

# Caves in Austria

Aim of the transnational work:

- ) Explore the unique nature and find caves in Europe
- ) Find, collect and share informations about caves
- ) Common presentation in a digital format like in linoit / canva.
- ) Learning session with explanations and discussions about caves.

In one of our work together with other European School Partners, we have all written informations in a Canva about caves in European Countries and shared it. We also changed informations about it and discussed it in a zoom meeting.

Link to our transnational work – common work of all project partners:  
<http://linoit.com/users/ElenaDimitrova/canvases/Caves%20in%20Europe>



## Information for the learning session:

### Historical Information:

The caves in Austria are believed to have formed during a geological time known as the Tertiary Period. However, they were discovered in 1879, by an Austrian explorer, Alexander von Mörk, who was one of the founders of the Salzburg Cave Explorers. The caves are built because of the limestone and the water which found a passway through the mountains. The most famous caves are the Eisriesenwelt and Dachstein region.

### **Formation process:**

Most caves form in karst, a type of landscape made of limestone, dolomite, and gypsum rocks that slowly dissolve in the presence of water with a slightly acidic tinge. Rain mixes with carbon dioxide in the atmosphere as it falls to the ground and then picks up more of the gas as it seeps into the soil.

Speleothems are secondary mineral deposits formed in caves by flowing, dripping, ponded, or seeping water. The most commonly occurring minerals are calcite, aragonite, and gypsum although many other minerals have been found in speleothems in minor amounts.

The shapes of speleothems are determined by a competition between the dynamics of the water and the crystal growth habits of the constituent minerals. Stalactites, stalagmites, flowstone, and other speleothems deposited from dripping or flowing water take shapes dictated by the details of the flow behavior.

The extensive distribution of karst landscapes means that studies can be undertaken on a worldwide basis. Speleothems are primarily composed of calcium carbonate, precipitated from groundwater that has percolated through the adjacent carbonate host rock.

### **Chemical process:**

Although speleothems can be composed of many minerals, in fact the vast majority of speleothems is composed of one (or a mixture) of only three minerals: calcite,  $\text{CaCO}_3$ ; aragonite, also  $\text{CaCO}_3$ ; and gypsum,  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ . Of these, calcite is, by far, the most common. Each of these minerals has a different crystal structure and also different habits of crystal growth.

Speleothems in limestone caves may form spectacular underground landscapes. Stalagmites show a wide variety of forms, from slim candle stalagmites to massive cascading columns. How fast they grow and which principles determine their shapes can be explained by the physical chemistry of the system  $\text{H}_2\text{O}-\text{CO}_2-\text{CaCO}_3$ . Precipitation rates of calcite from solutions supersaturated with

respect to calcite, which flow as thin films of water on the surface of speleothems, are discussed. They are the fundamental tool to understand the shapes of ideal stalagmites and stalactites. Stalagmites are also important climate archives and conserve climate information from the last 400,000 years.

**Stalactite hangs like an icicle from the ceiling or sides of a cavern.**



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**Stalagmite appears like an inverted stalactite, rising from the floor of a cavern.**



**Pillars or column are a stalactite and stalagmite grown together and it takes often hundred thousand of years. It is rather common that stalactites and stalagmites meet and join.**

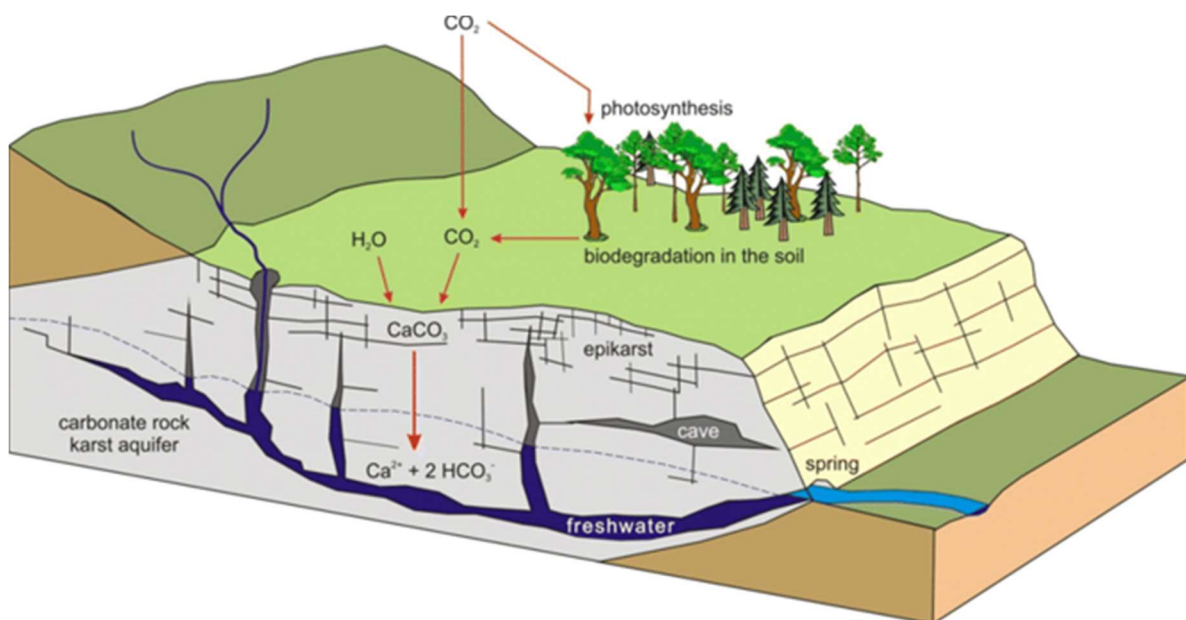


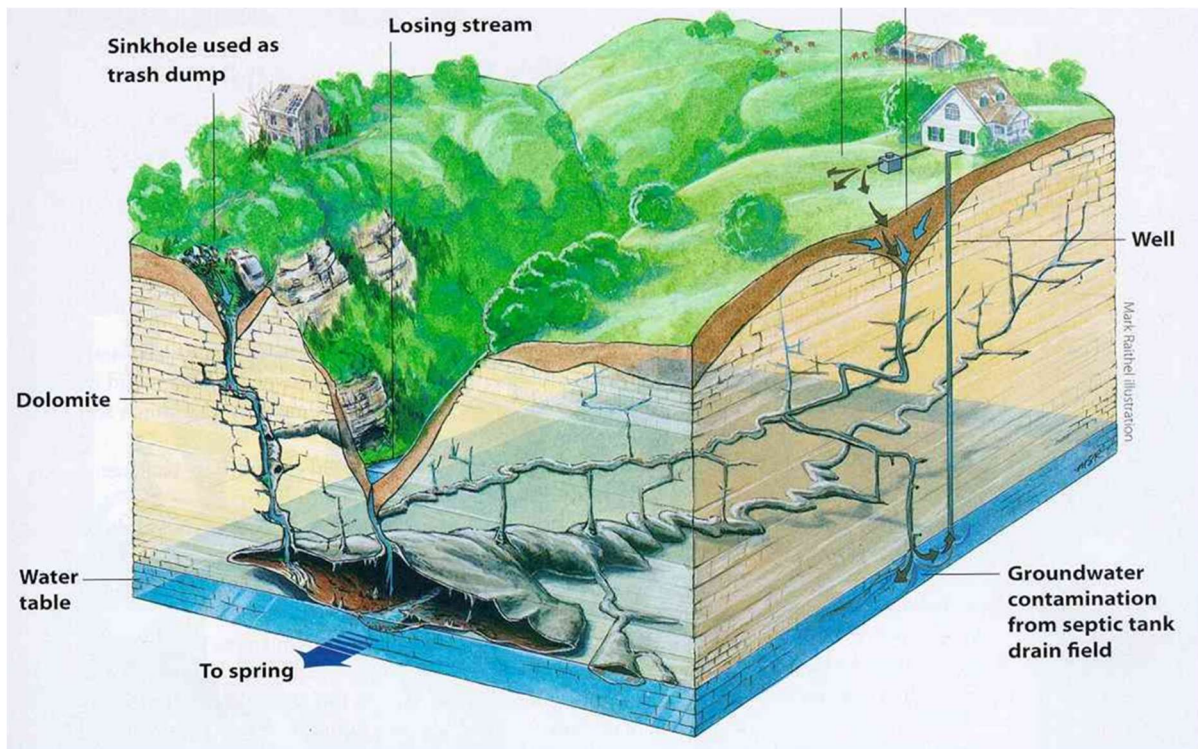
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## Picture from caves in Austria



**Katerloch Stalactite Cave in Styria in Austria**



**Giant Ice cave in Dachstein Krippenstein in Austria**



**Obir - stalactite cave in Carinthia, Austria**



**Ice Cave Eisriesenwelt in Werfen in Salzburg, Austria**

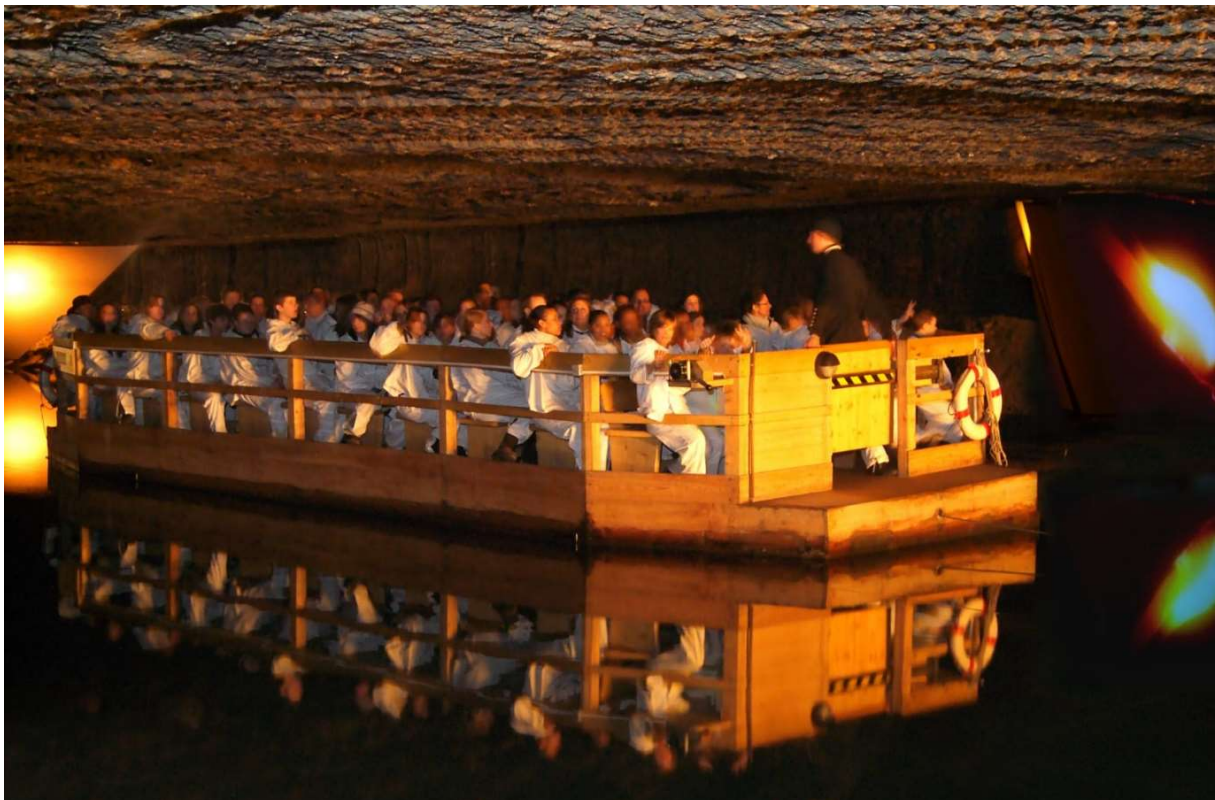


**Dachstein giant ice cave in Upper Austria**





**Obir - stalactite cave in Carinthia\_ Kärnten in Austria**



**Salt Mine with salt lake in Hallein in Salzburg, Austria**