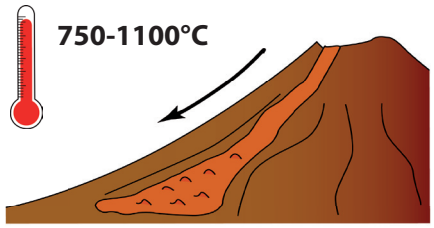
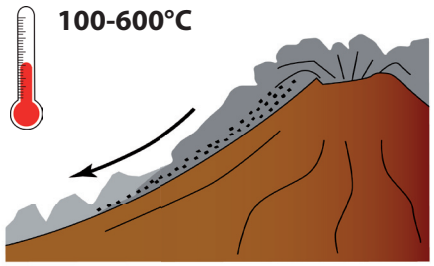
LAVA FLOWS

They are masses of molten rock emitted during effusive eruptions. Although they reach high temperatures, generally they only advance within a short distance from the crater.



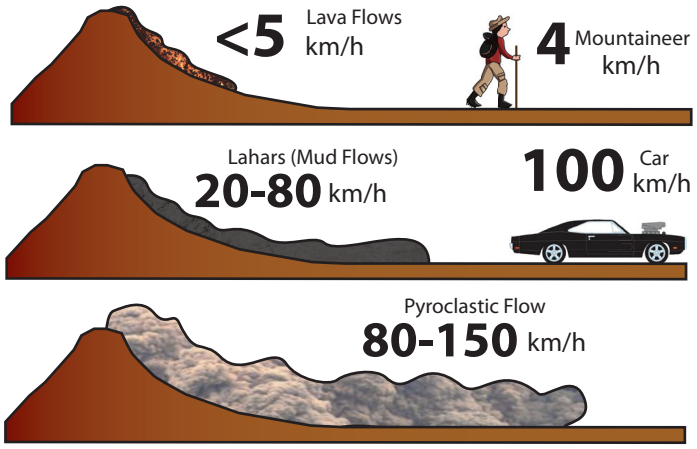
PYROCLASTIC FLOWS

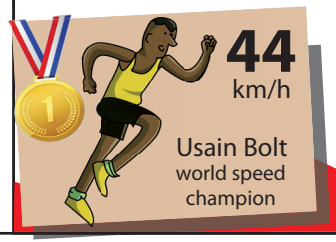
They are very hot mixtures of volcanic ash and rocks generated during explosive eruptions. They are very dangerous and destructive



THE FAST AND THE DANGEROUS

Some volcanic phenomena can be very dangerous due to their high speed. This chart will help you understand how fast they can be.





It is almost imposible to escape from a pyroclastic flow!

What to do in case of eruption?

BEFORE...

Prepare your emergency backpack:
Radio, flashlight, canned food, warm clothing, water, blankets, medicine and mask.

Get informed !! Do you know where your house is? Your school? Or your workplace? Know volcanic hazard maps and evacuation routes..

DURING...

Be always informed !! Remember to listen ONLY OFFICIAL SOURCES !!

Obey the authorities !! In case of evacuation we must remain calm and follow all their indications.

For more information please visit:
www.igepn.edu.ec

November, 2017.

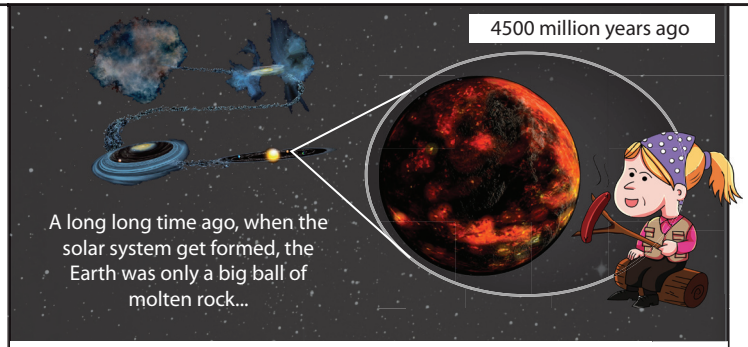
What is a Volcano ?

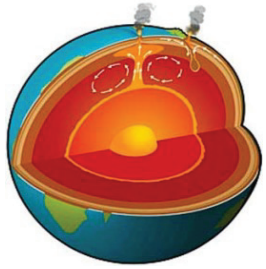
Learning with simple examples...

JICA

IG Instituto Geofísico EPN

Realized and illustrated by: Daniel Sierra y Sara Haro

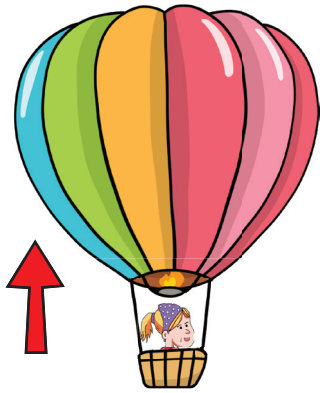




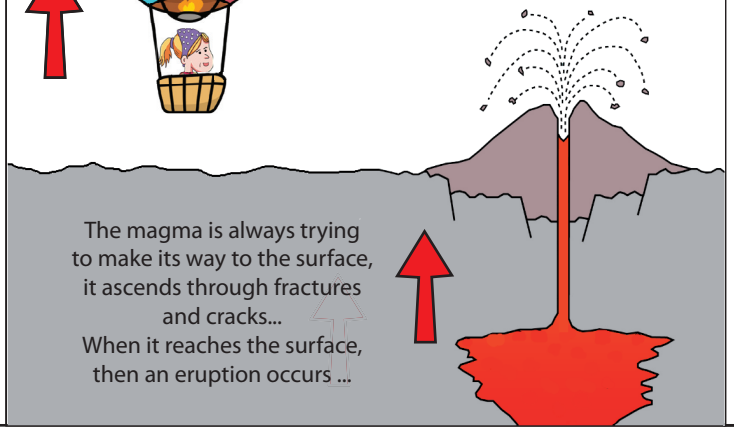
Nowadays

The Earth surface cooled and solidified ... but its interior is still full of hot rock... There are specific areas of the planet where the conditions are adequate for this material to ascend to the surface.... As it happens in the Ecuadorian Andes

Why magma rises?



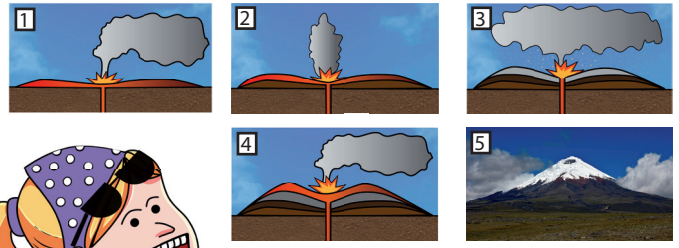
Similar as balloons which are filled with hot air, magma rises to the surface because it has higher temperature than the rocks surrounding it...



The magma is always trying to make its way to the surface, it ascends through fractures and cracks...
When it reaches the surface, then an eruption occurs ...

Volcano Construction

Several volcanoes present conical shapes as a result of the accumulation of materials ejected in successive eruptions...



Volcanoes are made in layers ... almost like my sandwich!

Types of eruptions

The key for understanding volcanic eruptions is in the type of magma and the amount of gases contained on it. We can talk about two types of eruptions:

EXPLOSIVE

In these eruptions, magma contains a lot of gases. For that reason the process is similar to what happens when we open a bottle of soda that has been shaken. Good examples are Tungurahua Volcano's eruptions.

EFFUSIVE

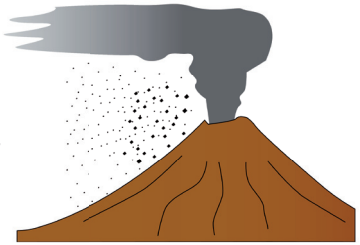
In these eruptions the magma has small amounts of gas, that's why it is expelled and spills slowly by the flanks of the volcano. Magma is a very dense and viscous material, similar to honey. Good examples are the eruptions of Galapagos volcanoes.

Volcanic Phenomena

Volcanoes can generate diverse phenomena, some of them can be very dangerous:

ASH FALLOUT

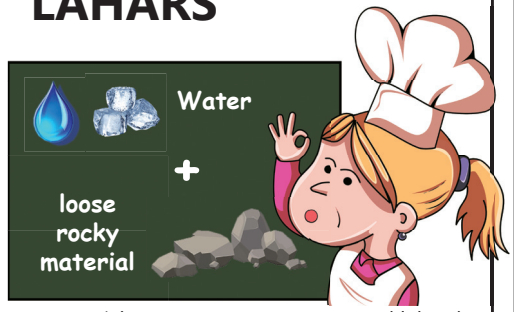
Ash is pulverized rock expelled from volcanoes during an eruptive process.
Due to its very fine grain size, it can travel long distances being transported by the wind. In our country most of the time the wind blows to the west (towards the Coast).



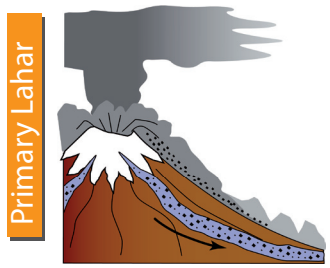
Ash might severely affect crops as well as cattle.
When ash falls, it is important for people to wear masks and eye protection.

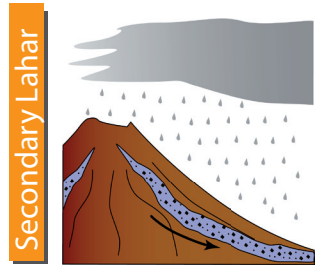
LAHARS

Lahars or mud flows are mixtures of volcanic material and water that go down the flanks of volcanoes. They are very destructive and can reach long distances.



¡the recipe to prepare a good lahar !





If a lahar is formed during an eruption, for example by the fast melting of snow and ice it is called primary. If it is formed after an eruption when the rain drags the rocky material deposited on the flanks of the volcano, then it's called secondary lahar.