

EPI-GW1: karst phenomena

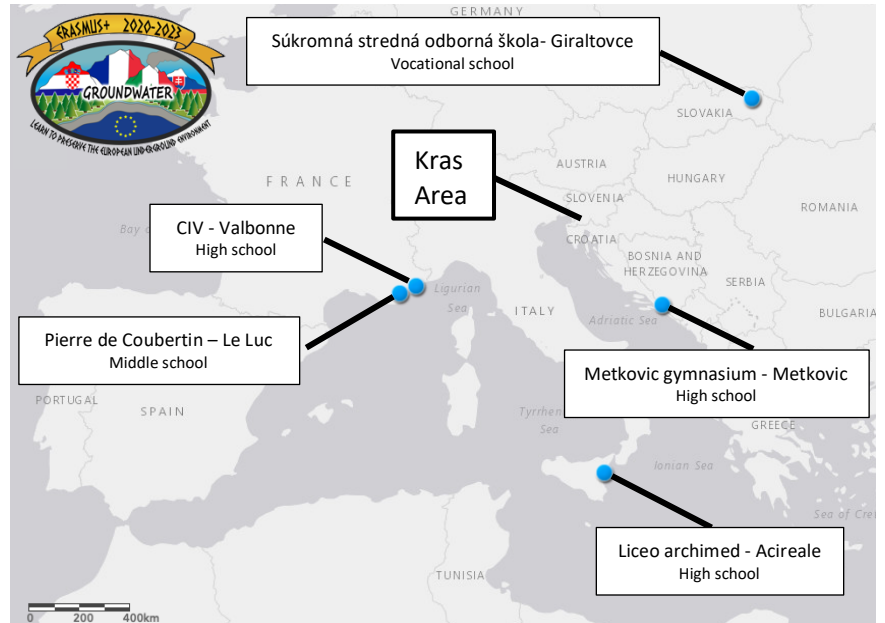
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Around the college and in Provence, there are amazing landforms: cliffs, canyons, calanques or caves. These types of landscapes are called “karsts”, after the name of a region in Slovenia where they were first described: the Kras area.

→ EPI-GW1A: Complete the map

What karst landscapes look like?

Figure 1: Map of the “Groundwater” European project. the Kras area is at the heart of our project.



I. The karst landscapes

→ EPI-GW1B: Look, listen and complete the diagram.

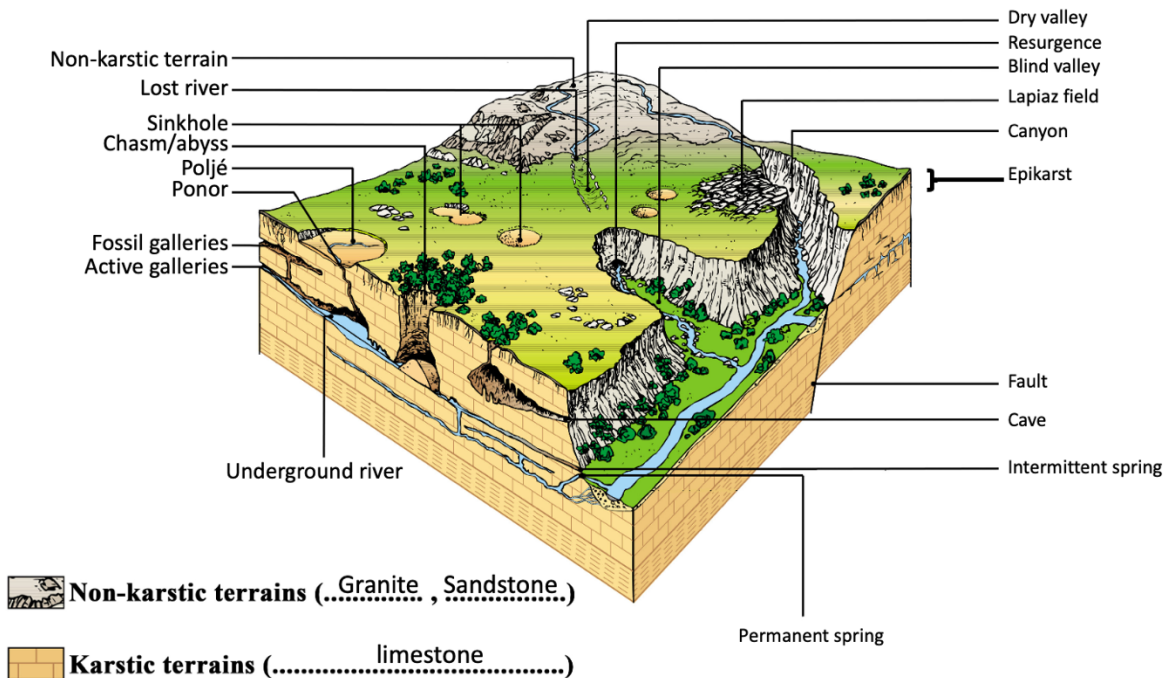


Figure 2: Karst landform. (modified from Bakalowicz, 1999)

Summary: Landscape forms resulting from the action of water on limestone are called karsts. Karst regions constitute about 25% of the land surface of the world. They are home to an important but fragile biodiversity above and below ground. Many karst terrains make beautiful housing sites for urban development. Several major French cities are underlain in part by karst, for example Marseille, Toulon and Grenoble. They are areas of abundant resources including water supplies, limestone quarries, minerals, oil, and natural gas.

II. Action of water on limestones.

→ EPI-GW1C: Action of water on limestones

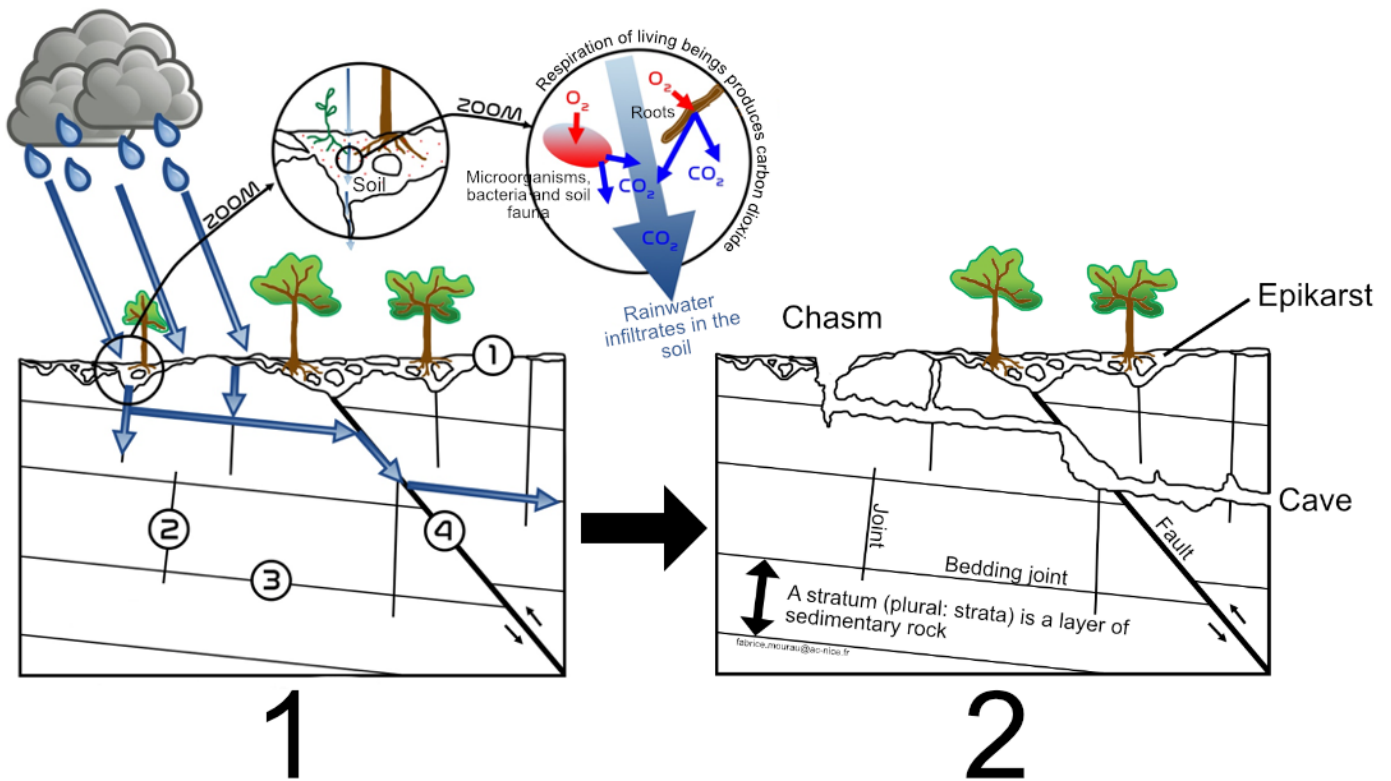


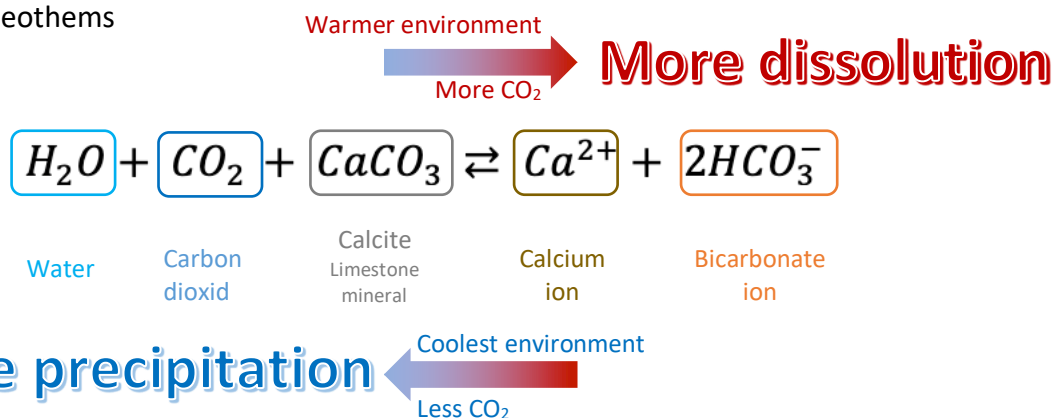
Figure 3: How caves appear

Summary: In the epikarst (1), the rainwater absorbs the carbon dioxide produced by the respiration of living beings (roots, animals, fungi, bacteria, micro-organisms) and becomes acidic. It flows through 3 types of cracks (joints (2), bedding joints (3) and (4) faults) and enlarges them by dissolving the limestone. This is how karst landscapes are created, sculpted by the dissolution of limestone by water.



III. A little chemistry with speleothems.

→ EPI-GW1D: Speleothems



Summary: The chemical balance that controls the interactions between water and limestone depends on both the temperature and the amount of CO₂ available for the reaction. This phenomenon explains speleothems (stalactites, soda-straws, columns...) but also the effects of climate change which will increase the dissolution phenomena and make the water more acidic. This will affect shell animals like *Congerius kusceri*, the Croatian cave clam, and thus biodiversity!