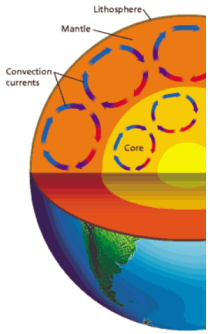
Our Restless Earth

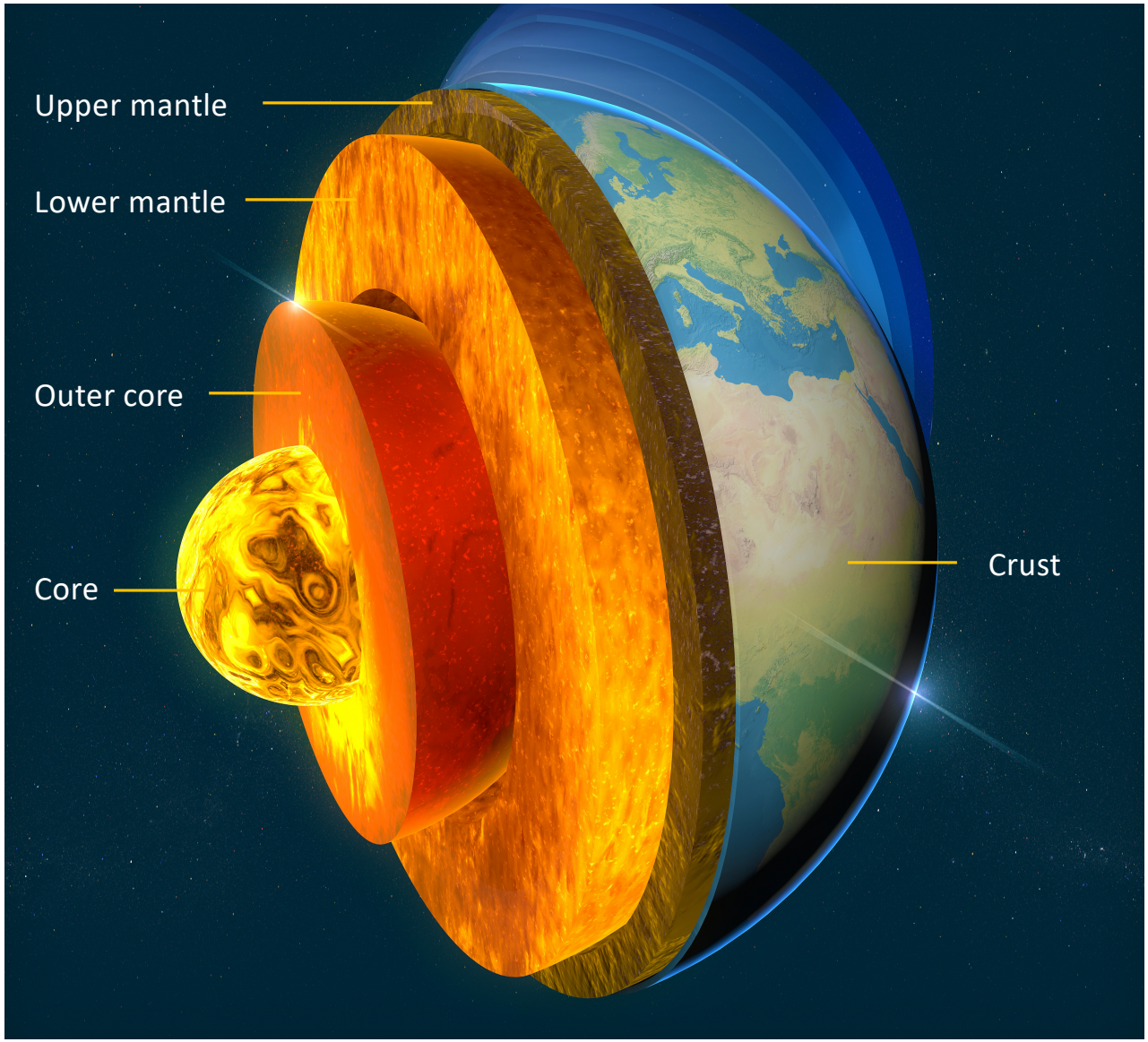
Looking inside Planet Earth

The **Earth** is divided into three main layers.

- The dense, hot inner core and the surrounding molten outer core
- The mantle (upper and lower)
- The thin outer crust, which supports all life in the known universe.



Convection currents in the Earth's mantle and outer core

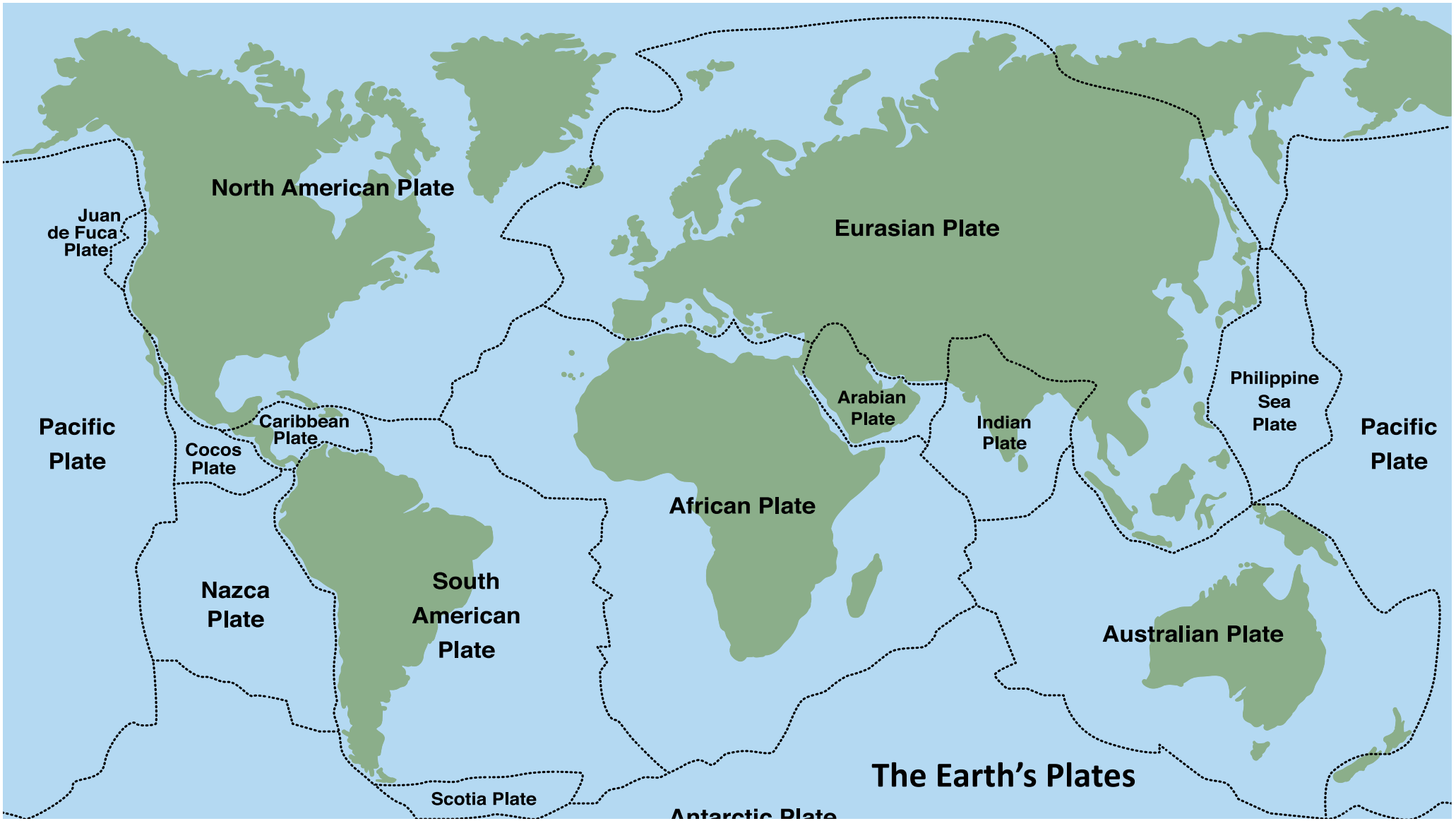


CONTINENTAL DRIFT

Pangaea

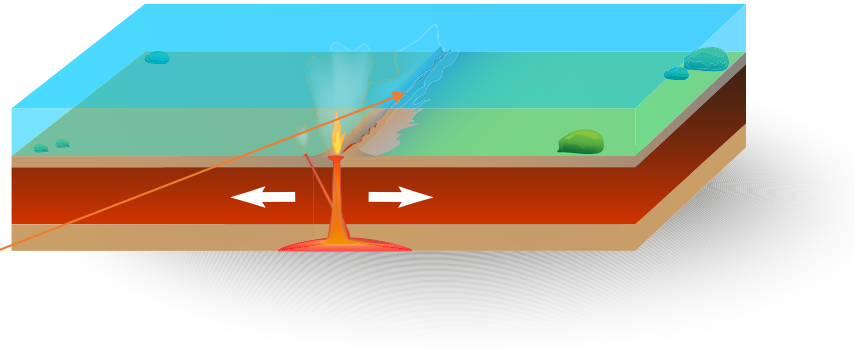
Laurasia and Gondwana

Modern world


North American Plate
Juan de Fuca Plate
Eurasian Plate
Pacific Plate
Caribbean Plate
Cocos Plate
Arabian Plate
Indian Plate
Philippine Sea Plate
Pacific Plate
African Plate
Nazca Plate
South American Plate
Australian Plate
Scotia Plate
The Earth's Plates

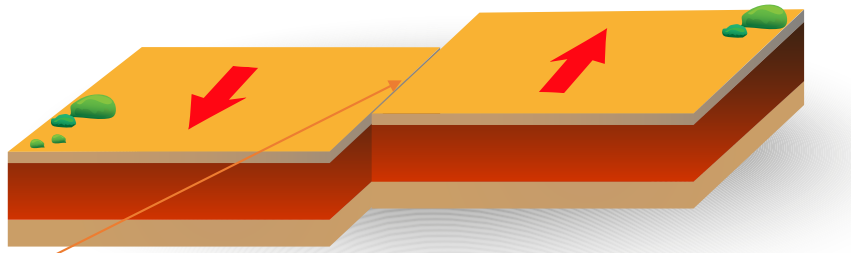
Types of plate movements

Plates moving apart



Ocean trench formed

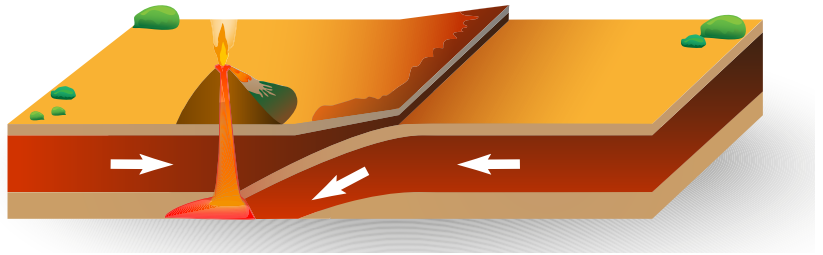
Plates moving sideways

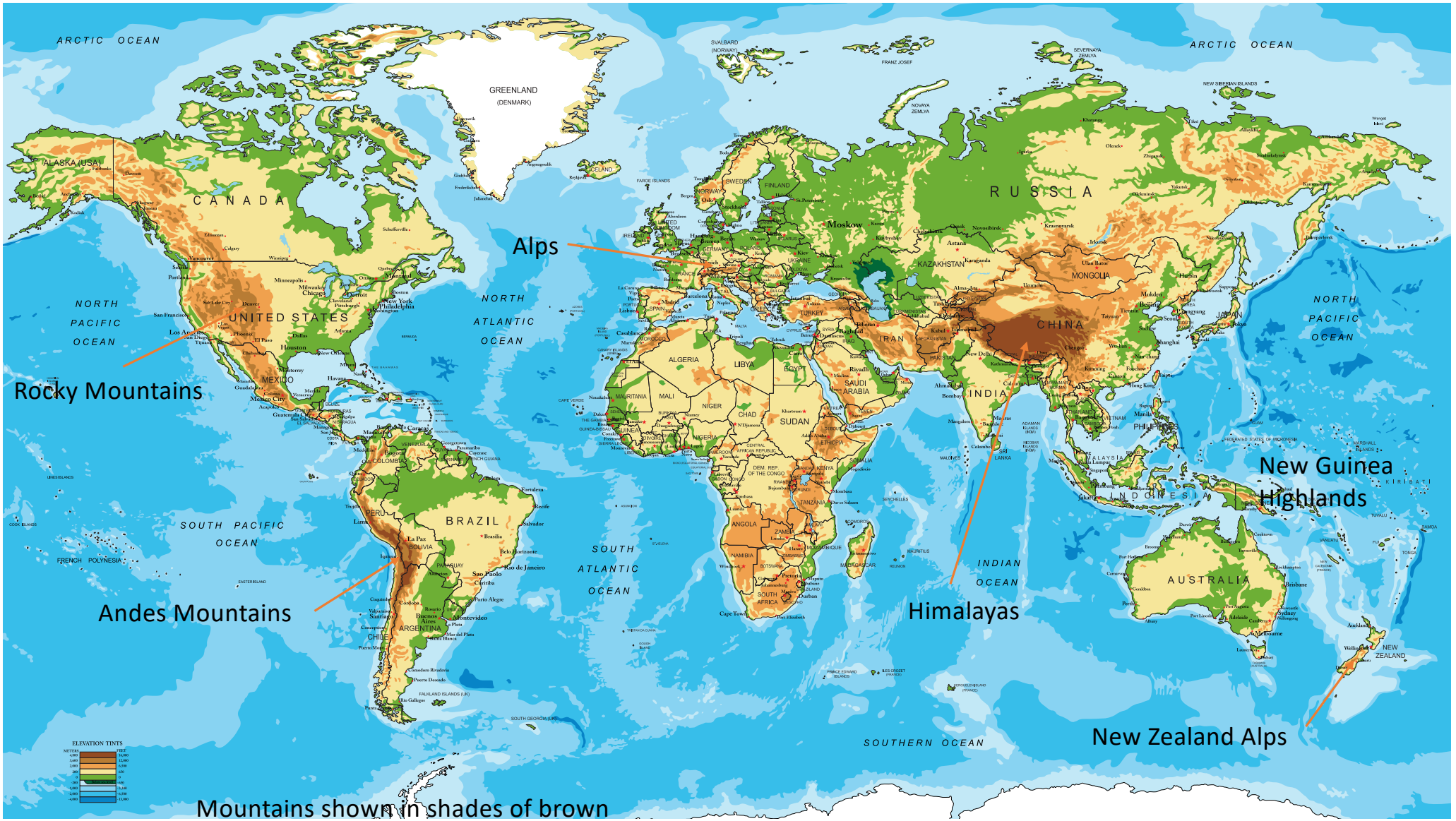


Earthquakes occur when pressure released

Mountains pushed up

Plates moving towards each other



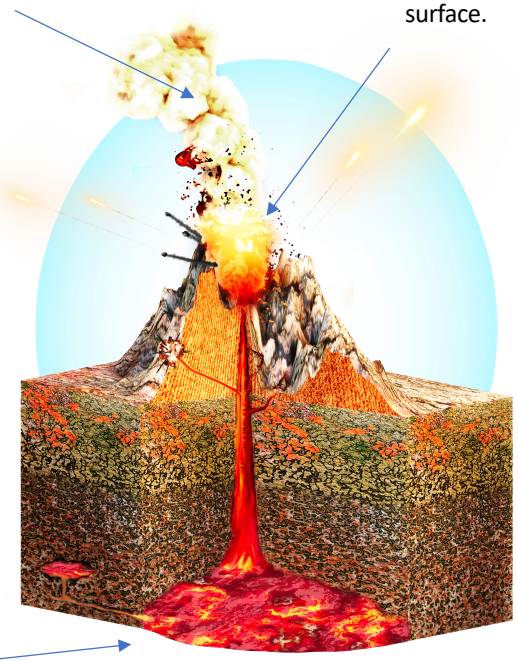

Rocky Mountains
Alps
Andes Mountains
Himalayas
New Guinea Highlands
New Zealand Alps
Mountains shown in shades of brown
ARCTIC OCEAN
NORTH PACIFIC OCEAN
NORTH ATLANTIC OCEAN
SOUTH PACIFIC OCEAN
SOUTH ATLANTIC OCEAN
INDIAN OCEAN
SOUTHERN OCEAN
CANADA
UNITED STATES
MEXICO
BRAZIL
RUSSIA
CHINA
INDIA
AUSTRALIA
INDONESIA
GREENLAND (DENMARK)
ELEVATION TINTS

Satellite photograph showing green forested areas, grasslands and deserts

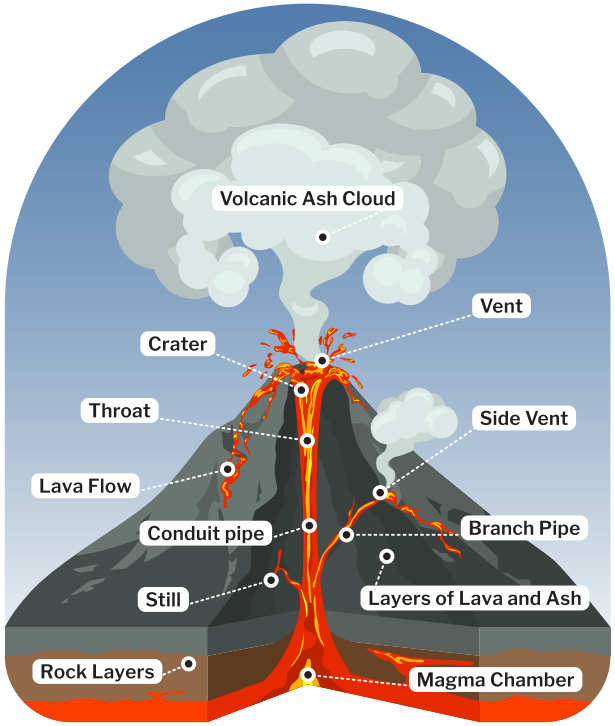
Volcanoes

Over time, pressure builds in the magma chamber forcing magma up through the cracks in the crust's surface. This can occur with explosive force. As a result, an **ash cloud** made up of dust, rocks and other particles is formed.

A **crater** is formed when the volcano 'blows its top'. The escaping lava and gas pushes away anything on the Earth's surface.

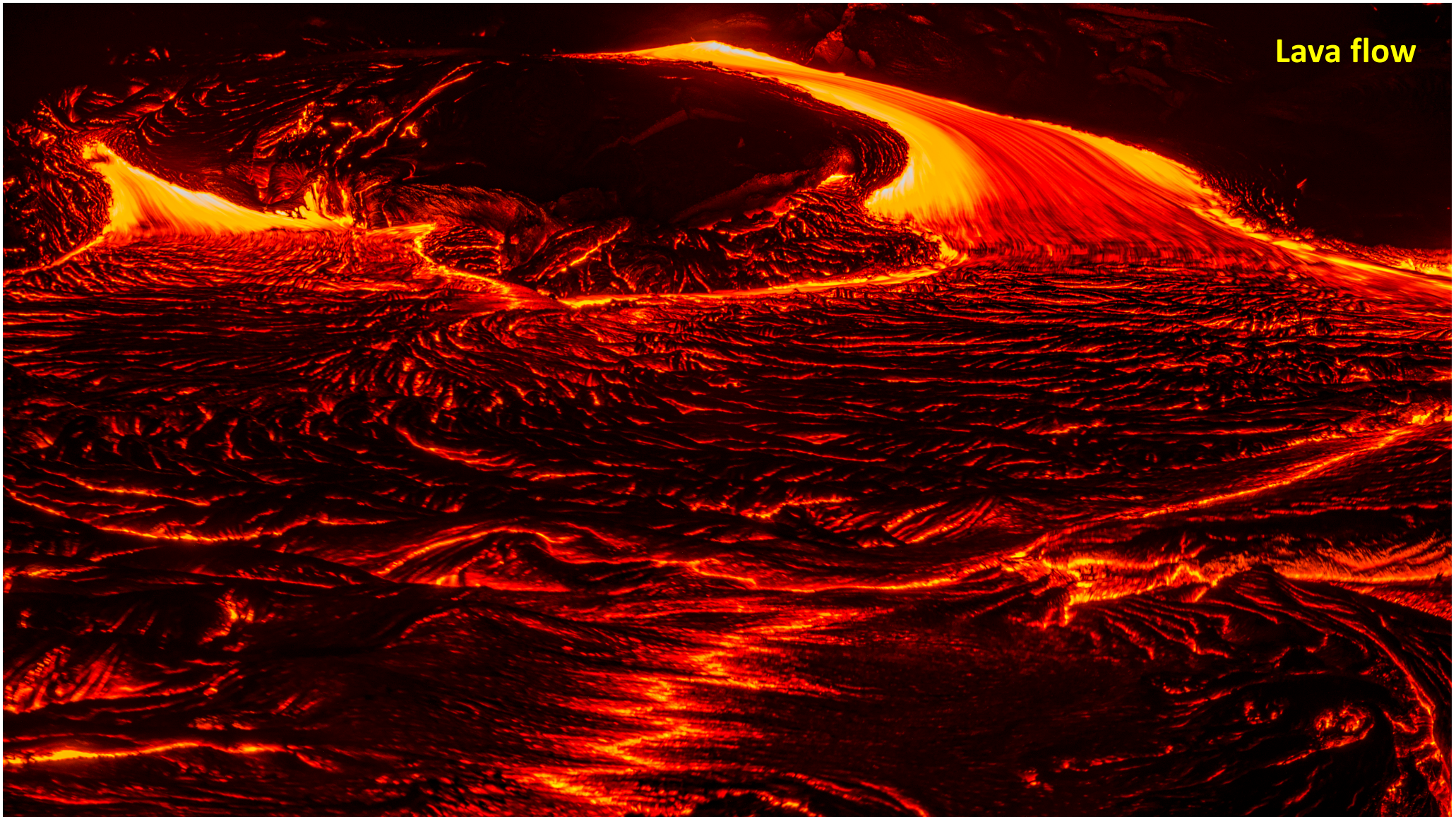


Well below the surface of the Earth, magma is held within a vast **magma chamber**. Also present are gasses that start to build up pressure over time. When the pressure becomes too great, the magma is pushed out through what is called a **vent** – a type of pipeline that the magma travels through in order to escape.

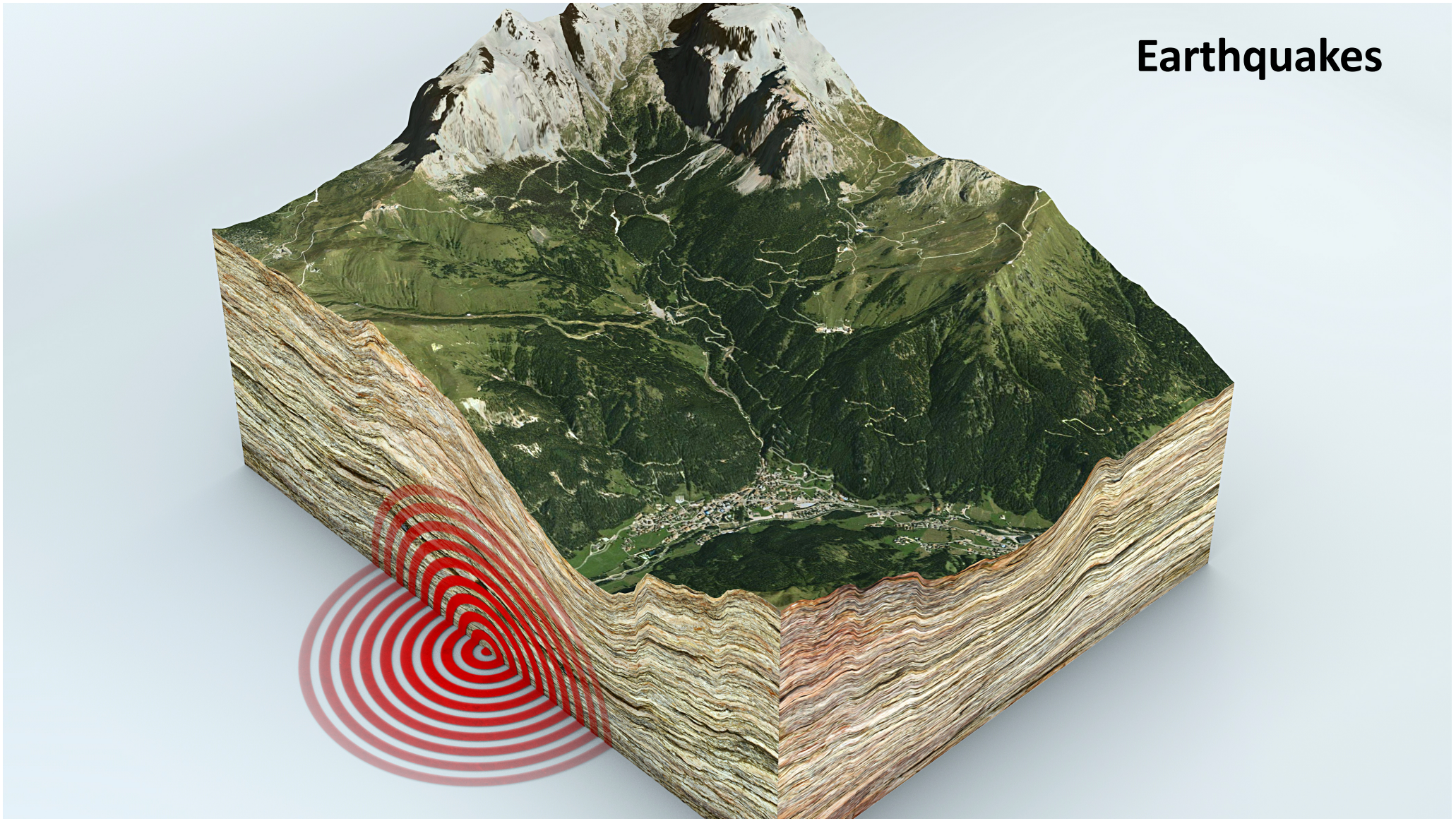


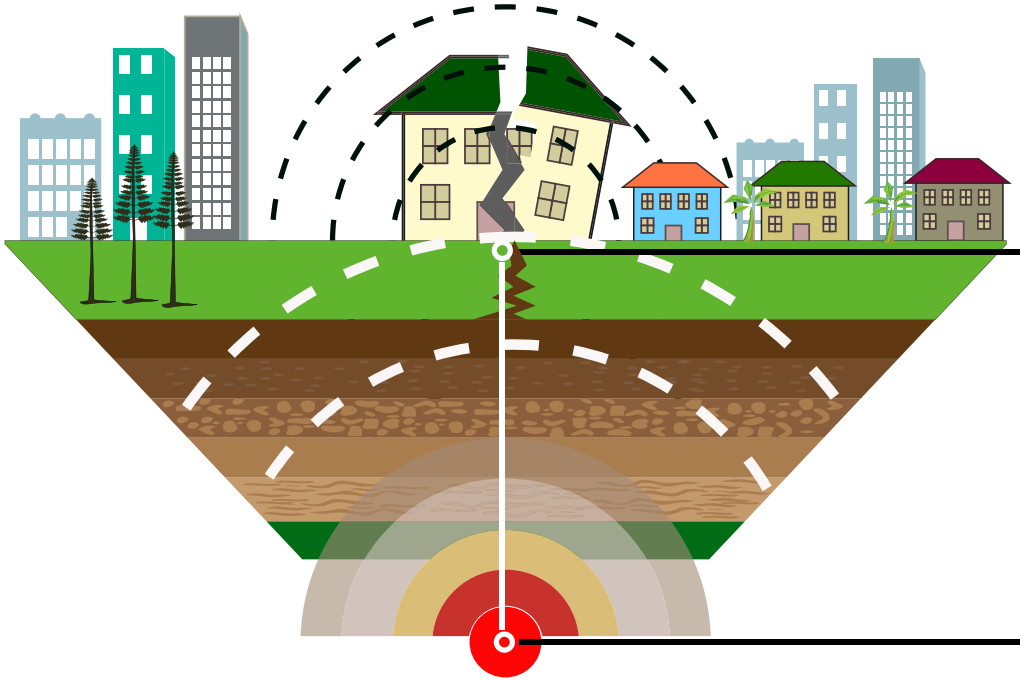
Parts of a volcano

Volcanic eruption


Lava flow

Earthquakes



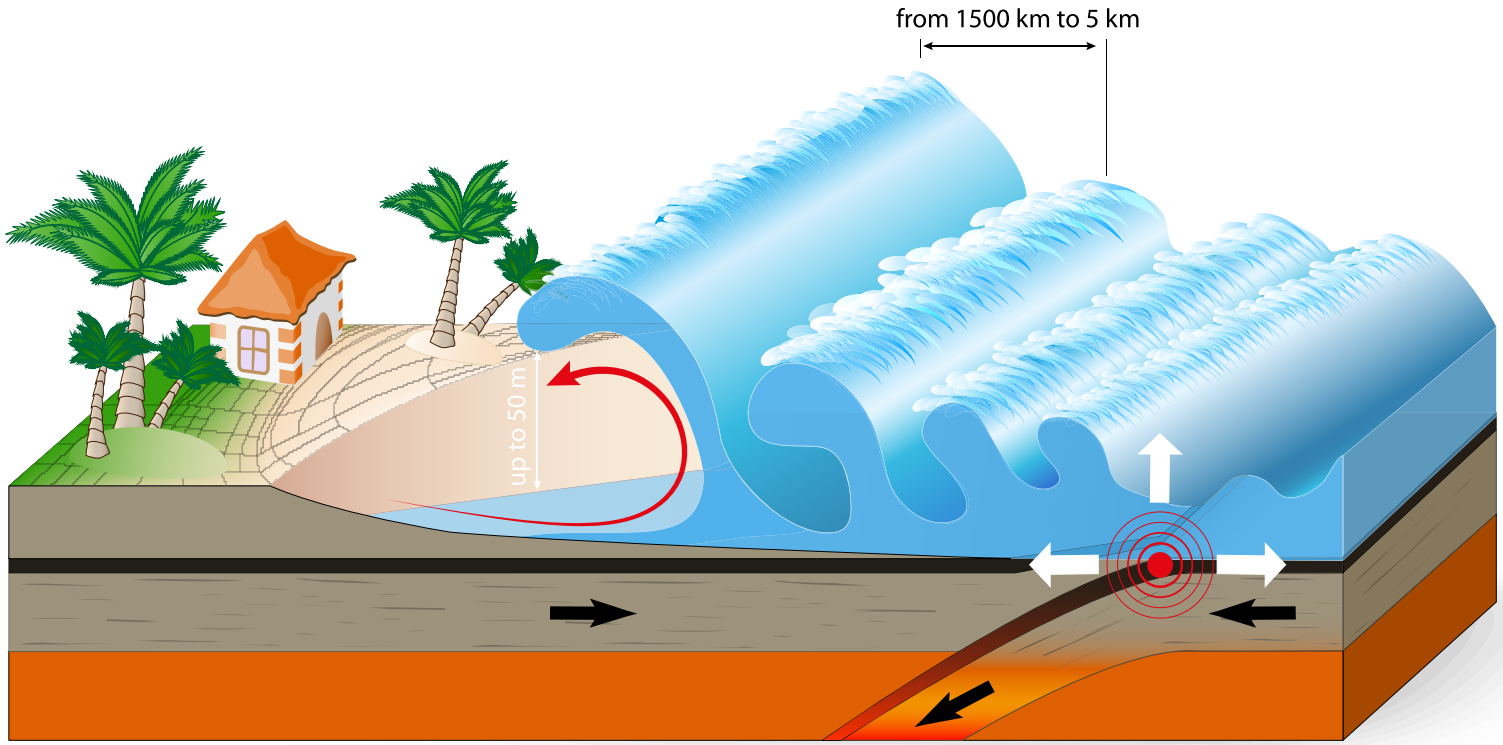


Energy wave reaches the earth’s surface

Epicenter of earthquake

EARTHQUAKE

TSUNAMI



Tsunami damage, Banda Aceh,
Indonesia, 2004

Tsunami damage, Fukushima,
Japan, 2011