VOLCANOES

AND THEIR RISKS

A LOOK AT
VOLCANO RISK
FOR YOUNG STUDENTS.
PRODUCED BY
THE MED-SUV PROJECT.

A VOLCANO IS A PLACE (ON EARTH AND OTHER PLANETS) WHERE MAGMA COMES TO THE SURFACE. THIS EVENT IS CALLED A VOLCANIC ERUPTION.

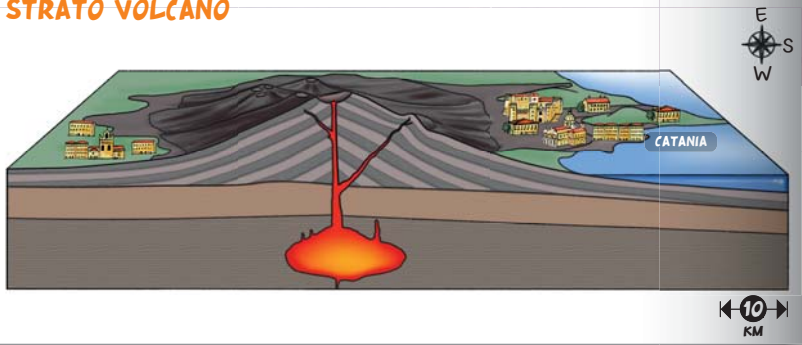
VOLCANO SHAPES:

Different types of volcanoes have various shapes due to the eruption type and the nature of magma they erupt. The most famous shape is a cone. Cones form when eruptive material accumulates as alternating deposits of lava flows, rock fragments or volcanic ash.

Etna and Vesuvius (Italy); Piton de la Fournaise (La Réunion Island, France); Teide (Canary Islands, Spain) and Colima (Mexico) are **cone shaped volcanoes.** But cones are not the only possible shape of volcanoes. For example, **calderas** are depressions.

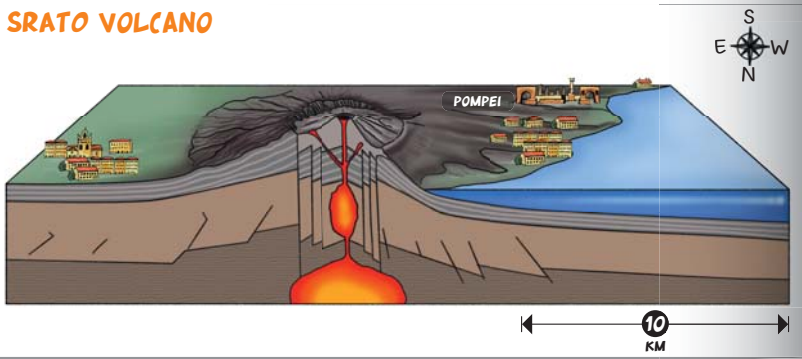
Etna

STRATO VOLCANO



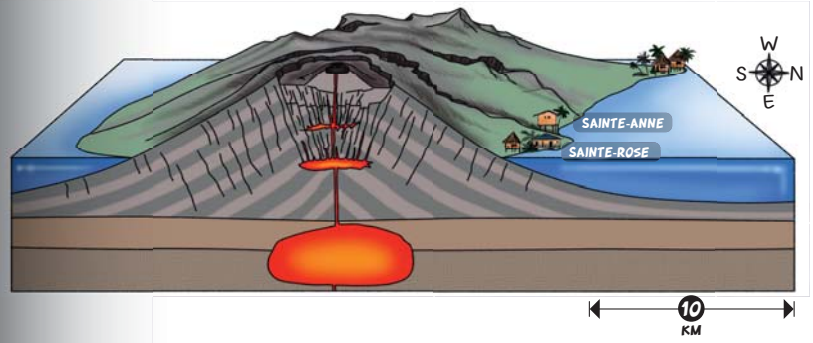
Vesuvius

SRATO VOLCANO



Piton de la Fournaise

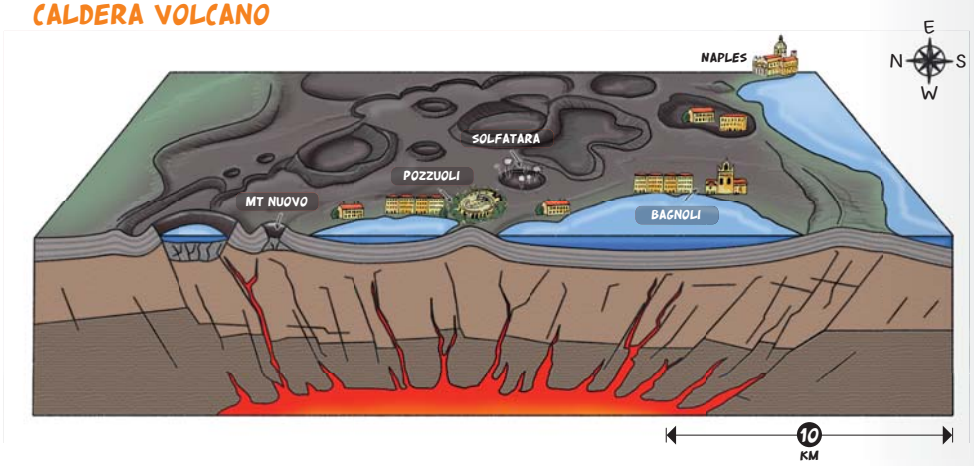
SHIELD VOLCANO



A caldera forms during a highly explosive eruption as the volcano collapses. The eruptive activity generally continues after the collapse creating multiple eruptive centers within a caldera. The Campi Flegrei in Italy, Furnas and Agua de Pau Azores Islands (Atlantic Ocean, Portugal) are examples of calderas.

Phlegrean fields

CALDERA VOLCANO



VOLCANIC HAZARDS:

VOLCANOES PRESENT POTENTIAL THREATS TO PEOPLE AND PROPERTY.

–> Lava flows are extremely hot and can burn everything in their path. Even after lava cools in massive rock, the land covered by the flow cannot be used for years. If you see a lava flow, do not go near it! It may flow slowly and regularly but it is hot, releases dangerous gases and can explode. After the the eruption has ended, do not walk on lava flows; they remain hot for years.

–> Volcanic gases: in addition to lava, volcanoes may release gases into the atmosphere. These gases can be dangerous to your health, even if you cannot smell anything.

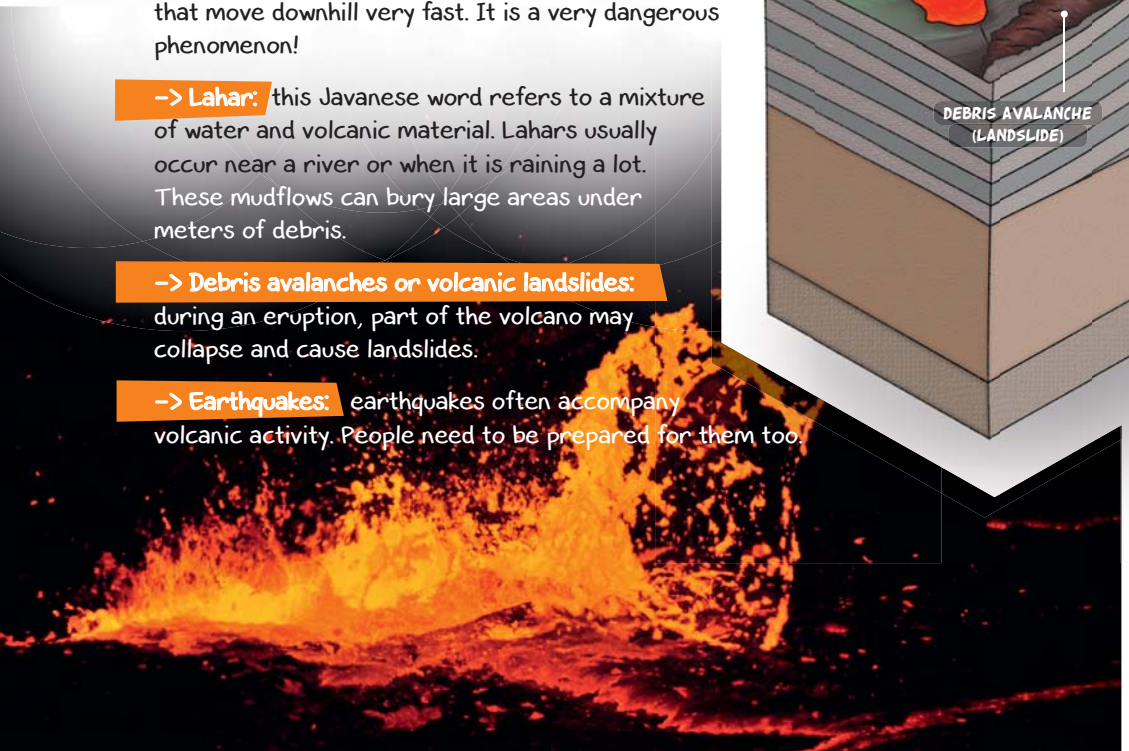
–> Ash or tephra fall: small fragments (pieces of magma) from volcanic eruptions are projected into the air and drop like rain over large areas. Fine ash can cause health problems if inhaled. Heavy ash falls may also cause roofs to collapse.

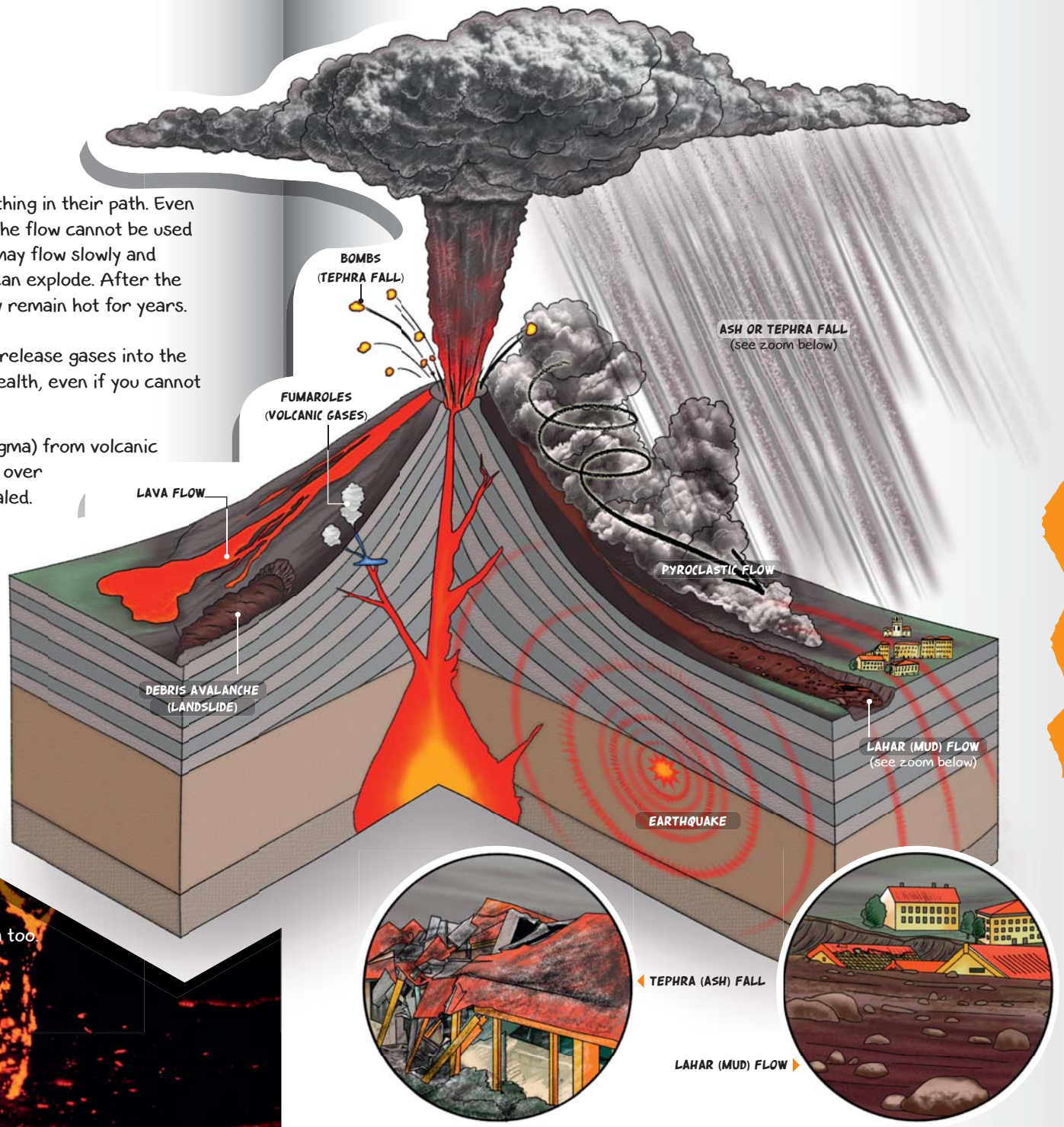
–> Pyroclastic flows: these are mixtures of hot gases and volcanic material (ash and rocks) that move downhill very fast. It is a very dangerous phenomenon!

–> Lahar: this Javanese word refers to a mixture of water and volcanic material. Lahars usually occur near a river or when it is raining a lot. These mudflows can bury large areas under meters of debris.

–> Debris avalanches or volcanic landslides: during an eruption, part of the volcano may collapse and cause landslides.

–> Earthquakes: earthquakes often accompany volcanic activity. People need to be prepared for them too.



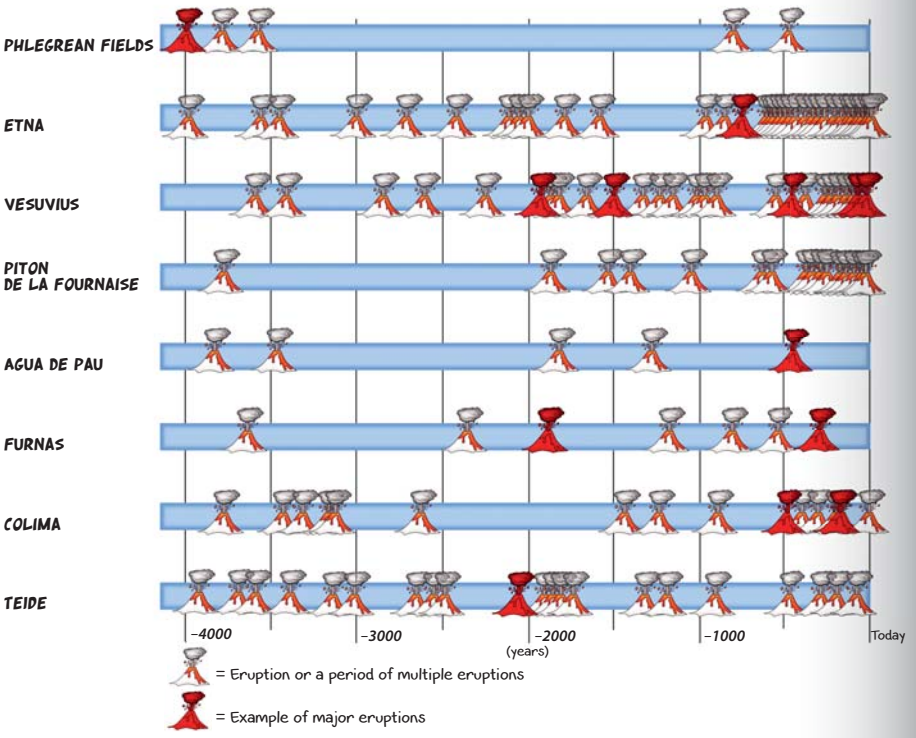


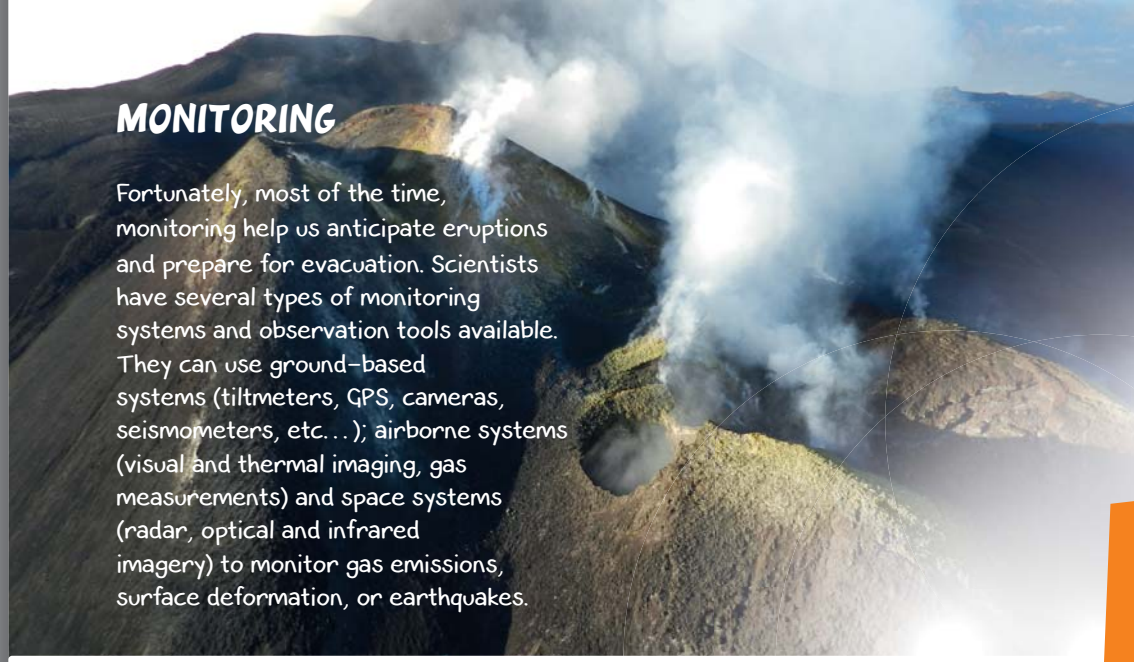
VOLCANIC HAZARDS

TIMESCALE

Eruptions can last a few hours to several years. Between eruptions, volcanoes can remain quiet for several hundred of years. For this reason, even a volcano that has never erupted in living memory may be a threat.

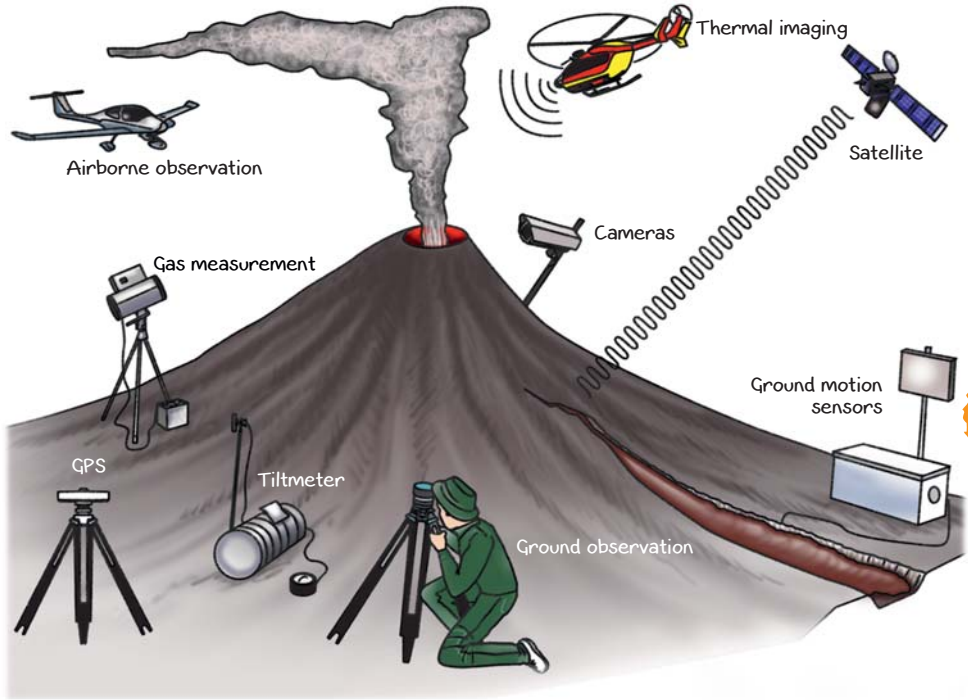
Eruptive history of some volcanoes of interest in the MED-SUV project:





MONITORING

Fortunately, most of the time, monitoring help us anticipate eruptions and prepare for evacuation. Scientists have several types of monitoring systems and observation tools available. They can use ground-based systems (tiltmeters, GPS, cameras, seismometers, etc...); airborne systems (visual and thermal imaging, gas measurements) and space systems (radar, optical and infrared imagery) to monitor gas emissions, surface deformation, or earthquakes.



IF YOU LIVE IN OR VISIT A VOLCANIC AREA:

Prepare by examining the community's emergency plan, if there is one, together with your family. Contact the mayor's office for details.

In the event of an eruption, stay informed and follow only official instructions issued by civil protection authorities.

Prepare a kit. It should contain at least the following items: a flashlight and extra batteries, a first aid kit and its manual, emergency food and water, respiratory (breathing) protection, eye protection (goggles), a manual can opener, essential medications, sturdy shoes, and a battery-powered radio.

For more information, refer to official civil protection information.

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