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A WORLD OF LAVA

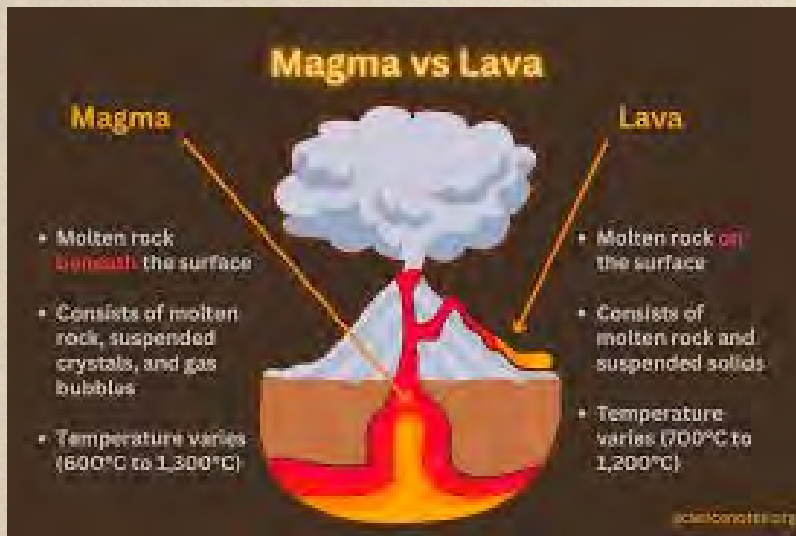


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GEO NEWS

HISTORY * EDUCATION * NATURE *

Price: \$1.99

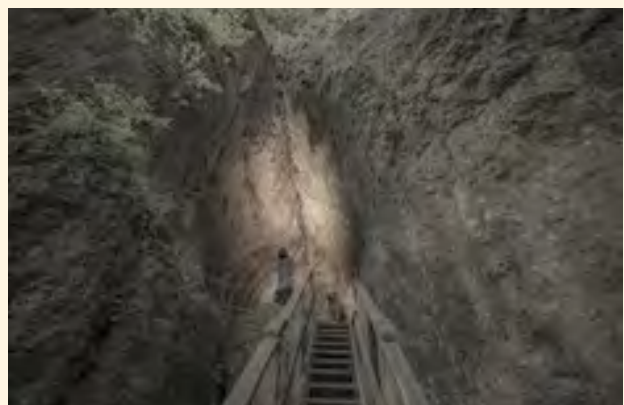


DIFFERENCE BETWEEN MAGMA AND LAVA

Magma and Lava are both forms of melted Rock, but they are found in different places. Magma is melted rock that stays underground. It contains lots of gas, which stays trapped because it cannot escape. When Magma moves up and reaches the surface, it's called Lava. At this point, most of the gas escapes into the air. Lava then flows out of the mountain and cools down to become a solid rock. So concluding Magma is melted rock with trapped gas below the ground, as while lava is melted rock on the surface.



PAPENKAULE&ITS HISTORY



Papenkaule is a striking volcanic crater near Gerolstein in the German Eifel Region. About 10,000 years ago, during the late Pleistocene, volcanic activity reshaped this area and left behind this circular hole. In geological terms, features like Papenkaule can be compared to a caldera, a large volcanic crater formed when a volcano collapses into itself after an eruption. Unlike many calderas that eventually fill with water to become a lake, Papenkaule never became a crater lake as the porous limestone beneath it allowed water to drain.

VULCANISM

COOLING SPEED



DIFFERENT KINDS OF COOLING

Magma can cool in different ways and speed. It can cool as soon as it is at the surface or it can cool when it is still in the Earth. While the first kind cools within weeks or months, the second Type cools over million years.

COOLING SPEED

magma can Not only cool on different Place but also in different speeds. If it hits water, it cools very rapidly. If Not, it gets slowly cooled by the Environment.

MINERALS AND COOLING SPEED

If the Lava cooles very fast, mainly by hitting water, minerals dont have time to grow on it. The rock thats formed is Named obsidian. If it takes long to cool, so in the Earth or under the surface, Minerals have plenty of time to form and grow.



Eifelpark

20.03.2026

Where is it located

THE EIFELPARK



WHERE IS IT LOCATED?

The Eifel is located in the West of Germany, which is located in the middle of Europe. The Eifel is under Cologne and Bonn and over the River of Gerolstein.

The Eifelpark is a area where people can visit Maars and Museums.

HOW DOES SANTA DO IT ALL IN ONE NIGHT?

WHAT DID WE VISIT?

We visited a number of things but the main activities were visiting a Museum before hiking to lake Laach and to a Kloster nearby. The next day, we went hiking with a tour Guide and looked at different Maars without water. After that, we went to a Place where the Romans farmed Stones.



STONES



BASALT & ITS MINING

Basalt is a dark, strong volcanic rock widely used in construction and industry. It is mainly extracted through open-pit mining, where surface soil and rock layers are removed, or from quarries, where large blocks are cut for building and decorative purposes. Deeper deposits can also be mined underground, though this is less common. Basalt is used as aggregate for concrete, roads, and railway, as basalt fiber for composites, insulation, and automotive parts, and as polished stone for flooring, countertops, and facades.

HOW DOES IT GET MADE?

Basalt is a mafic, extrusive igneous rock formed by the rapid cooling of magnesium- and iron-rich lava on or near Earth's surface. It originates from the partial melting of the Earth's mantle.



VULCANISM IN THE EIFEL

20 March 2026

COOLING SPEED AFFECTS ROCKS

HOW BASALT, OBSIDIAN AND GABBRO ARE MADE FROM MAGMA

Basalt, Obsidian and Gabbro are rocks with different proportions of minerals. The different proportions is coming from different cooling speeds. If the Magma cools fast the atoms don't have the time to come in the right order, that means they stay in a messy order which results in glassy obsidian.

Basalt also gets cold slower than obsidian, that means there are more minerals than in obsidian, but there is no really ordered crystal Structure.

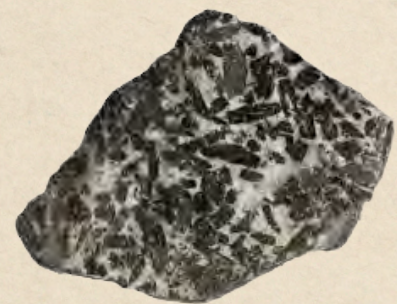
Gabbro on the other side has a lot of time to get in a right crystal order.



BASALT



OBSIDIAN



GABBRO

ORIGIN OF VOLCANOES

WHERE THE VOLCANOES IN THE EIFEL COME FROM

The Volcanoes In the Eifel are called interplate Volcanos, because they are not like otherr "Typical"Volcanoes on the earth, that means they aren't at the border of a tectonical plate, but they are in the middle of one of them. They are there because there is an area in th eearth mantel that is way hotter than other areas. These areas are called plumes. Because there is less density the plume material is rising when it reaches the surface it can become magma, ther's an eruption. The areas with eruptions because of plumes are called hotspots. The Eifel plume is at about 80 Kilometers underneath the surface.



NIGHT AT THE YOUTH HOSTEL

When we were in the Youth Hostel we had a nice room, even though we only had one power outlet to Charge our phones. when we came there we didn't have that lot of time to unpack our belongings, but it was only one night. so it didn't matter. We had a german, a french, and a spanish room. The food there was okay, but not great, there we could eat mashed potatoes, pumpkin cream soup or Königsberger klopse. We played soccer outside when it was dark, that meant you couldn't see anything, but it was fine. We went to our rooms, for a short time the whole room was full of people, but then most of the people went to the spanish room. They Played games like Hitster while some of us stayed in the room and talked, we talked a lot. We went to bed late, but the night was good, even though we woke up early because we were the last ones to wake up

HOW DOES THE VOLCANICS ERUPTIONS ANABLE US TO DATE THE GEOLOGICAL EVENTS

During volcanics eruptions, lava and ashes are ejected out of the volcano. All of these ashes fall from the sky. This makes thins layers that can easely be identified because under the ashes layer is older and the one over it is younger. (tephrochronologie)

We can also date rocks because volcanic rocks are full of radioactive elements that disapear during the time so it can be dated by mesuring the amoumths of radioactive elements in it.

THE PAPENKAULE

The Papenkaule is a volcano in the Eifel. He is 80-meter-wide and 20-meter-deep but it is not an ordinary volcano: it don't have a cone shape, it is a crater and no lava come out of it: The lava came out by an horizontal way and exit 300 meters far from the volcano because the geological formation and the fragility of the ground make the lava moving at 30 km/h going horizontaly.



“WE ARE MADE OF CO₂ EXPELLED FROM VOLCANOES”

When volcanoes enter in eruption, they eject a gas named CO₂. This gas is present in the atmosphere and we breath it. So we have atoms of CO₂ in our body, the same that volcanoes expelled thousands of years earlier



TWO TYPES OF ERUPTIONS

There are two main types of volcanic eruptions: effusive and explosive.

Effusive eruptions occur when magma is fluid and gases escape easily, so lava flows out calmly across the ground. These eruptions are usually less violent and are typical of volcanoes such as Mauna Loa.

Explosive eruptions happen when magma is thick and traps gases, causing pressure to build up until it explodes. These eruptions throw ash, rocks, and hot gas into the air and can be very destructive, as in the eruption of Mount Vesuvius that destroyed Pompeii.



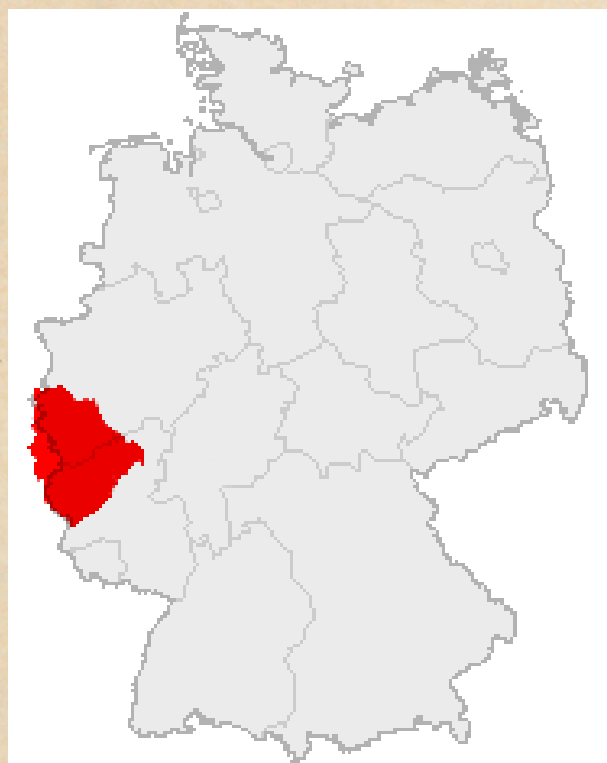
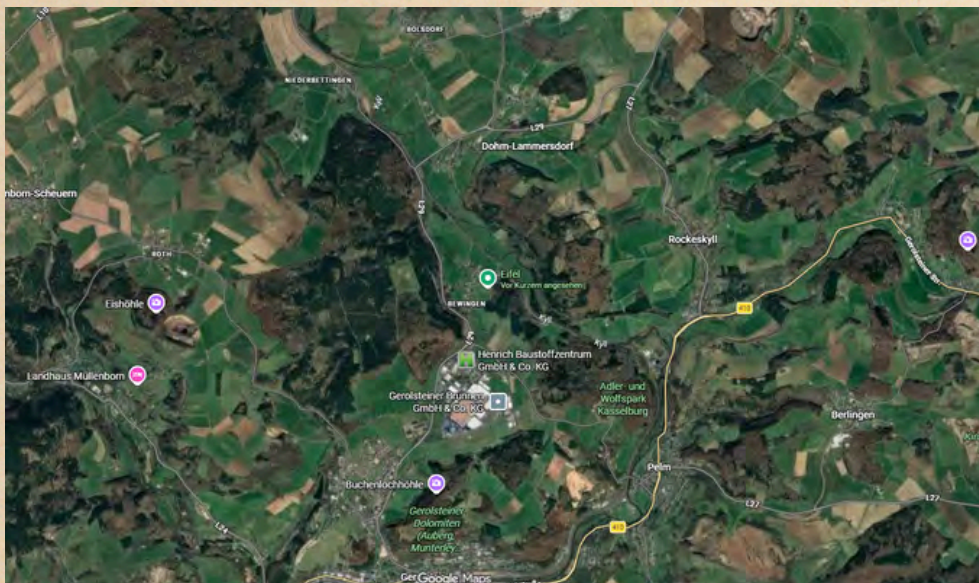
SOME INFORMATION ABOUT MOFETTAS

In the volcanic region of the Eifel, scientists studying CO₂ vents (mofettas) near Laacher See noticed dead small animals around a depression. When they lowered a candle into it, the flame went out. This showed that carbon dioxide from the mofetta had collected near the ground, pushing out oxygen and suffocating animals.



EIFEL

The Eifel is a low mountain range in western Germany, spanning parts of Rhineland-Palatinate and North Rhine-Westphalia, extending into Belgium and Luxembourg.



Eruption in Europe

HISTORY * VOLCANOES * CULTURE * EUROPE

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Types of volcanoes in Europe

Europe has different countries with active and inactive volcanoes (such as the Canary Islands, Germany, France..)

Among the active volcanoes, there are two types of volcanic eruption:

- Explosive eruption

It is a volcanic eruption characterized by the emission of fragmented lava in the atmosphere. They generally occur on grey volcanoes, but can also occur on red volcanoes. This is the result of very high pressure in the magma chamber of a volcano. When the pressure is below the breaking point of the rocks that make up the volcano, that is when a volcanic eruption is triggered by the sudden expulsion of gases and magma. Generally, the eruption of materials occurs in a weak area of the volcano, most often at the summit and sometimes on the flanks.



- Effusive eruption

It is a volcanic eruption characterized by the emission of fluid lava, most of which spreads as viscous flows across the surface of the volcano.

They are more frequent on shield volcanoes, alternating with volcanic eruptions on stratovolcanoes and strombolian cones, and are rare on Vulcanian and Pelean volcanoes. The lava is generally basaltic (between 1 and 20 degrees), sometimes



Haribo volcano candies !

Haribo volcano candies are sweets representing the story of the supervolcano that created the Laecher lake.

This is a lake in Germany, located in the Eifel region of Rhineland-Palatinate.

It is a crater lake that occupies almost the entirety of a caldera that was formed approximately 13,000 years ago. Today, the lake is home



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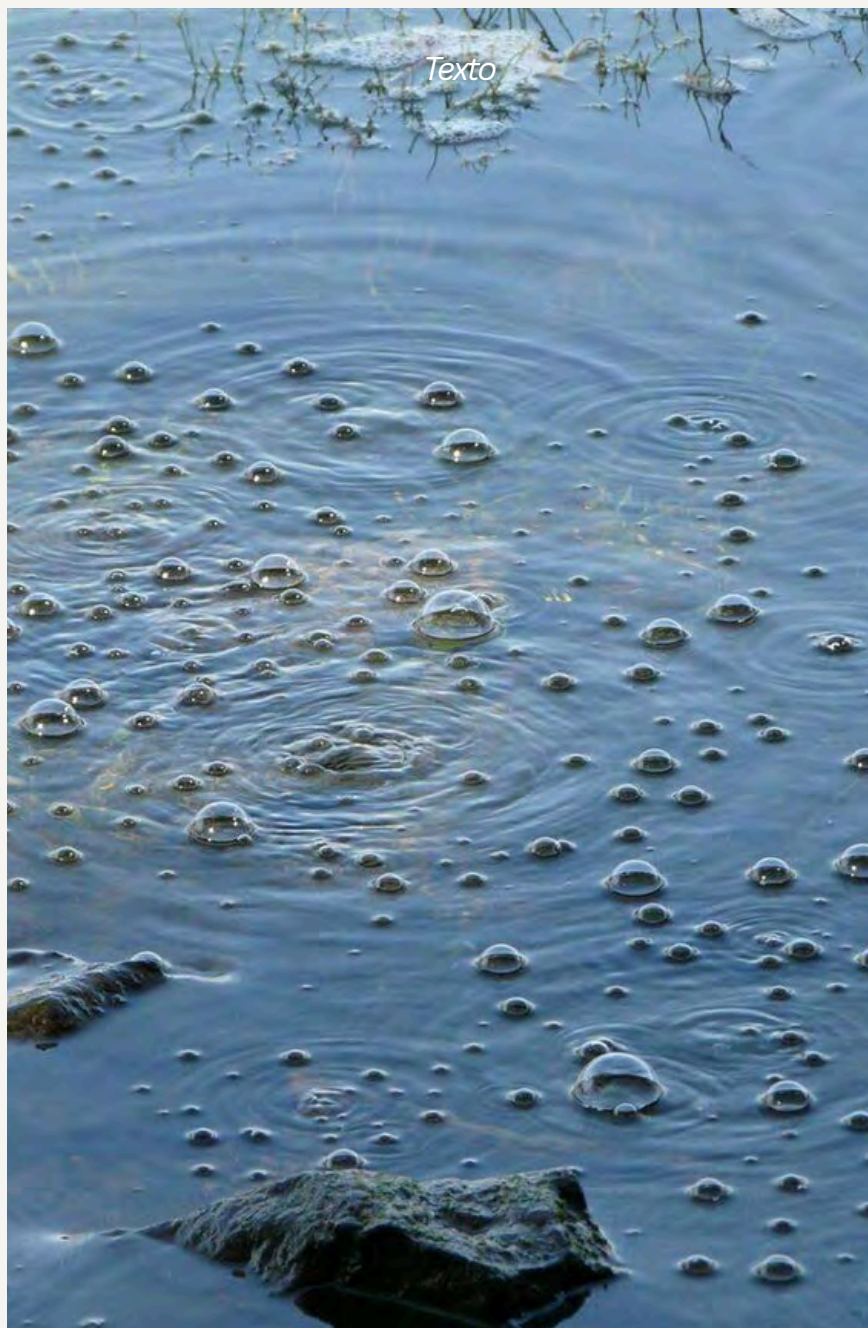
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VOLCANISM IN GERMANY

2026

The Laacher Lake is the biggest lake of the Eifel. It is near Gerolstein and it is 3,3 km² big and about 12,900 years old. It was made by an eruption of the big volcano, which is under it. The eruption was so big, that the ash was flying by the wind to Sweden and Italy. In the Laacher Lake there is still volcanic gas, which is the reason that you can see bubbles when you visit the lake.

LAACHER LAKE



At the Laacher Lake Eruption, there were 6 km³ of magma, that was getting in the air. The reason was that the magma hit water under the surface. So it became a Caldera and the volcano was erupting. The ash stayed in the air for two years and if the same eruption would happen today, there wouldn't be any flights there for two years because of the ash. After the eruption, the hole was filled by rainwater and Laacher Lake was made. The volcano is still active, but at the moment it is "sleeping".

Two different types of eruption



There are two different types of possibilities of eruptions: effusive and explosive eruptions.

The effusive eruptions are more calm and the lava comes slowly out of the volcano. It looks like a lake or a river. Effusive eruptions mostly happen at shield volcanos, for example the Mauna Loa on Hawaii.

The other types of eruptions are the explosive ones. They happen when lava is closing the chimney and the pressure gets so high, that the volcano explodes.

Gerolsteiner Water

Gerolsteiner mineral water, especially the medium and sparkling varieties, it often performs well in tests, because of the high mineralization and the strong and characteristic flavour.



Papenkaule

The Papenkaule is a 10,000 to 30,000-year-old volcanic crater located north of Gerolstein in the Vulkaneifel region of

Germany. It is unique in the UNESCO Global Geopark Vulkaneifel because its lava did not erupt vertically from the crater but rather diverted horizontally through the underground.

Explosive eruptions

Explosive eruptions are crucial for dating geological events because they produce widespread layers of volcanic material called tephra or ash that acts as instantaneous time markers across broad geographic areas. These layers serve as “hourglasses” that freeze a specific moment in time allowing scientists to correlate and date fossils, human artifacts and sedimentary sequences found above or below them.



Lava and magma are not the same

This is a very common mistake but there are many differences between these two and very important ones:

Location :

Magma : Underground (inside Earth's crust or mantle)

Lava: On the surface (after erupting from a volcano or fissure)

Definition

Magma: Molten rock + dissolved gases + sometimes crystals, trapped beneath the surface under high pressure

Lava: Magma that has reached the Earth's surface (gases mostly escape)



Visibility :

Magma: You can never see true magma at the surface (once it's visible, it's already lava)

Lava: What we actually observe during eruptions (glowing red/orange flows)

Behavior

Magma: Builds up in magma chambers; can be more gas-rich

Lava: Flows across the ground, cools and solidifies into igneous rock (like basalt, andesite, etc.)

Eifel Volcanoes Origin

What is this: The Eifel is a low mountain region in western Germany, not far from where you are. It contains dozens of ancient volcanoes, especially in areas called the Vulkaneifel.



The Eifel volcanoes formed due to deep processes inside the Earth:

Beneath the region, there is a hot upwelling of mantle material (sometimes called a "mantle plume"). Then its hot material rises slowly from deep inside the Earth. So as it rises, pressure decreases, causing partial melting of rock. Later the molten rock (magma) pushes upward and occasionally erupts at the surface.

Favourite places in Cologne



During the exchange, we visit many places in Cologne, for example Cologne Cathedral or the central station. All of the students loved the Cathedral of Cologne, but also the stadium and the Lanxess-Arena were liked.



The Youth hostel in Gerolstein is the BEST!

I have so many memories and all of them are good



The experience was amazing but ofcourse it was because of my friends, we had so much fun in the park they got outside, they got a footbal field and a basketball one, slides and so many other things.

The quality was so good, everything smell so good, like the food, that by the way was amazing. the water of the showers were really warm and everything was so great. I would like to live there



EUROPE ERUPTION

IES ARUCAS
DOMINGO RIVERO



MAXIMILIAM KOLBE
GYMNASION



LYCEE CLEMENT
ADER

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LAVA DOME

In Mendig, the Lava-Dome refers to the German Volcano Museum Lava-Dome. It is an interactive museum dedicated to the volcanic history of the East Eifel region, particularly the massive eruptions of the Laacher See volcano.



Explosive volcanic eruptions allow geologists to date other events by creating unique, widespread, and "instantaneous" time markers in the rock record. This practice, known as tephrochronology, uses layers of volcanic ash (tephra) as chronological anchors to synchronize different geological, environmental, and archaeological sites.

GEOLOGISTS



Geologists are scientists who study the Earth's history structure, and composition. They investigate the materials that make up our planet, the processes that shape its surface

TEPHROCHRONOLOGY :



Fingerprinting: Every eruption has a unique chemical "fingerprint," primarily found in the volcanic glass shards.

Correlation: Scientists match ash found in distant ice cores, lake sediments, or peat bogs back to a specific eruption by analyzing its geochemistry.

Dating: If a tephra layer is dated at one site (using historical records or radiometric methods like Argon-Argon), that age is applied to every other site where the same ash is found.

The origin of the volcanoes in the Eifel region is primarily attributed to a mantle plume (often called the "Eifel Plume"), a localized "hotspot" of rising warm rock beneath the Earth's crust. Unlike volcanoes at plate boundaries, Eifel volcanism is an intraplate phenomenon caused by thermal anomalies deep in the mantle.



The Papenkaule and its geological history

The papenkaule is a small volcanic crater located in the eifel. it was formed when magma met groundwater about 10000-30000 years ago.

Explosiv steam eruptions createt a round crater which later on filled with water.
today there is no water in there due to plant growth.

*THE
PAPENKAULE:*



**Link between cooling
rate and structure of
volcanic rocks**



Obsidian: fast cooling

**Basalt: medium
cooling**

granite: slow cooling

**The slower the cooling
the bigger the
crystals**

BASALT MINING: METHODES AND USE

often used in open quarriers
drilling, blasting and crushing



EIFEL VOLCANOES GEOPARK



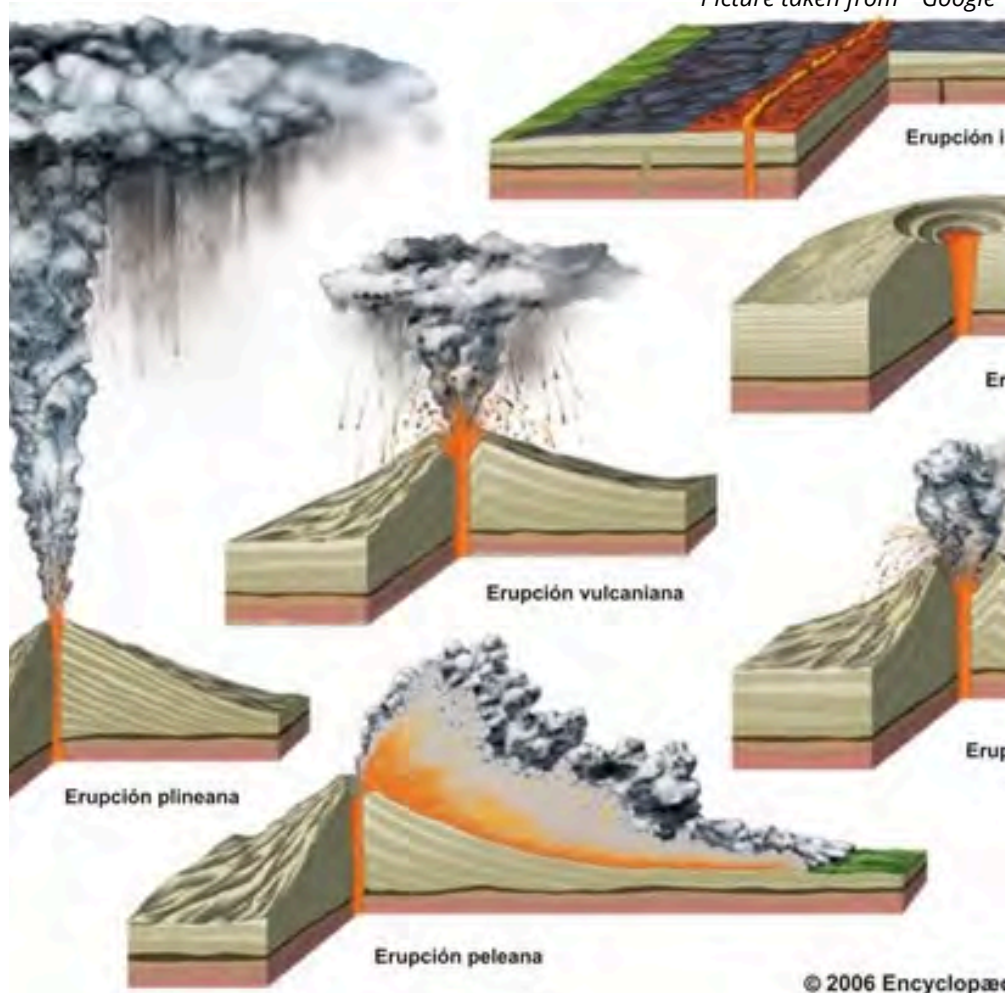
EUROPE IN ERUPTION

MARTINA

Picture taken by Martina



Picture taken from "Google"



© 2006 Encyclopæ

Gerolstein water.

The three **waters** from **Gerolsteiner** come from a volcanic region in Germany, where **rainwater** filters through **volcanic rocks**, becomes enriched with **minerals**, and mixes with natural **carbon dioxide** (CO₂) from deep **underground**.

The main difference between them is the **amount** of **gas** they contain: "very sparkling" has a high level of CO₂, making it very **fizzy** and **intense**; "medium sparkling" has a **moderate** amount, so it is **smoother**; and "still" has **no** gas, as it is **removed**, although it keeps the volcanic minerals.

How to explain geological events.

Explosive **volcanic** eruptions are very powerful events that hurl ash and rocks **high** into the air. What makes **tephra** so useful is that each **eruption** has its own unique mixture of minerals, which **scientists** can study. Another important tool is **radioactivity**.

Once they know the age, **scientists** can compare the **tephra** with other rock layers. This helps them understand what events occurred before or after the **eruption**. In this way, **explosive** eruptions act as natural time markers, allowing scientists to **reconstruct** a more accurate chronology of **Earth's** history.

EUROPE IN ERUPTION

AXEL



Link between cooling rate and the structure of volcanics rocks

The cooling **temperature** at the lava change the **structure** of rocks. Indeed, when the **cooling** temperature is slow the rocks become **Gabbro**; We can see big **minerals**. When the cooling **speed** is fast, the rocks become **Basalt**; We can see a few big **minerals** (microlithic structure). When the cooling speed is **sudden**, the rocks become Obsidian; There are not **minerals** (glassy structure).



What is the Papenkaule

The **Papenkaule** landscape is a valley formed by small volcanoes. The **climate** there is rather arid. The volcanoes are **effusive** but there are no lava flows on the surface because there is lava in the **underground** cavities: it's a caldeira.

EUROPE IN ERUPTION

VITALIA

Picture taken from "Google"



Picture taken from "Google"



Presentation of the two types of eruption:

There are two main types of volcanic eruptions: effusive and explosive eruptions. They mainly differ because of the viscosity of the magma.

An effusive eruption is rather calm. The magma has a low viscosity, which means it is runny and can flow easily out of the volcano. This creates long lava flows that spread slowly over the land. Such eruptions are typical for a shield volcano. These volcanoes have a flat and wide shape because the lava can travel far before it cools down.

In contrast, an explosive eruption is much more violent. Here, the magma is very thick and has a high viscosity. Because of this, gases cannot escape easily, and pressure builds up inside the volcano. When the pressure becomes too strong, a powerful explosion occurs. Ash, rocks, and gas are thrown into the air. These eruptions are typical for a stratovolcano. These volcanoes are steep and have a cone-shaped structure.

In conclusion, the viscosity of the magma is the key factor that decides whether a volcano erupts effusively or explosively. It influences both the type of eruption and the shape of the volcano.

Presentation of the Laacher See and its geological history

The Laacher See is a volcanic lake in Germany and is located in the Eifel region. It was formed by a massive volcanic eruption about 13,000 years ago.

This eruption was very explosive and caused a large amount of magma to be released. After the magma was ejected, the ground above collapsed. This created a so-called maar. A maar is a round basin, often filled with water, that is formed by volcanic explosions.

The explosion threw ash and rocks far into the surrounding area. These deposits can still be found in the landscape around the Laacher See today. The eruption even had effects on the climate in Europe because a lot of ash entered the atmosphere.

Today, the Laacher See is a calm lake, but there is still volcanic activity below the surface. For example, rising gas bubbles can be observed in the water. This shows that the volcano is not completely extinct, but only dormant.

In conclusion, the Laacher See is a good example of a maar and shows how strongly volcanic processes can change the landscape.

EUROPE IN ERUPTION

MARTINA AND AXEL

Picture taken from "Google"



Presentation of my preferred place in Bonn

That's the **beethoven-**denkmal on the münsterplatz. I love this place because you can see a **beethoven statue**. Beethoven was born in December 1770. You can see the **Bonner Münster**, it's the most famous **church** in **Bonn**.

Behind the beethoven statue you can see the post office. It's a big and old **monument** yellow.

There are plenty of shops and restaurant around the **square**

Picture taken from "Google"



Eifel

The volcanoes in the Eifel are linked to a **deep geological** process involving a mantle **plume**. A plume is a column of very **hot** material that **rises** from deep inside the Earth's mantle toward the surface. As this plume rises beneath the **Eifel** region, it causes the **surrounding** rock to heat up and partially melt, forming **magma**.

This **magma** then moves upward through **cracks** in the Earth's crust. When it reaches the surface, it **erupts** and creates volcanoes. Although the **Eifel volcanoes** are not currently active, the presence of **gas** emissions and **thermal activity** suggests that the plume is still **influencing** the region today.

EUROPE IN ERUPTION

HELENA

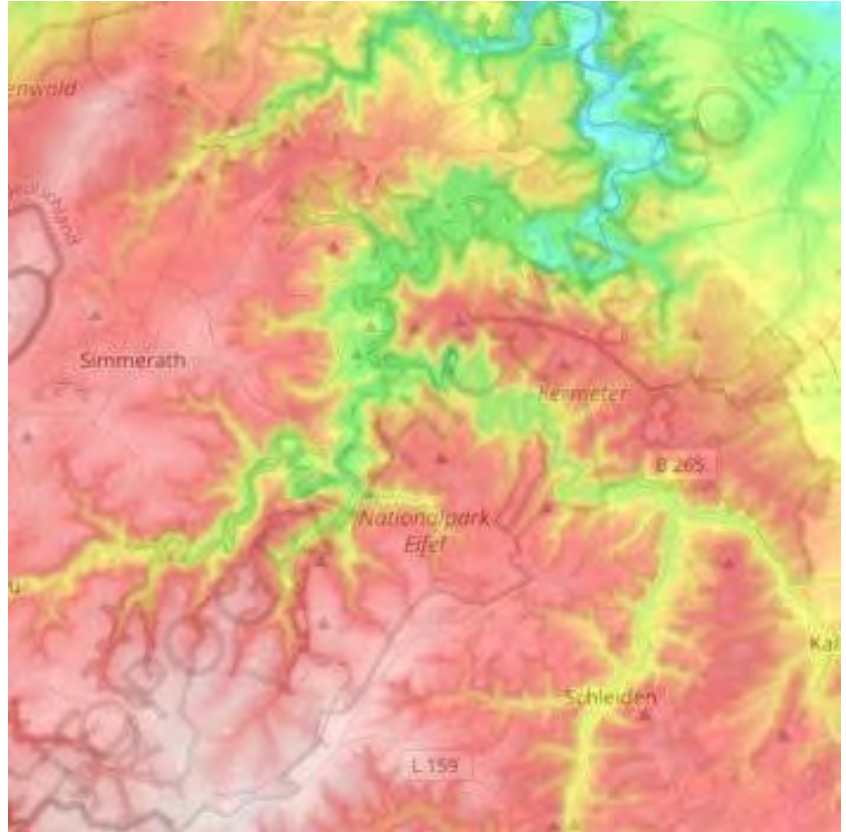
Pictures taken from "Google"

Haribo Eifel Volcano

Mix

A new candy inspired by the geological past of the Eifel is set to capture attention Haribo's „**Eifel Volcano Mix**".

Each gummy reflects a different aspect of the Eifel's volcanic history. Black licorice volcanoes symbolize **basalt** rocks. Bright orange pieces, flavoured with orange and chili, represent **molten lava** and its intense heat, while yellow lemon flavoured gummies represent the **mineral** rich **gases** released during eruptions.



The mix also goes beyond geology. Green dinosaur shaped gummies recall prehistoric life that once inhabited the regio, and red „lava bite" with a sour liquid center mimic the sudden burst and flow of **magma** beneath the earth's surface.

Although the Eifel's volcanoes are now dormant, their legacy remains visible in crater lakes and rock formations. With its mix of flavour and storytelling, "Eifel Volcano Mix" turns this powerful natural history into a vivid, sensory experience.

Lava or Magma?

Magma and lava are both **molten rock**, but they differ mainly in location. Magma is molten rock that remains **beneath the Earth's surface** in underground chambers and **contains** not only **liquid rock** but also dissolved **gases** and **crystals**. Its high pressure and trapped gases make it capable of explosive eruptions if it rises toward the surface. **When** magma **reaches** the **Earth's surface** through a volcanic eruption, it is called **lava**.

As it emerges, much of its **gas escapes**, and it cools more quickly, forming solid rock. Lava flows can create rivers of molten rock, volcanic domes, or solidified basalt fields, depending on their temperature and composition. Understanding the difference between magma and lava helps explain how volcanoes shape landscapes over time, from underground chambers to flowing rivers of molten rock above ground.

EUROPE IN ERUPTION

ARIADNA ALAMO, MARLEN NICKELS, ROMY FLOREANI AND ELA GÜLSEN



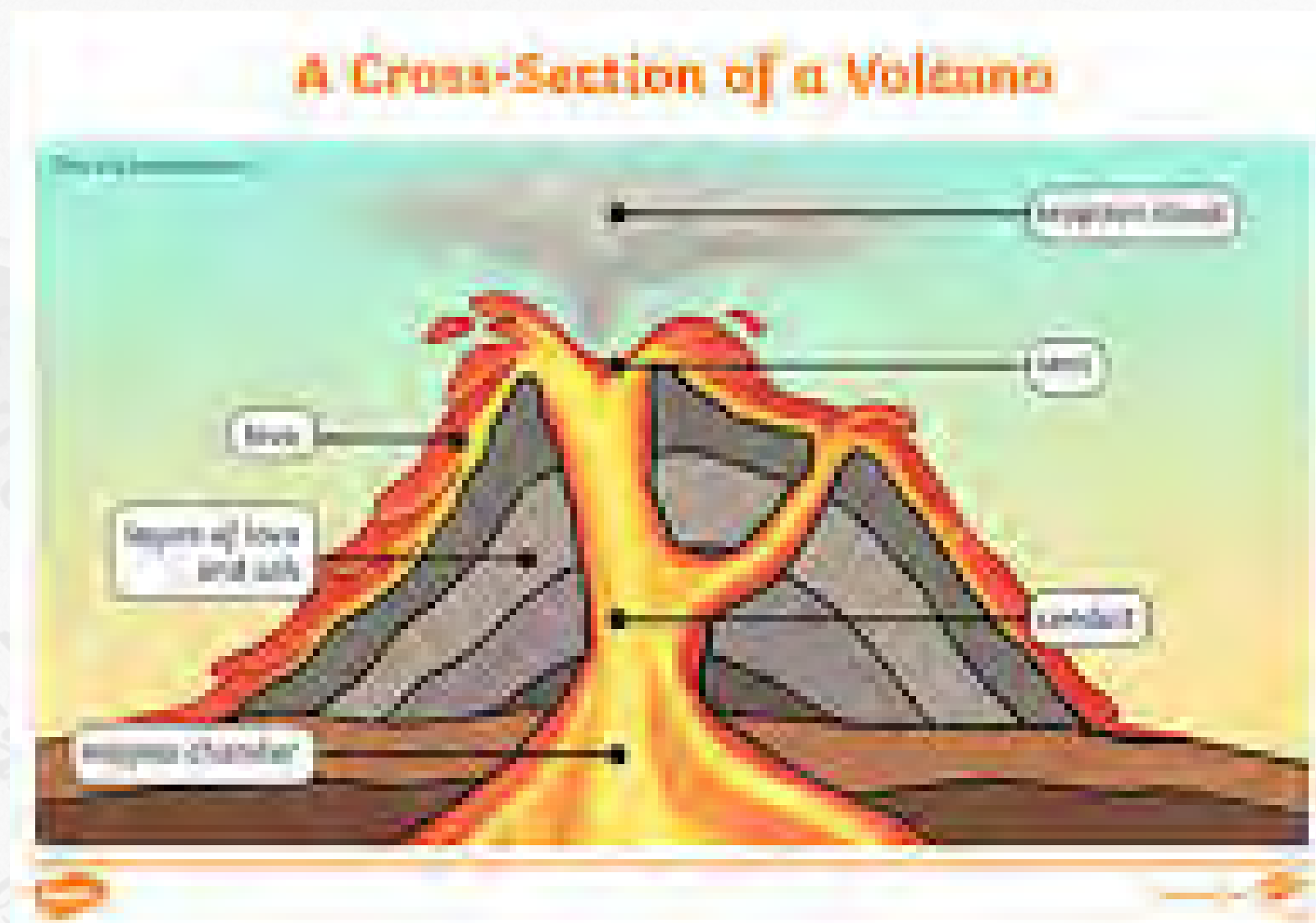
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TYPES OF ERUPTIONS ARIADNA ALAMO



Volcanic activity can be divided into two main types depending on whether magma reaches the surface. Volcanic activity happens when magma rises and erupts, releasing lava, gases, and ash, as in Kilauea. In contrast, plutonic activity occurs when magma stays underground, cooling slowly

and forming rocks like granite, as in the Eifel. In short, volcanic activity produces visible eruptions, while plutonic activity forms rocks beneath the surface.

The structure of volcanic rocks is controlled by their cooling speed.

If the lava comes out, it hardens into rock. It can become basalt, gabbro, or obsidian. The slower it cools, the more grained with minerals it becomes. That is why obsidian is so glassy, its cooling is very fast.

Gabbro is very grained with minerals, because it cools very slowly.

And basalt is in the middle, it has small minerals, and a medium cooling speed.

With this we can see how fast the rock cools down.

THE LINK BETWEEN COOLING RATE AND STRUCTURE OF VOLCANIC ROCKS, MARLEN NICKELS

Gabbro



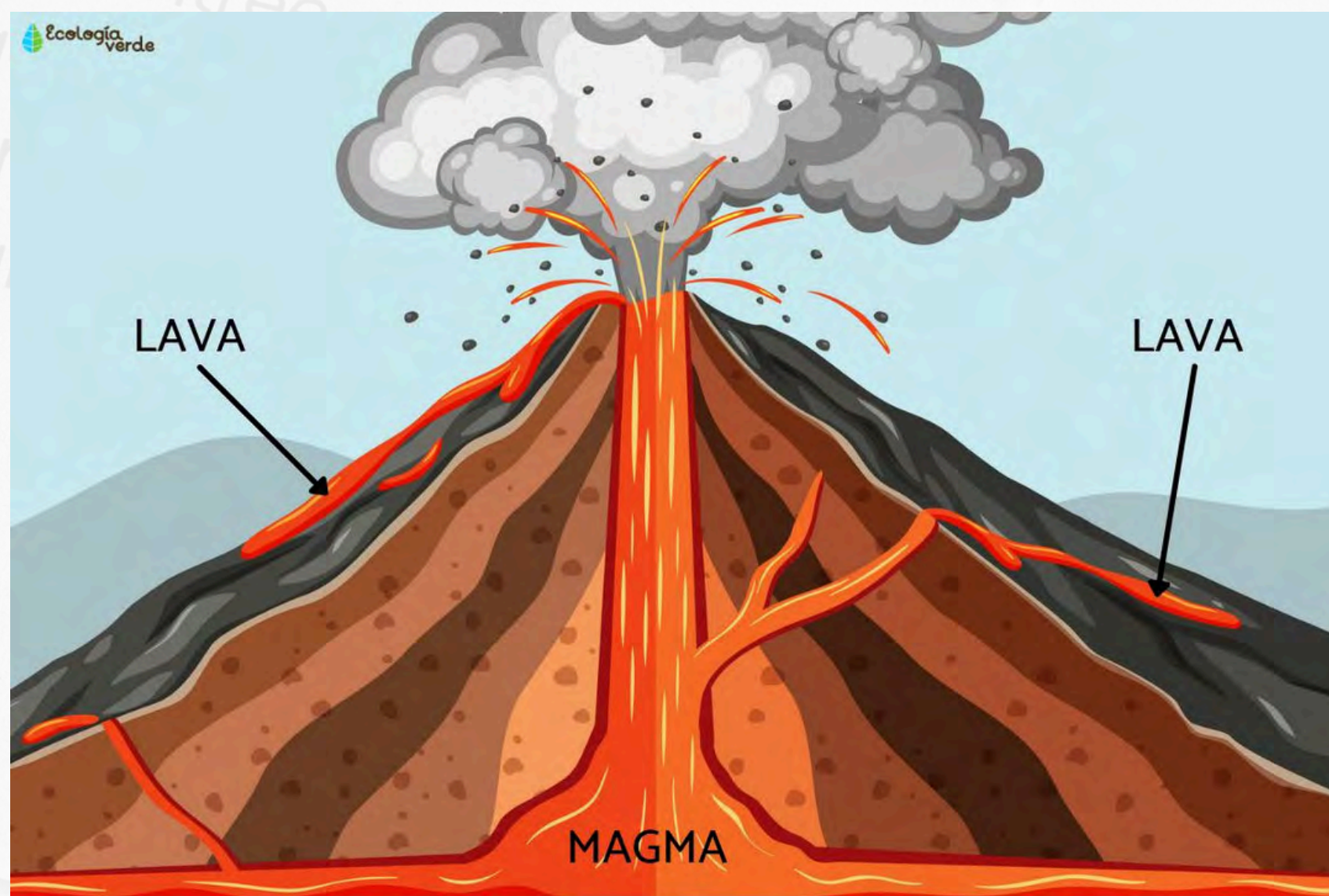
Basalt



Obsidian



DIFFERENCES BETWEEN MAGMA AND LAVA, ΣΙΑ ΓÜLSEN



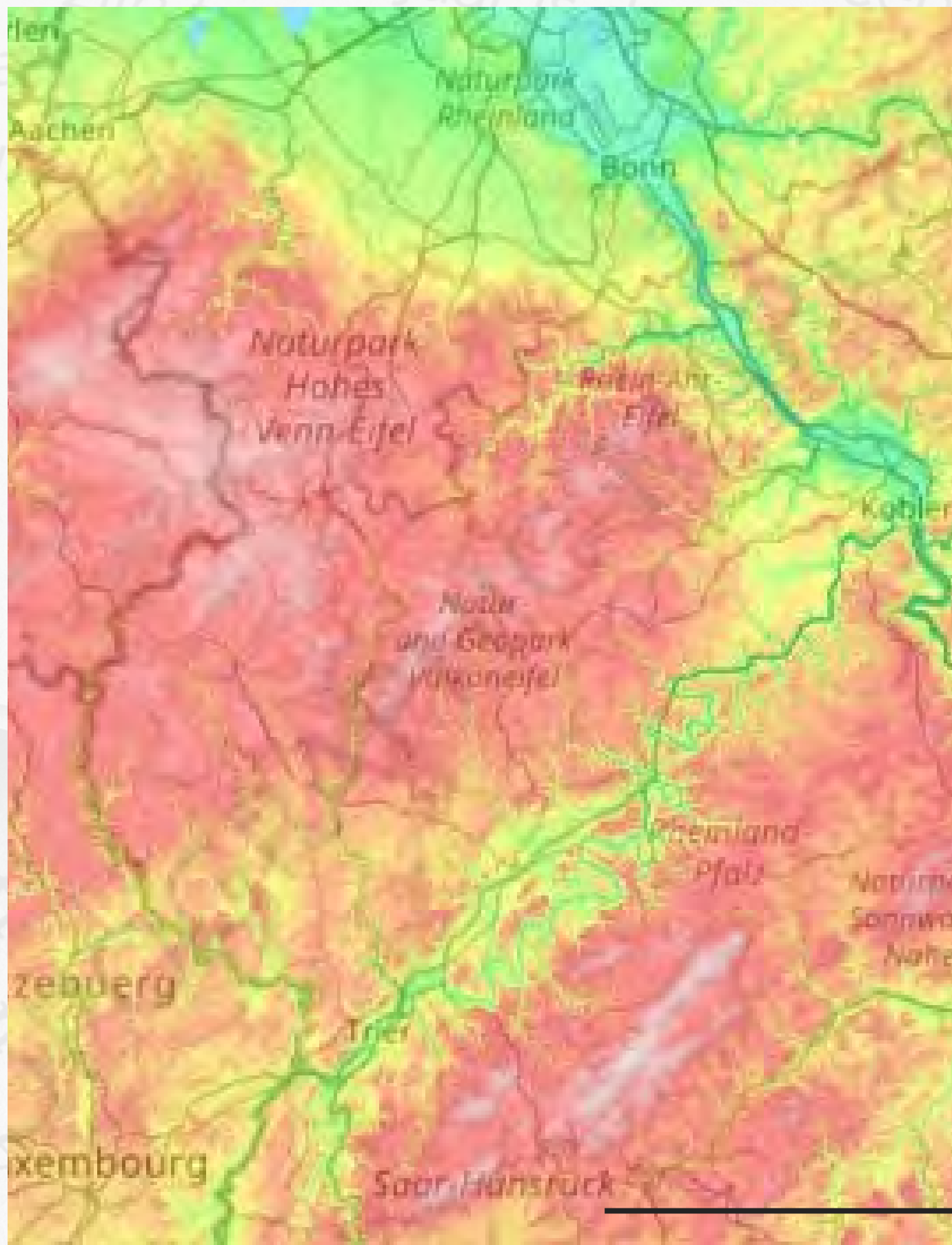
Molten rock is very important for volcanoes. Underground, it is called magma. Magma contains gas and is under a lot of pressure. When a volcano erupts, the magma comes up to the surface. Then it is called lava. On the surface, most of the gas escapes, and the lava slowly cools down and becomes solid rock.

HOW EXPLOSIVE ERUPTIONS ALLOW US TO DATE OTHER GEOLOGICAL EVENTS, ROMY FLOREANI

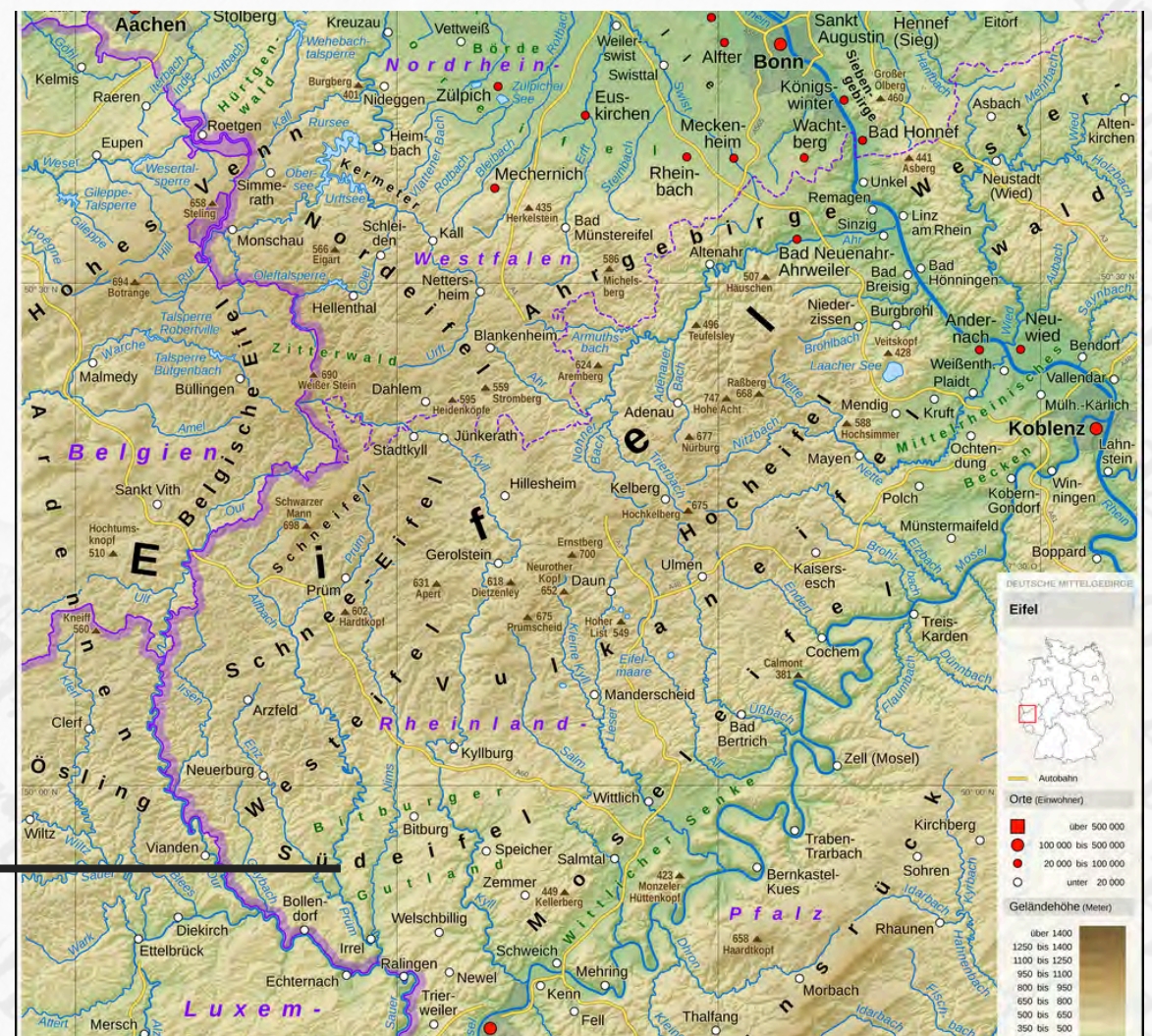
Volcanic explosions are tools used in geology to date other events. This technique is based on the use of volcanic ash deposits, called tephra, which act as precise temporal landmarks in geological layers. The tephra falls over vast regions after an eruption. Each eruption produces a layer of tephra carried by the wind, so if we find the same layer in different places, we can link the dates to date the geological events. The tephra contains minerals that allow identifying which eruption they are. Thanks to the radioactivity we can find the age of the tephra layer. Once the layer is dated, we know that everything above is younger, and everything below is older.



WHERE IS THE EIFEL VOLCANOES GEOPARK LOCATED IN GERMANY?, ΕΛΑ ΓΟΥΛΣΕΝ



The Eifel Volcanoes Geopark is located in western Germany, in the Eifel region. It lies between the Belgian border and the river Rhine. The area has many old volcanoes and round lakes called maars. It shows how volcanic activity shaped the landscape.



LAACHER SEE AND ITS GEOLOGICAL HISTORY, ROMY FLOREANI

The "Laacher See" is a lake located in the volcanic region of the Eifel. It was formed by a volcanic eruption dating back 3000 years. After the emptying of the magma chamber, the volcano's roof collapsed, creating a depression that filled with water to form the current lake. Today the Laacher See is a stein volcano.



ORIGIN OF THE VOLCANOES IN THE EIFEL, ARIADNA ALAMO



The volcanoes in the Eifel formed due to intraplate volcanic activity, not at tectonic plate boundaries. Hot material from deep in the mantle rose upward, melting rock and creating magma. This magma moved through cracks in the Earth's crust and caused eruptions. Most eruptions happened between about 700,000 and 10,000 years ago. Many explosions involved water and magma, forming round craters called maars that often filled with water.

PAPENKRAULE AND ITS GEOLOGICAL HISTORY, MARLEN NICKELS



The geological history of Papenkraule is very interesting, because it didn't erupt like a normal volcano. The Papenkraule is a caldera because it collapsed and formed a crater. The interesting thing is that there was no lava coming out of the crater, it was coming out at the Hagelskaule, because the ground was so loose the lava could flow through it.

NEW HARIBO CANDY, 8LA GÜLSEN



Volcano Bites are candy shaped like small volcanoes, inspired by the eifels region's volcanic history. They come in red, orange, and black, like lava and volcanic rock. The outside is soft and sweet, while the inside has a sour "lava" filling that explodes in your mouth. These candies are fun, exciting, and remind you of an erupting Volcano!

BASALT MINING, ARIADNA ALAMO

Basalt is mined for several purposes, including construction as crushed stone for roads, concrete, and railroad ballast. It is also cut into blocks for buildings and monuments. Industrial uses include basalt fibers for insulation and composites.

Additionally, it is used in landscaping as decorative gravel or cobblestones and in agriculture to improve soil minerals. The mining process usually takes place in open-pit quarries, where controlled blasting and cutting break the rock into manageable pieces. These pieces are then crushed, screened, and transported for use in construction, industry, or decoration.



MY NIGHT IN THE YOUTH HOSTEL IN GEROLSTEIN, ROMY FLOREANI



During the mobility, we slept in the youth hostel in Gerolstein on Tuesday, March 17th. We were each in dormitories between French, Germans, and Spaniards. We had dinner together, then we had free time. Some people played football together. The French girls and I went for a walk and eat ice cream in Geroldstein. We talked together and took photos. Then we came back, we took our showers, we talked and we went to bed. The next morning, we ate breakfast all together and we prepared our picnic for lunch.

PREFERRED PLACES IN KÖLN, MARLEN NICKELS

My favourite place during the city quiz was the Fischmarkt in cologne . Because it looks very pretty ,with the colourful houses. We also got ice cream ,and took fotos infront of the Rine,that is also beatiful .

From the market you could also see the Schlösserbrücke , that symbolizes forever love.



FISCHMARKT COLOGNE

VOLCANOES

MAGMA VS LAVA

Ariadna Cabrera

The distinction between magma and lava is fundamental in volcanology and is based primarily on their location. Magma is molten rock found inside the Earth, stored in magma chambers beneath the crust. This material contains not only silicate liquid but also crystals and dissolved gases, whose pressure and composition directly influence the type of eruption. When magma rises and reaches the Earth's surface, it loses a large portion of those gases due to decompression.

At that point, the magma is referred to as lava, that is to say, molten rock expelled during a volcanic eruption. Lava flows across the surface and, as it cools, forms volcanic rocks such as basalt or obsidian. The loss of gases causes lava to behave differently from magma, generally being less pressurized and more stable, which explains the differences in eruptive dynamics and in the materials that ultimately solidify.



DIFFERENT TYPES OF VOLCANOES

Nathalie Pereira Braga

There are two types of volcanoes: explosive and effusive. These two types are very different. The explosive one is more violent because the magma has a lot of gas and the pressure makes the volcanoes explode. It's dangerous too because when the volcano...

EXPLOSIVE ERUPTIONS HELP

Maja Zuth

Explosive eruptions are incredibly important for geologists because the massive accumulation of ash and rock provides unique opportunities for reconstructing Earth's history.

Volcanic ash is distributed across big areas, continents, and oceans by such explosions. This ash deposits layers that are predominantly deposited simultaneously. Therefore, they are called isochronous (simultaneous) markers. These layers can be analyzed to date sequences or reconstruct environmental conditions.





COOLING RATE AND VOLCANIC ROCKS

Volcanic rocks form when magma or lava cools. The cooling rate (how fast it cools) determines the rock's structure, especially the size of crystals.

- Slow cooling (underground)

Magma cools gradually, so minerals have time to grow. Large, visible crystals (coarse texture)

- Fast cooling (at the surface)

Lava cools quickly after an eruption. Small crystals (fine texture)

- Very fast cooling

Lava cools almost instantly (for example in water). No crystals, forming a glassy rock



Another important point for geologists is the intact preservation of fossils. A rapid fall of volcanic ash can quickly bury landscapes and living organisms, but without completely destroying them. So everything is preserved at that precise moment. Thousands of years later, for example, animals are found preserved in a state of living stasis.



PAPENKAULE

Nathalie Pereira Braga

Papenkaule is located in the Volcanic Eifel region in west of Germany, which is famous for his volcano, more precisely, it's near the town of Gerolstein. Normally there should be a mountain, but instead there is a depression, a kind of large hollow. Tens of thousands of years ago, everything was going well. Magma rose to about 70 km, a conduit formed, the pressure remained constant, and a crater began to form. But suddenly, something went wrong. The lava flow stopped, and no more molten rock reached the surface, just before reaching the surface, the lava simply took another path. It was diverted into an underground network of karst caves and only emerged about 300 meters away, on a slope called Hagelskaul.

ORIGIN VOLCANOES IN EIFEL

The volcanism in the Eifel region originates from deep mantle processes rather than plate boundaries, making it a case of intraplate volcanism. A thermal anomaly beneath the area causes partial melting of mantle rocks, generating magma that rises through fractures in the crust, some linked to structures like the Upper Rhine Graben. This process has produced features such as maars, cones, and lava flows within the Eifel volcanic field, including the formation of the Laacher See around 13,000 years ago.



LAACHER SEE

Maja Zuth

Around 13,000 years ago, there was a volcanic eruption in the East Eifel region, considered the largest eruption in Central Europe since the Ice Age. This event formed the present-day Lacher See (Lake Lacher). During the eruption, a large quantity of magma was ejected, and ash clouds rose up to 30 km into the air. Beneath the volcano lies a magma chamber, which emptied so rapidly that all the surrounding rock collapsed into the cavity. Over the millennia, this basin, also known as a caldera, filled with groundwater and rainwater.



A NEW HARIBO FLAVOUR FOR BONN!

Chiara Piro

Many people do not know, that Haribo was created in Bonn. Even the name "Haribo" tells us the history of its origin. Haribo is an acronym for the creator Hans Rigel and the city it was created in which is Bonn. Haribo candy is very delicious, but what if a new flavor existed? And what about a flavor that is linked to the region it was created in?

Near the city Bonn in Mehlem lays an inactive volcano called Rodderberg. His last eruption dates 300,000 years ago. It lies in front of the famous mountains of Drachenfels. Translated, the mountain is called Dragon Mountain. The mountain received its name because of a legend that said that a dragon lived on that mountain. Because of those famous mountains located in the region of Rhein-Sieg-Kreis, a new haribo flavor representing the history of the region would be very fitting, since Haribo was created near that same region, where many historical mountains lay.

A Haribo in the shape of a volcano would be a very interesting shape, which has never been on the market before. The flavor could be strawberry and orange to represent the colors of the lava. Ideally, the candy should be sour to "taste" the explosion of a volcano but of course it shouldn't be as hot as real lava! It would also be very interesting to have some candy in the shape of a dragon to incorporate the famous Drachenfels.

In my opinion such a candy in the shape of a volcano would be very fun, as it would bring not only kids, but also adults closer to our region while tasting a delicious candy.

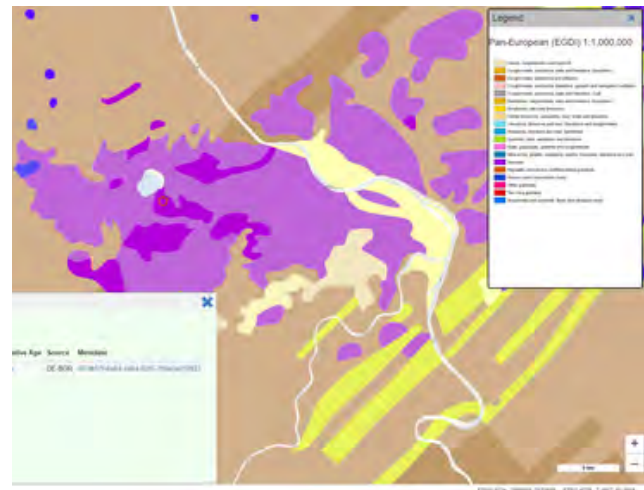
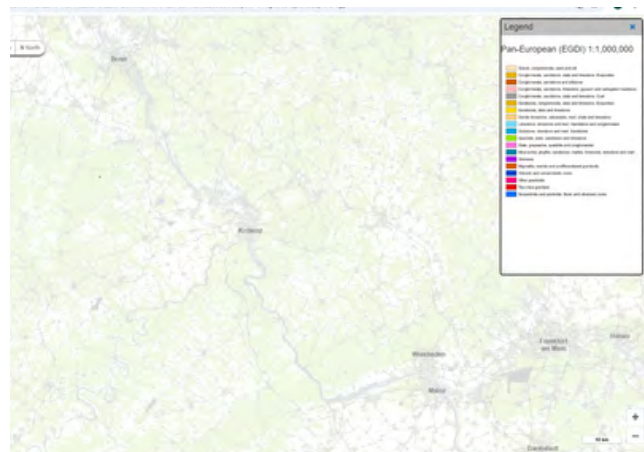
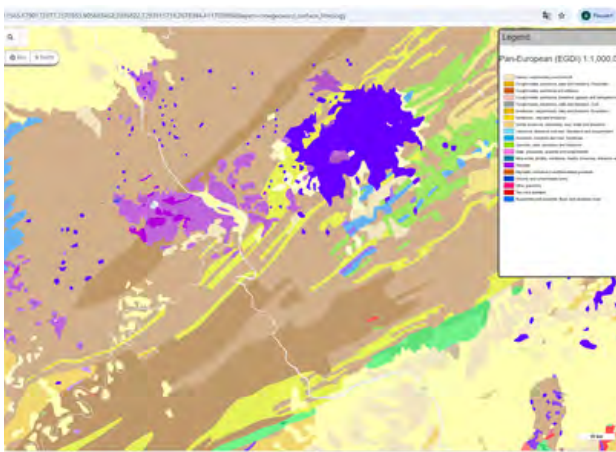


EIFEL VOLCANOES GEOPARK *Ariadna Cabrera*

Is located in western Germany, within the state of Rhineland-Palatinate, in the mountainous Eifel region. It covers a vast area stretching from the Belgian border to the Rhine Valley, forming a continuous landscape of volcanic origin. It is not a single volcano, but rather an extensive region where numerous eruptive centres are distributed, visible in towns such as Gerolstein or Daun.

Geologically, the geopark forms part of the western sector of the Eifel volcanic field, characterised by volcanic depressions and well-preserved eruptive structures. The location of these structures has been defined using modern scientific mapping, which shows how the volcanoes align along fractures in the Earth's crust. Furthermore, their position is linked to major European tectonic structures, such as the Upper Rhine Graben, which explains the presence of intraplate volcanism in this area.

A key feature in defining the geopark is the Laacher See, a lake formed in a volcanic caldera some 13,000 years ago, demonstrating the region's geological youth. Taken together, the geopark's location is determined not only by geographical criteria but also by its geodynamic context, making it one of the most representative and best-studied volcanic areas in Central Europe.





“WE ARE MADE OF CO₂ EXPELLED BY VOLCANOES”

Ariadna Cabrera Romero

The statement “we are made of CO₂ expelled by volcanoes” may seem striking and fanciful, but it has a scientific basis. On the early Earth, intense volcanic activity released large amounts of carbon dioxide into the atmosphere. This gas became a key element in the development of life, as the first photosynthetic organisms used it as a raw material to produce organic compounds.

Over time, that volcanic carbon entered biogeochemical cycles and was recycled through plants, animals, and microorganisms. Thus, the carbon atoms that today form part of living beings, including us, have undergone multiple transformations since their origin. Thus, although expressed in simplified terms, the idea that we “come from” volcanic CO₂ is not far from reality; it is scientifically coherent and adds a new perspective on the connection between deep geology and life.



Nathalie Pereira Braga

MY NIGHT IN THE YOUTH HOSTEL IN GEROLSTEIN

My night in Gerolstein was really good. I have visited the town and the church which was built with Dolomite. The church is very beautiful. I have enjoyed this so much. Later we played a game with everyone a blind test and with my group we won. I really have enjoyed this moment.



MY KÖLN

Maja Zuth

My favorite place in Cologne is definitely Cologne Cathedral. I find the architecture very impressive. It's incredibly large, yet it's quiet and relaxing inside. The stained-glass windows are elaborate and beautifully colorful, and it's one of the most beautiful churches for me. Entry is free, which I think is very important.



KINDS OF VOLCANOS

675 m high



hocheifel

stratovolcan

Hochkelberg

There's two main kinds of eruption, Stratovocanic, and maar.

Both of them come by a fracture on the magmatic floor, and make an eruption, but each volcano was made different.

diameter of 2 km

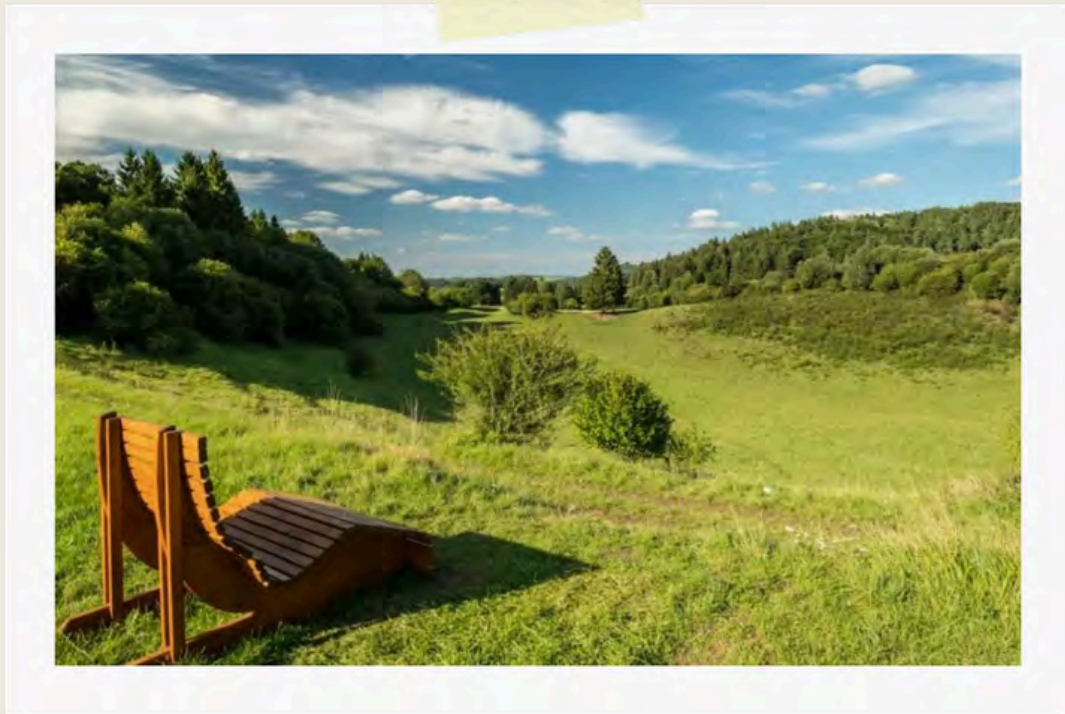


osteifel

maar

laacher see

The Papenkaule and its geological history



Papenkaule

- volcanic crater near Gerolstein in the Eifel

geological history

- formed about 10,000 years ago
- hot gases from deep inside the earth pushed upward and broke the hard rock above them
- the ground collapsed, and that is how the round bowl shape was created

DEVONIAN

DEVELOPMENT

The Devonian period lasted from 419 to 359 million years ago. Environmental conditions changed dramatically, allowing fish to develop new physical features, such as jaws. These features enabled the evolution of predators

SUCCESSOR

The Devonian was followed by the Carboniferous period, which was primarily responsible for the development of amphibians, reptiles, and flying insects.

To this day, it remains a crucial step and turning point in Earth's history

DIE-OFF

The die-off was marked by the appearance of dark, carbon-rich rocks. Between 50 and 75% of all species became extinct, making it one of the largest extinction events in history. The extinction did not occur all at once. Rather, it unfolded over several million years and was divided into two main phases.

Many people come to Germany to the region of Eifel because of the Eifelian. You can find a lot of stones just from the area of the Devonian.

Anecdots

water tasting

Very sparkling : this water is so spicy and she has a taste special

Medium sparkling : this water is a little spicy and has less bubble

Still water : this is not spicy and she didn't



Haribo Volcano

The Haribo Volcanos (Lava Bites) are an orange candy with a soft jelly filling. The flavors that are available are strawberry, lemon and cherry and on the outside are small sour candy rocks



Lava Bites

Night in the hostel

We were all together in a room playing games, talking between us, and listening to music. We also had a guitar and some knew how to play it!

youth hostel gerolstein



VOLCANIC CANDY

LAVA BITES

- soft jelly filling

- sour candy rocks



- orange candy outside

- strawberry/lemon/cherry filling



LAACHER SEE

Is a lake in western Germany in the volcanic Eifel region. It was formed 13,000 years ago by a volcanic eruption.

The eruption was a stratovolcanic. That means magma collects in different layers and can have different temperatures and gases.

A maar is a volcanic crater formed when hot magma meets groundwater. The water turns into steam and causes an explosion. Later the crater filled with water.

During the eruption, ash and rocks were thrown across Central Europe. After the explosion, the ground collapsed and created a maar. That later became a lake because of rainwater.

VOLCANIC ROCKS

COOLING RATE

The look and the rock that arise depend on how fast the magma cools down.

STRUCTURE

If the magma cools down fast the atoms don't have the time to order and stay in a mess. That result is a glassy Obsidian

In basalt are more minerals than in obsidian and it cools down slower than it. The structure is grey and not that glassy.

Gabbro on the other side has a lot of time to get in a right crystal order.