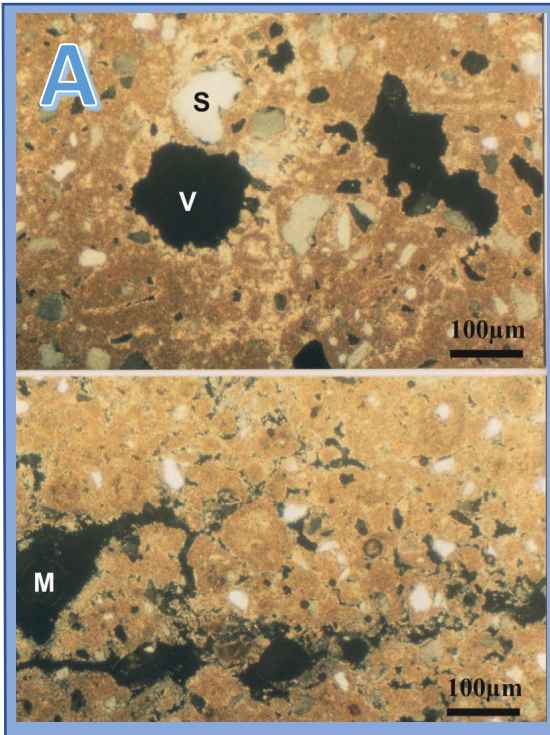


EPI-GW2C: the water in the karst

We now have understood that groundwater comes mainly from rain falling on the limestone massifs.

But how is this water stored underground?

Part 1: Limestone, a reservoir rock



A. Thin sheets of limestone observed under a microscope, in the image the letters V and M represent voids in the structure of the limestone that may fill with water.

(Pictures : Faouzia TLILI*)

B. teachers in the Regaï of Néoules cave. After heavy rains, the cave fills with water!

(Pictures : F. Mourau, 2017)

C. Diving in the underground river of Port-Miou
(Pictures : Cassis rivière souterraine, 2018)



* : Faouzia Tlili et Kamel Regaya, « Les dépôts carbonatés continentaux de la région de Hajeb El Ayoun (Tunisie centrale) : implications paléoenvironnementales et morphologiques », *Physio-Géo*, Volume 13 | -1, 133-153.

Using the photographs, A, B and C, calculate the average size of each of the photographed cavities in the limestone. Enter your results in the table below.

		Scale	Cavity observed in the photo
A	1	Measured length	(1)
		Actual length	100 μm
	2	Measured length	
		Actual length	
B	Measured length		
	Actual length		
C	Longueur mesurée		
	Actual length		

Hints:
(1) Measure length with a ruler; (2) Calculate actual size

Explain why limestone is a good reservoir rock:

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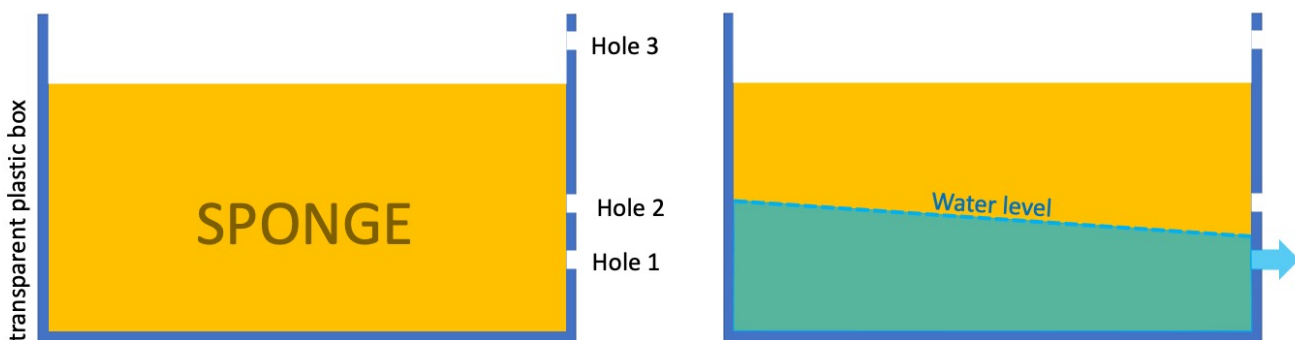
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Part 2: the karstic aquifer

You will use the "karst aquifer" model to answer the questions. First, fill in the model until the first spring flows.



1. What does the sponge represent in the model?

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2. How is the sponge fine? (Finds 2 arguments)

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3. When you fill the model with water, which phenomenon do you play in reality?

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4. How to activate the second source?

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5. Using the Slide Show (activity GW1B), find the name of the intermittent source and the perennial source. Which hole on the model would you associate them with?

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6. Fill the model until the intermittent source is activated, then use the pipe to simulate pumping.

a. What is the effect of pumping on the groundwater supply?

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b. How does the groundwater recharge?

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c. What happens if it is not recharged?

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7. Using the text below, complete the diagram

Limestone is an **aquifer**: a reservoir rock capable of holding water. From a certain depth, all the cavities, cracks and pores of the rock are completely filled with water. This zone is called the **saturated zone** and constitutes the **groundwater reservoir**. The surface of the water table is the **piezometric surface**. Its altitude varies according to the water inflow and the extraction made by humans from the water table. The **epiphreatic zone** is sometimes flooded and sometimes dry. **Rainwater** flows into the **unsaturated zone** but does not accumulate there.

Title :

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