CLIMA JAEN

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INDEX

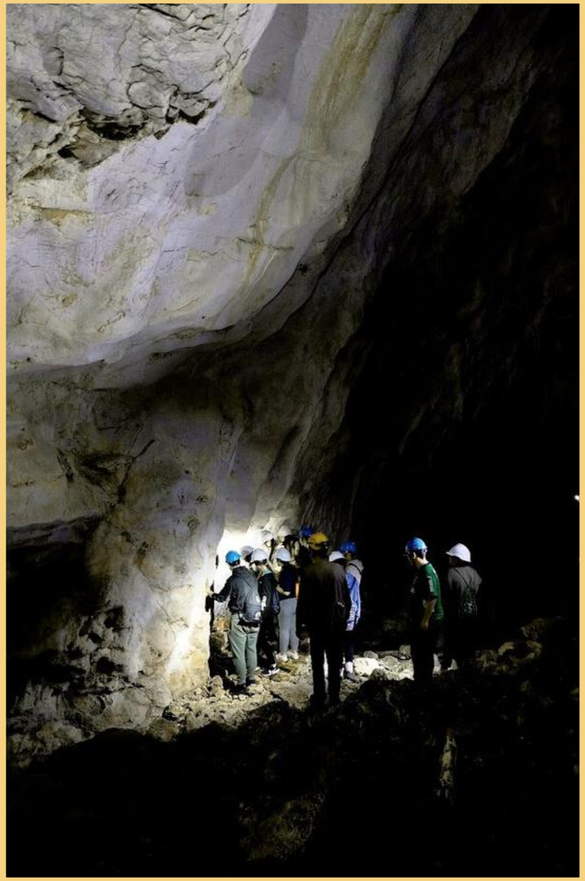
INTRODUCTION

This year we participated in the scientific project ‘Clima Jaén’, led by Professor Vicente Navarro and professors from the University of Jaén. The main objective was to analyse climate change from a local perspective.

One of the axes of the project was the study of the Cueva de los Murciélagos, located in Mancha Real. We monitored its internal temperature, comparing the data with records from previous years.

We also studied radon, a natural and radioactive gas, analysing its concentration in rocky areas and its relationship with cave ventilation.

This rewarding experience allowed us to apply scientific knowledge and better understand the effects of climate change.



SUMMARY

During this project, we carried out several activities to study climate change. We observed and monitored one cave located in the province of Jaén. We also measured radon levels at the school to compare it with the radon levels of the cave, which provided us information about the radioactivity of the rocks and the ventilation within the cavities.

The main activity was the visit to the Bat Cave in Mancha Real. In this cave, we installed thermometers in different locations. We observed that in the areas furthest from the entrance, the temperature changes more significantly.

Thanks to this work, we gained a better understanding of how caves function and why they are important for studying climate change.

MATERIALS

Radon Meter:
We used it to see how much radiation there was in different rooms in the institute.

Thermometers:
We use them to measure the temperature inside and outside the cave.

Helmet:
It was used to protect our heads in the cave.

Headlamps:
They are used for lighting inside the cave.

ACTIVITIES AND PROCEDURES

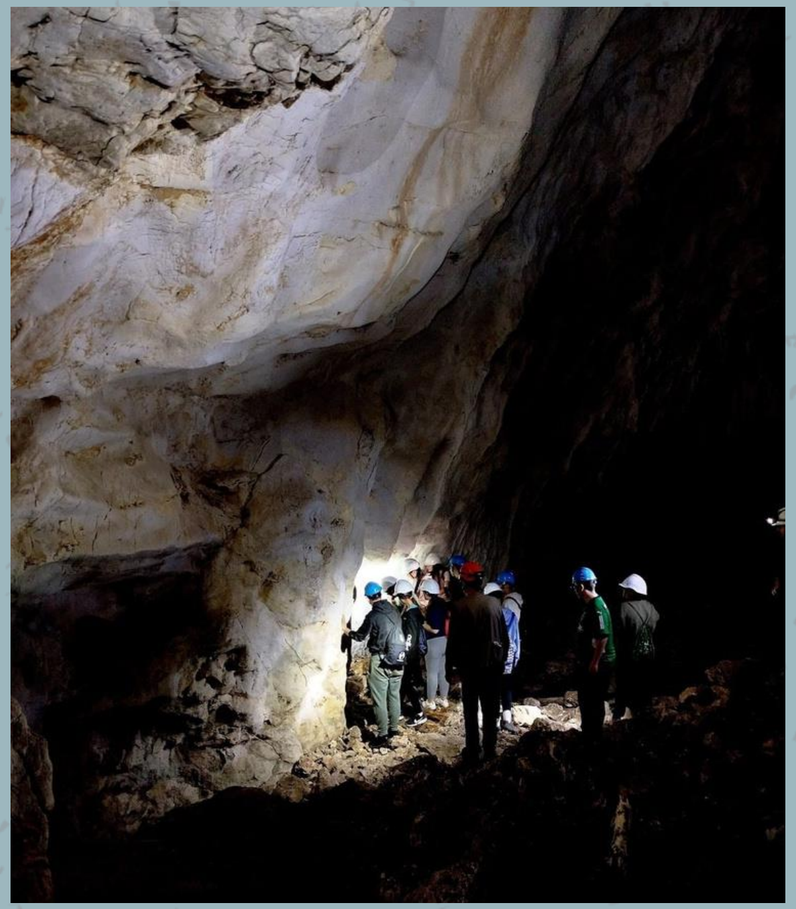
In our first meeting, Mr. Vicente Navarro explained the different types of caves and how their formation affects the outside temperature.

At the second meeting we were accompanied by a university professor who explained how caves known as cold air traps work and the currents they generate. He also explained how to use the detectors to measure radon, as we would later use them to measure radon levels in different parts of the school.

ACTIVITIES AND PROCEDURES

On Wednesday 7 May we made an excursion to the cave. Once there, we first measured the temperature and radon levels in the innermost part of the cave, then in an intermediate area and finally at the entrance of the cave.

Finally, we collected some samples of flora and fauna, which were observed and analysed with a magnifying glass.

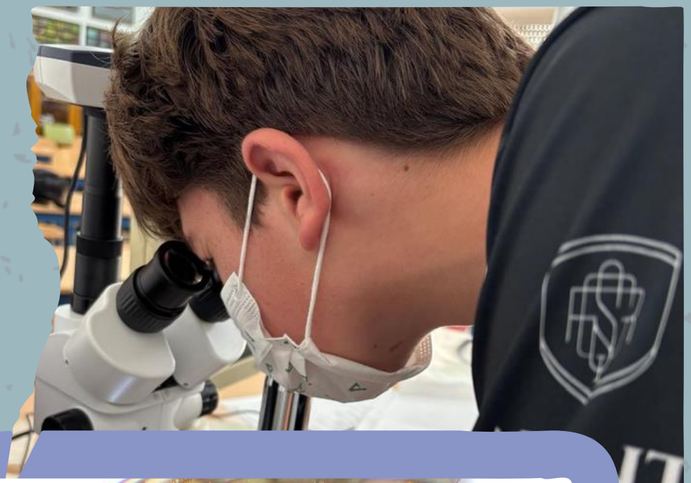


ACTIVITIES

While we were in the cave, we collected different samples, such as small minerals, mosquitoes, and other interesting things we found on the cave floor and walls. It was really exciting because we could explore a place that is normally hidden from the outside world.

Back at school, we used microscopes to observe the samples in much more detail. It was amazing to see how different everything looked under the microscope. For example, we could see the legs, wings, and eyes of the mosquitoes very clearly, and the minerals had beautiful shapes and textures that we didn't notice before.

This activity was very fun and also helped us understand how useful microscopes are for science. We learned to pay more attention to small things and to look at the world in a different way.



RESULTS

We can see that the temperature inside the cave is slightly higher than two years ago, so the temperature has dropped slightly.

Gráfico temperaturas 2023

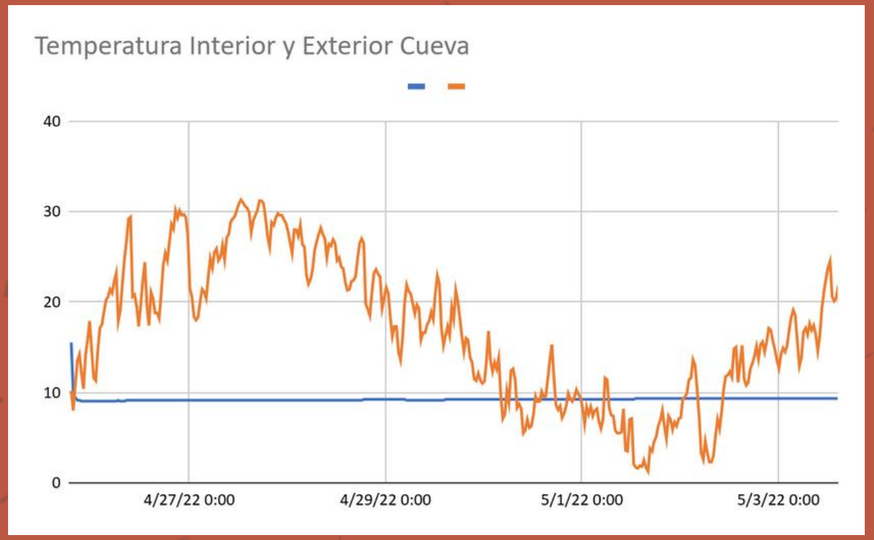
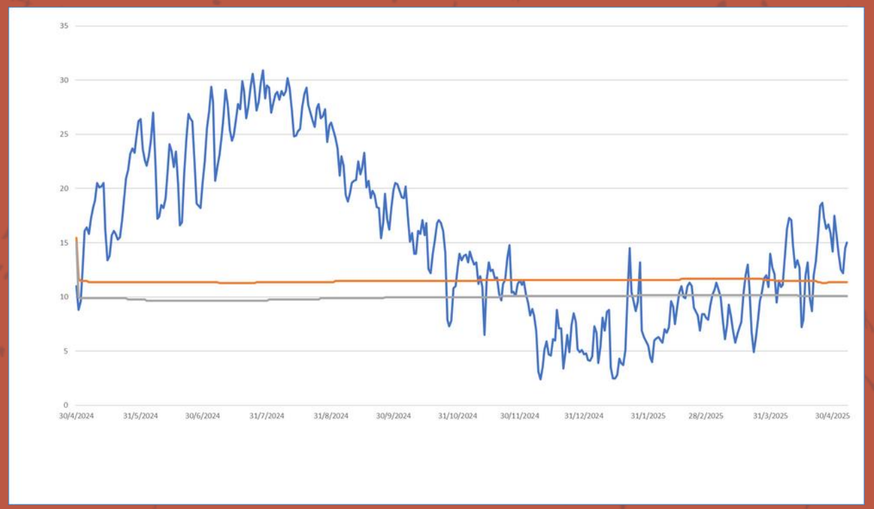


Gráfico temperaturas 2025



RESULTAS

In these other two graphs, we can see the rainfall in the area where the cave was located over the last two years. If we analyse them in detail, we can see that between 2024 and 2025 there has been less rainfall in that area than between 2023 and 2024.

Gráfico precipitaciones 2023-2024

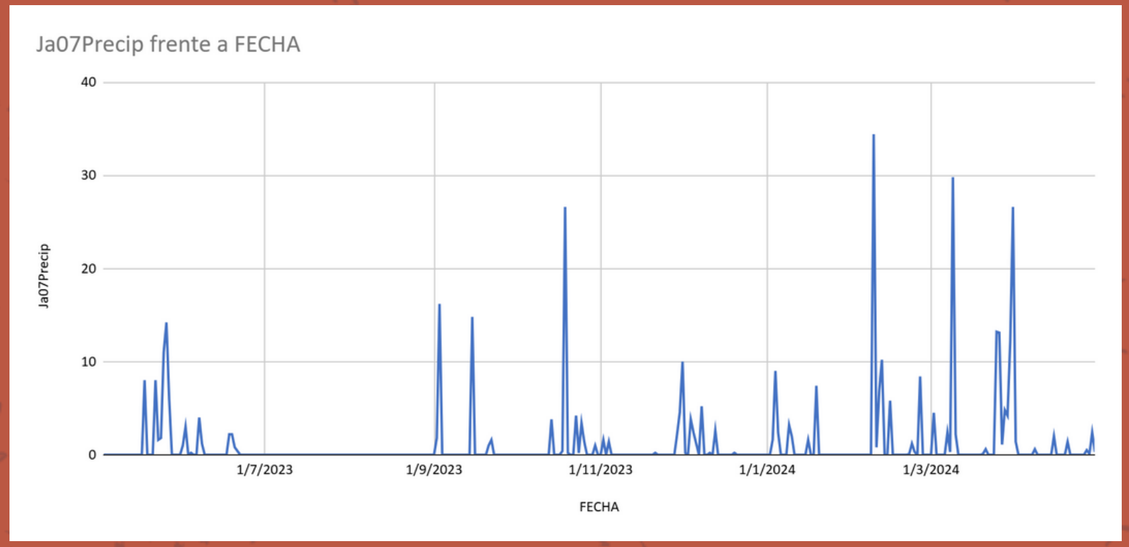
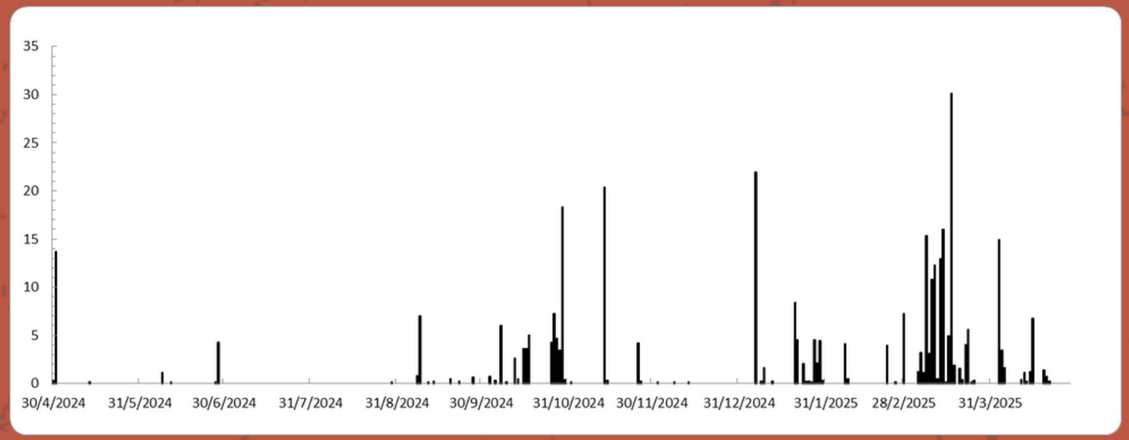


Gráfico precipitaciones 2024-2025



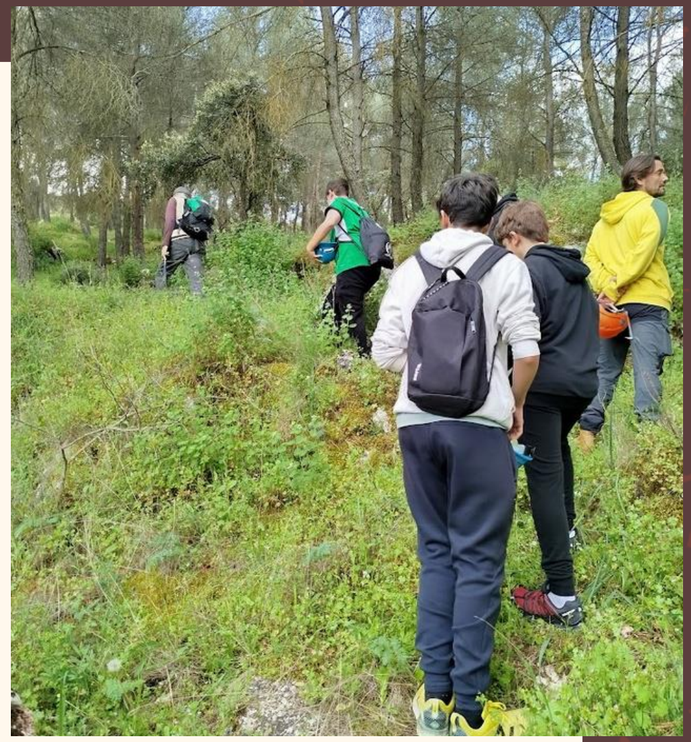
CONCLUSIONS

By measuring the temperature of the cave and comparing it with other years, we can tell that the temperature has gone down a little bit

Rainfall in the region has a really dry period during the summer months, while the rest of the year it’s more or less evenly spread out.

By checking the temperatures in caves and in the school basement, we got the same results. So, we can say that if there’s less air coming in or not much ventilation, and the right conditions are there, it’s possible to get the average temperature we need to figure out how the planet’s temperature is changing.

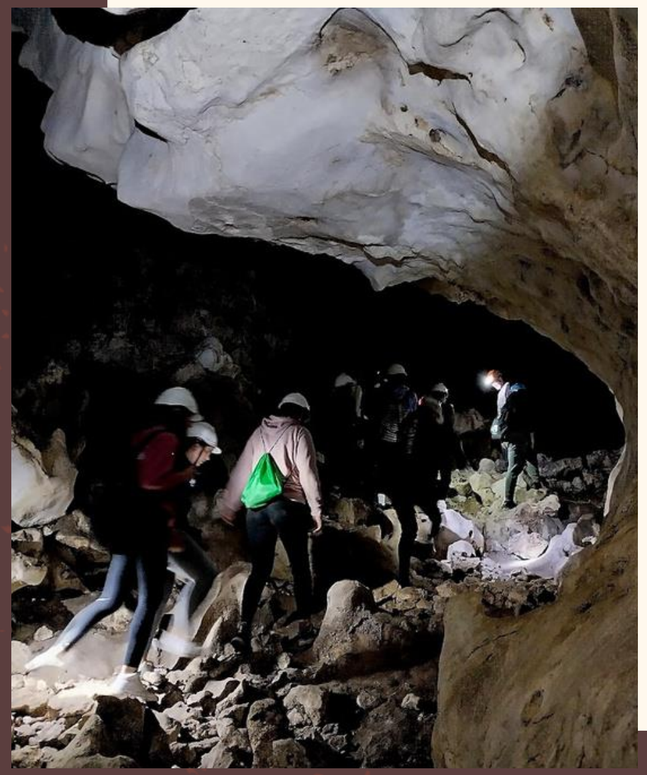
EXPERIENCE



In this innova we had the experience of visiting a cave, which in my opinion is very interesting because we were able to see many things and we had a good time from my point of view.

First we had an introductory class, which at first I thought would be a drag because it was in the afternoon, but the teacher taught us a lot of things and made us interested in the subject, then we had a few more classes before the cave, which I was looking forward to going to.

Several days later, after a short walk through the countryside, we arrived at the cave where we were shown things that had been explained to us in class and we wandered around until it was time to leave.



THANK YOU FOR YOUR ATTENTION

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