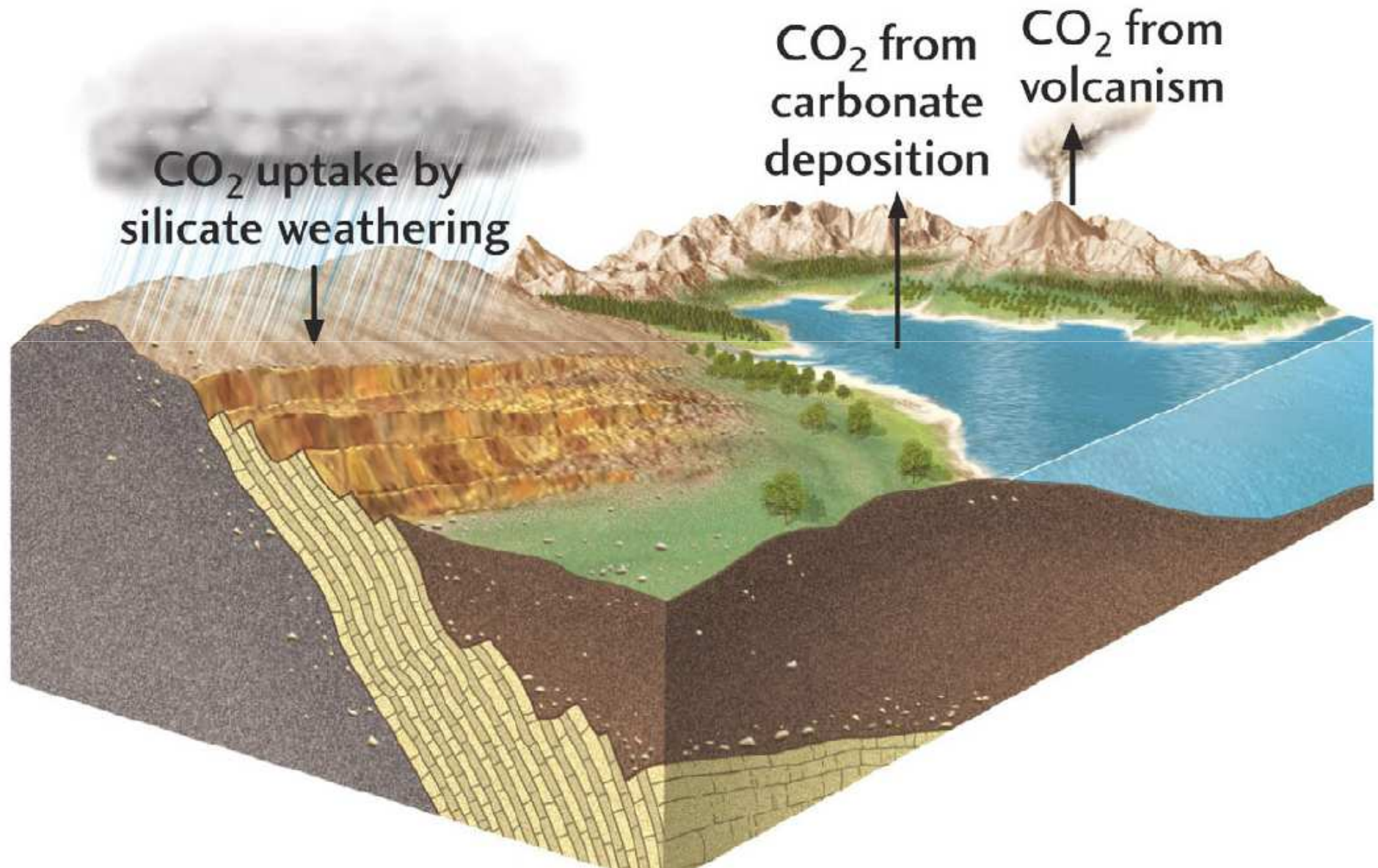


Altération chimique

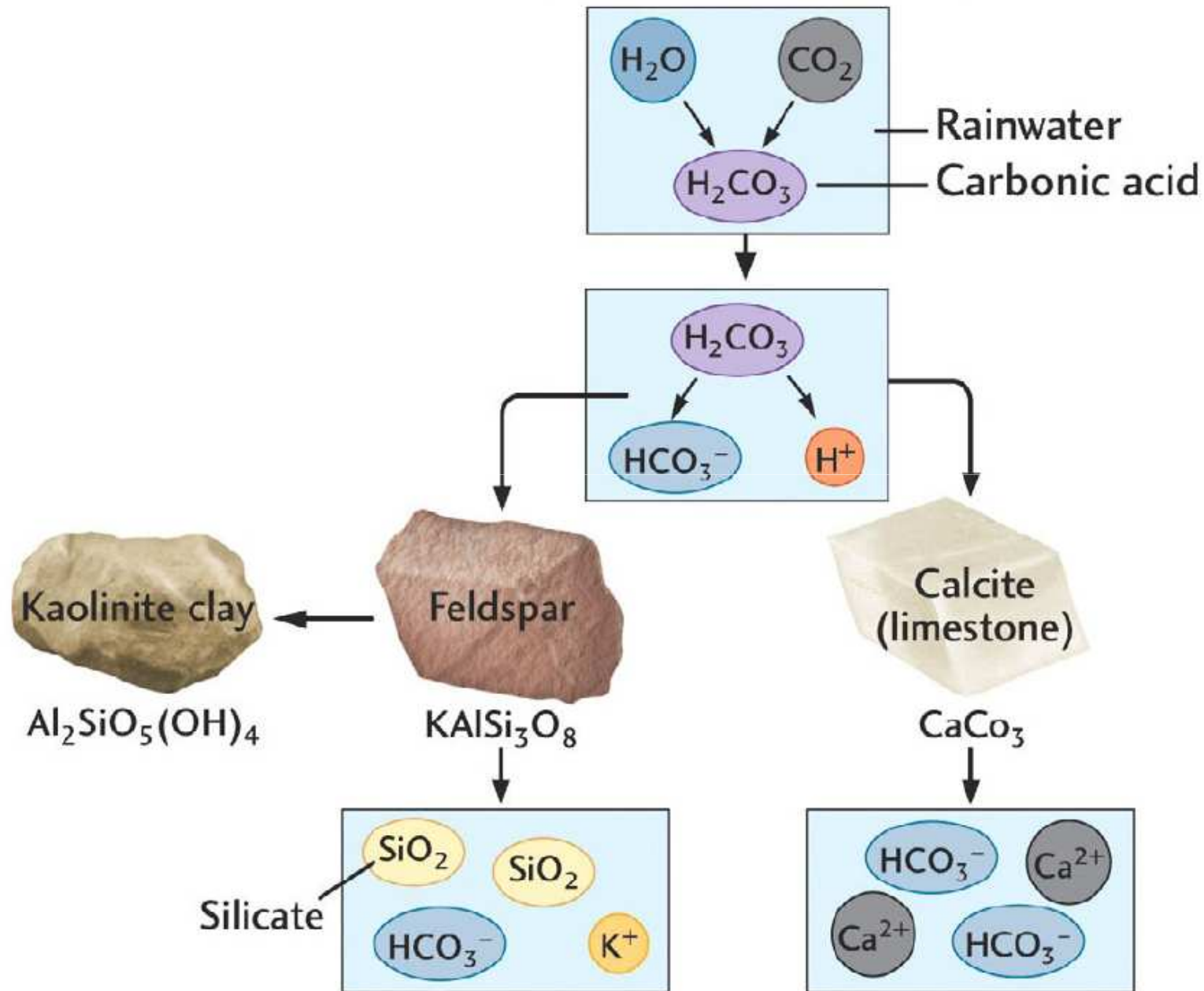




Agents de l'altération.

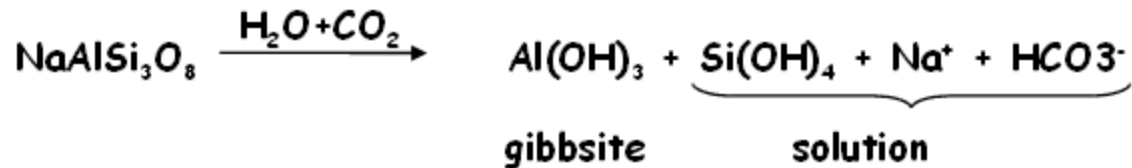


BICARBONATE IONS HASTEN WEATHERING



Types d'altération en fonction des milieux.

Hydrolyse totale

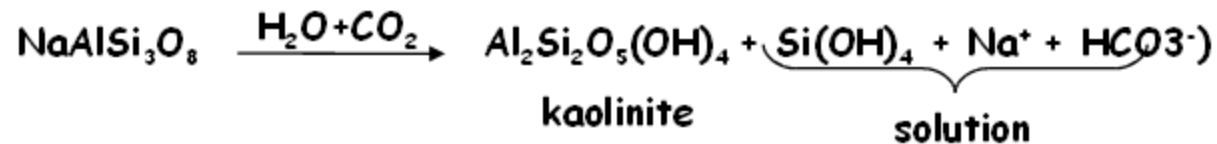


Climat chaud,
très humide

⇒ Allitisation ou Ferrallitisation

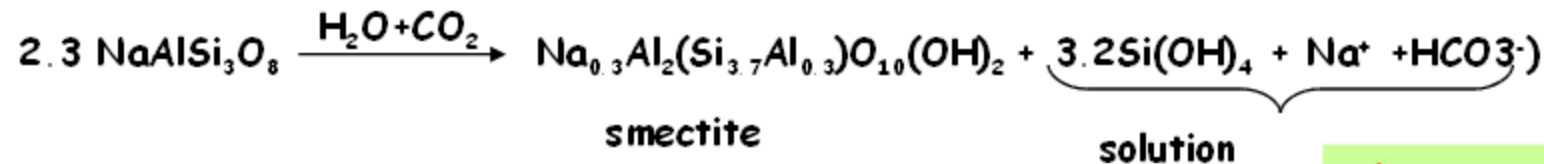
Hydrolyse partielle

⇒ Siallitisation



Climat chaud,
humide

⇒ Monosiallitisation

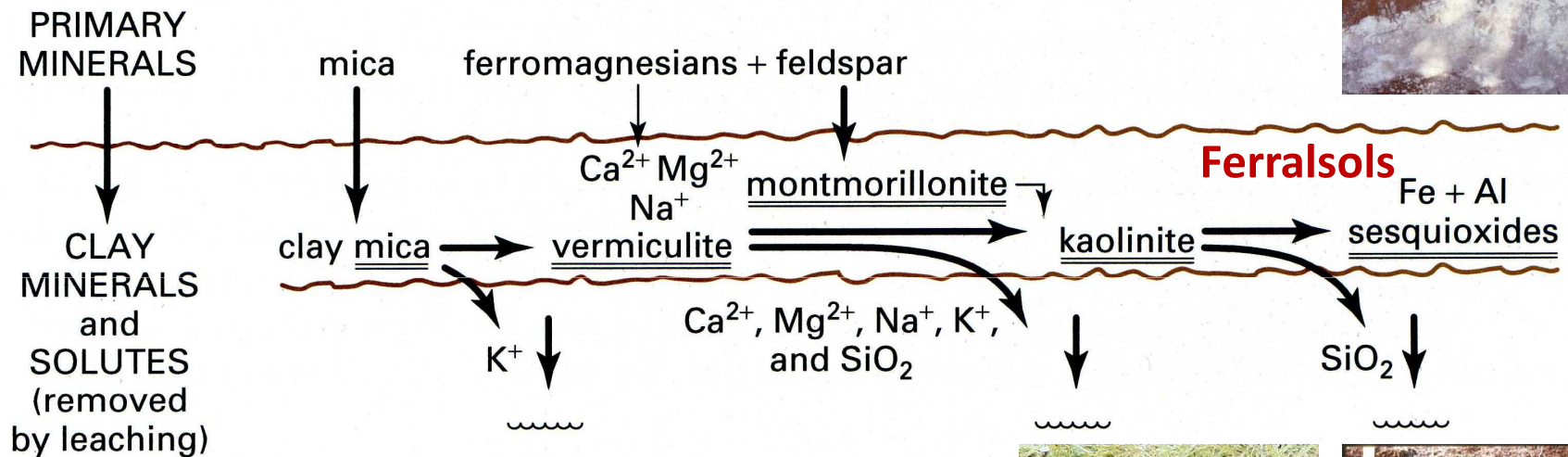


⇒ Bisiallitisation

Climat tempéré

Séquence d'altération des minéraux.

MINERAL WEATHERING: A GENERALIZED SEQUENCE



La minéralogie des sols
reflète les processus
d'altération



Stability of Minerals

Rate of Weathering

MOST STABLE

Slowest

Iron oxides (hematite)

Aluminum hydroxides (gibbsite)

Quartz

Clay minerals

Muscovite mica

Potassium feldspar (orthoclase)

Biotite mica

Sodium-rich feldspar (albite)

Amphiboles

Pyroxene

Calcium-rich feldspar (anorthite)

Olivine

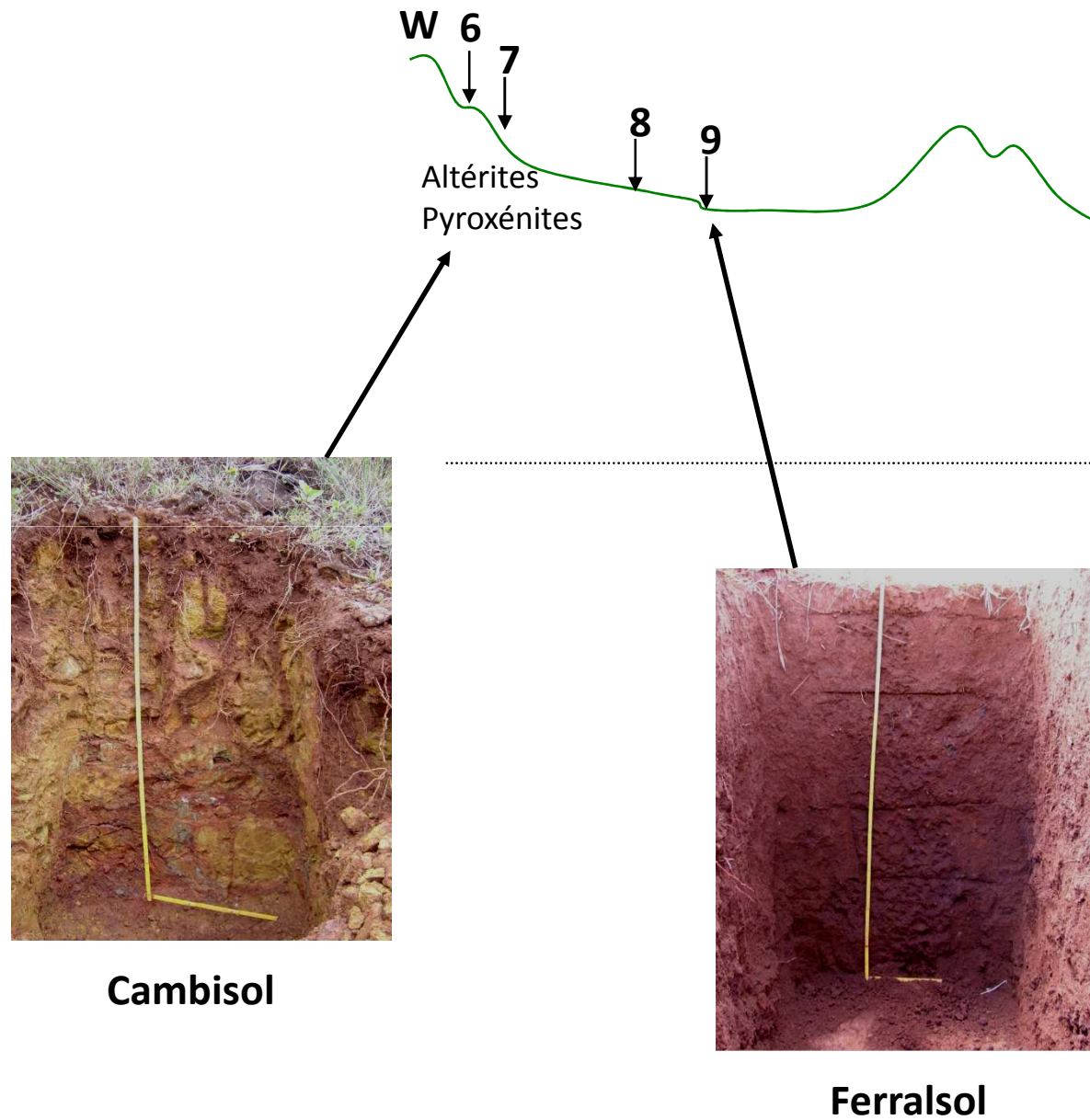
Calcite

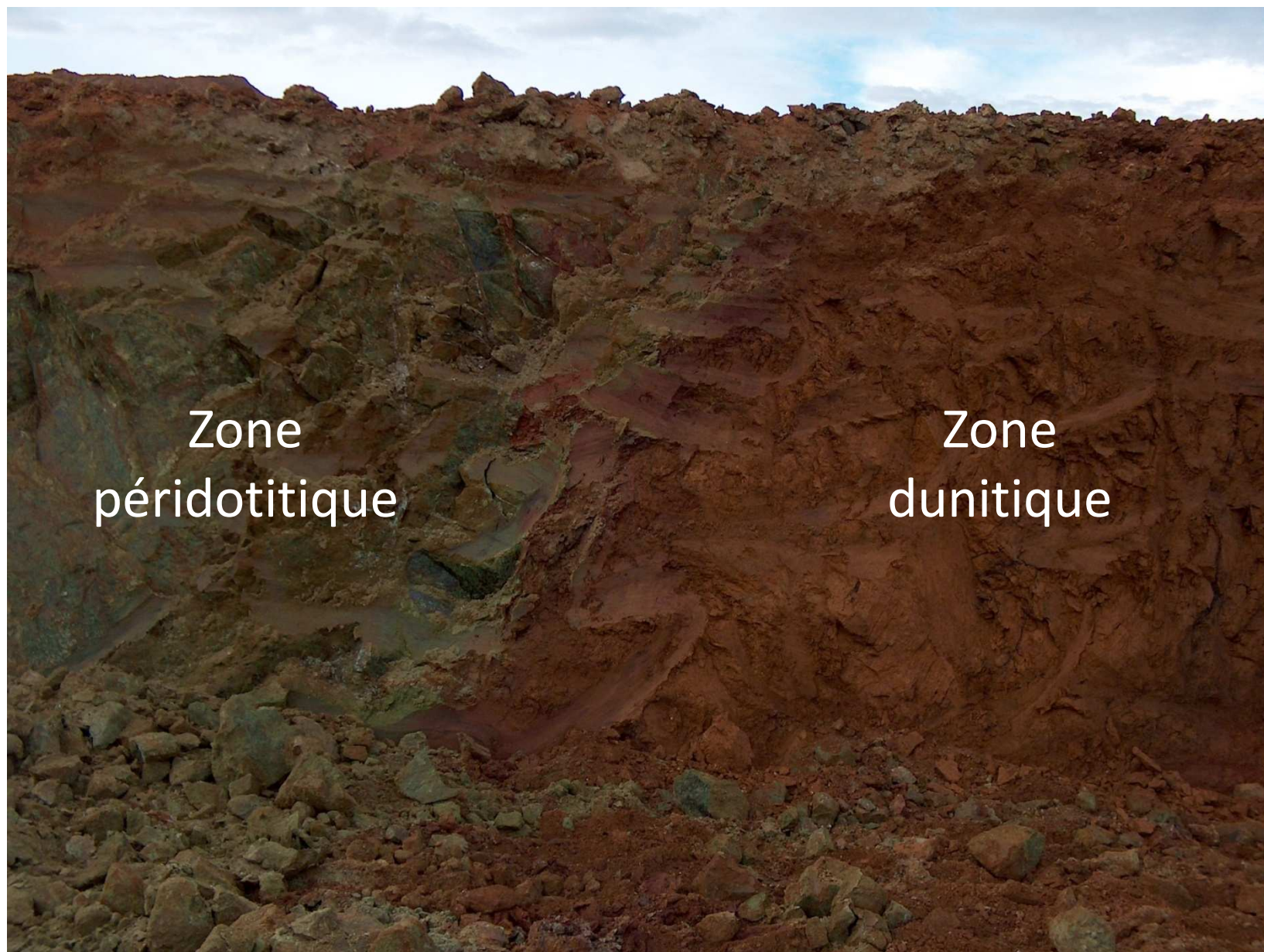
Halite

LEAST STABLE

Fastest

Echelle spatiale.



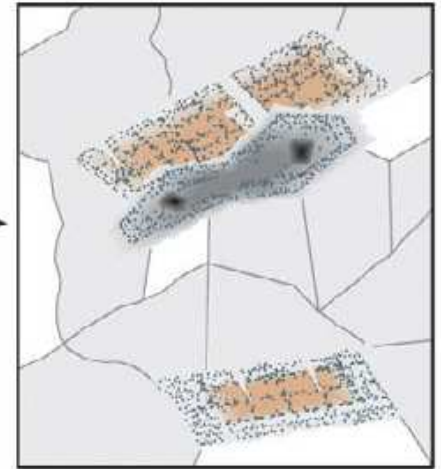
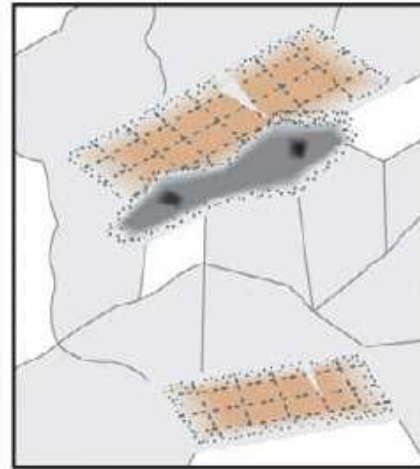
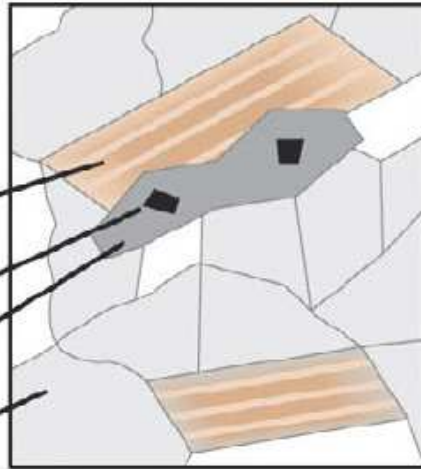


Zone
péridotitique

Zone
dunitique



Feldspar
Magnetite
Biotite
Quartz



Facteurs de régulation de l'altération.

	Weathering Rate		
	Slow		Fast
PROPERTIES OF PARENT ROCK			
Mineral solubility in water	Low (e.g., quartz)	Moderate (e.g., pyroxene, feldspar)	High (e.g., calcite)
Rock structure	Massive	Some zones of weakness	Very fractured or thinly bedded
CLIMATE			
Rainfall	Low	Moderate	Heavy
Temperature	Cold	Temperate	Hot
PRESENCE OR ABSENCE OF SOIL AND VEGETATION			
Thickness of soil layer	None—bare rock	Thin to moderate	Thick
Organic activity	Sparse	Moderate	Abundant
LENGTH OF EXPOSURE			
Short	Moderate	Long	

La coupe du sol :

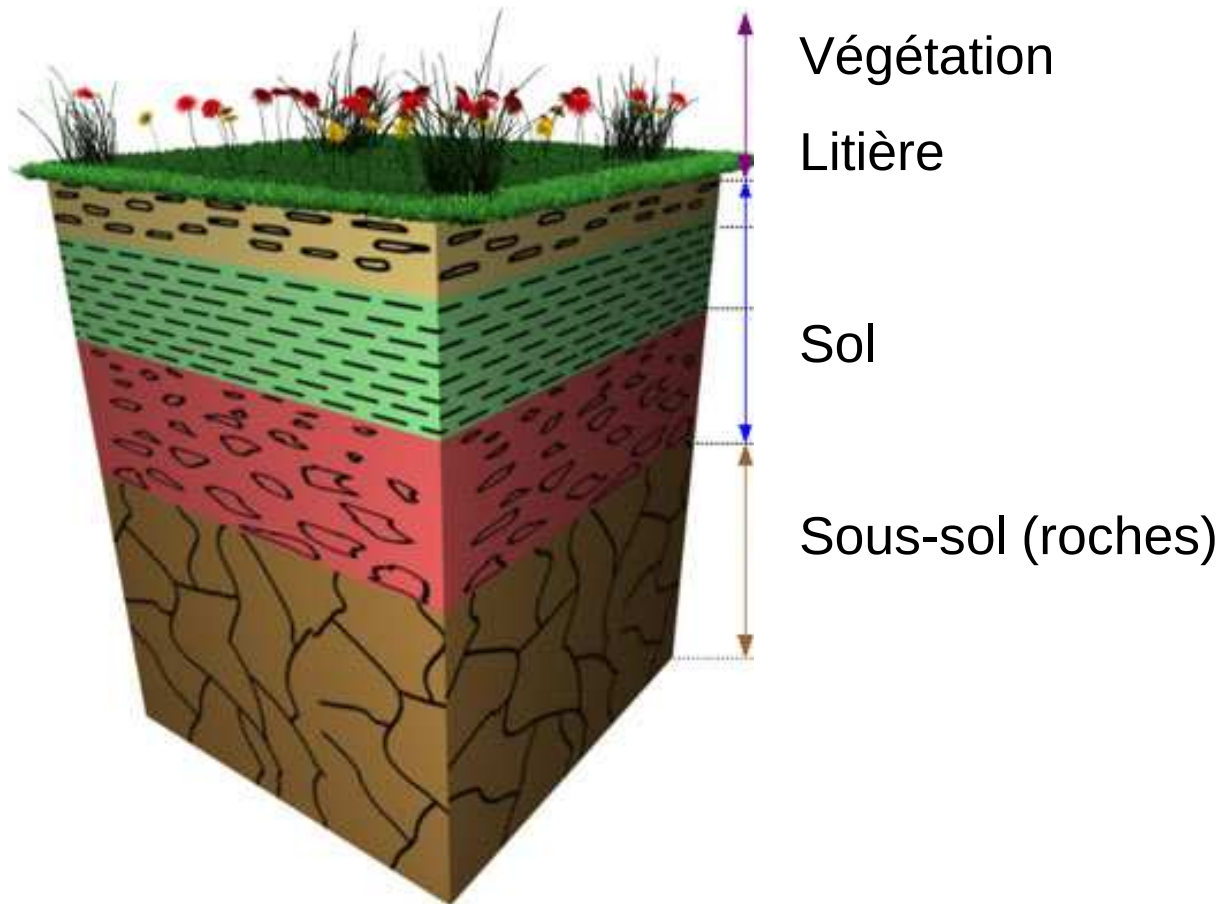


Schéma de la coupe du sol