

## How do seafloor spreading and Plate Tectonics affect the Oceans?

The topography

Continents don't break up at once...

1. Ocean basins are created and destroyed
2. Connections between ocean basins open and close
  - Changes in ocean currents
  - Oxygen distribution and supply
  - Salinity changes
  - Climate changes
  - Tides pattern

3. Change in the sea level

GLOBAL  
Eustatic

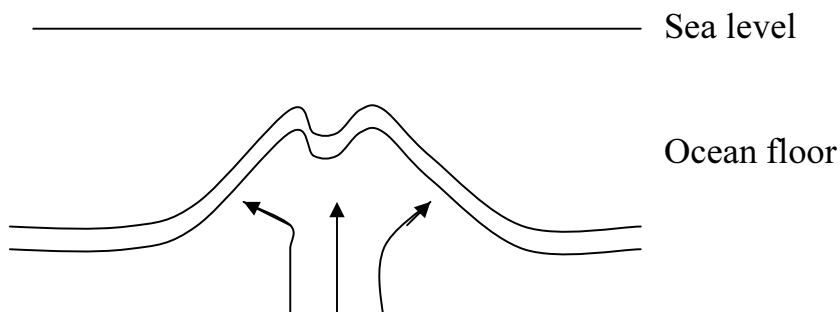
Vertical movement  
caused by P.T.

Increased activity  
→ sea level RISE

Activity subsides  
→ sea level DROP

LOCAL  
Tectonic  
Earthquakes

locally lift up  
or sink down



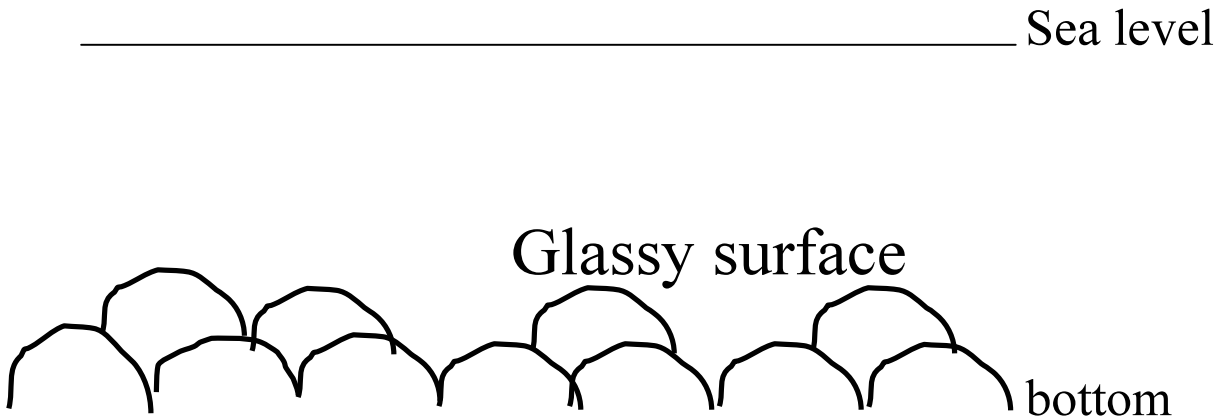
4. Biological impact
  - Distribution of plants, algae, animals
  - Mid Ridge Vents – special biological community
  - Biological system that does not depend on sunlight
    - Bacteria that lives of processing sulfur instead of oxygen
  
5. Ocean water circulates into and out of the LITHOSPHERE  
“Natural water treatment system”

What is the present scientific effort focused on?

- Project FAMOUS
  - Sampling of Mid-Atlantic Ridge
- Water temperature and chemistry  
around the hydrothermal vents
- Recovery of Black Smokers
  - NOVA online: Into the Abyss
  - <http://www.pbs.org/wgbh/nova/abyss>
  - <http://www.ocean.washington.edu/outreach/revel>
- Studies of hydrothermal vent communities (huge tube worms, crabs, shells...)
- The ocean drilling program

# Volcanic activity in the ocean

1. pillow lava along Mid-oceanic ridges



2. hydrothermal vents

