

30. Hydrosphere – sea water characteristics

Sea water

We can see zonality realizing in an ocean too (besides climatic zones). The highest temperature of a sea (>26°C) is in tropical areas to the north off the equator ⇔ Antarctica + ocean currents.

= contains all known chemical elements. Especially *salts* influence properties of marine waters. The amount of dissolved mineral substances (salts) = salinity (‰).

- e.g. 35‰ (average salinity of world ocean) = 35 g of salts are dissolved in 1000 g (1 kg) of water

Ocean's salinity is influenced by:

- evaporation from the sea level
- precipitation
- rivers flowing from the land mass
- freeze-thaw cycle
- vertical and horizontal movements of sea water

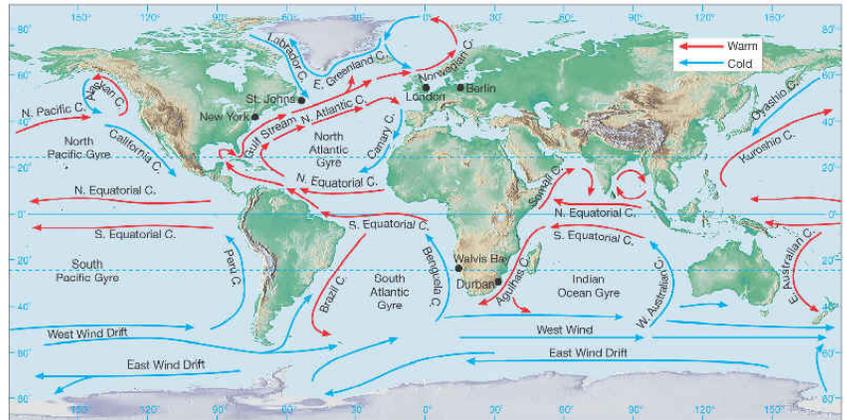
Movement of oceanic water is caused by:

- Cosmic factors = gravitation of the Moon and Sun → flow and ebb
- Mechanical factors = insolation and air circulation → ocean currents and surfs (waves/tides)
- Geodynamic factors = crustal movements → tsunami

Ocean currents can be:

- ❖ Warm ocean currents = flowing from the equator to higher latitudes, e.g. Brazil, Kuro-Shio, Gulf Stream, etc.
- ❖ Cold ocean currents = flowing from higher latitudes towards the equator, e.g. Oya-Shio, Labrador, Californian

Task: Locate 3 examples of cold ocean currents which create deserts nearby!



Significance and usefulness of oceans and seas for people

Ocean = source of many natural resources => people will exploit ocean more and more by using better technologies.

- *Raw materials:* oil, natural gas, copper, manganese, iron
- *Food:* seaweed, fish, sea fruits
- *Salt extraction:* 1/3 of the world's total production
- *Freshwater extraction:* very expensive => only rich countries can afford this
- *Inexhaustible energy source:* tidal power plants

Pollution of world ocean

Scientists say that since 1920 to the present time, more pollutants have been emitted into ocean than since the beginning of our civilization.

The most dangerous is pollution caused by oil tanker accidents and storage of radioactive waste on the sea floor (nowadays estimated 100,000 containers).

1 tonne of oil leaked onto sea level creates impermeable area of about 10km².

Pollution of coastal areas by rivers (industrial production) is very dangerous as well.

What do you know about Greenpeace?

Keywords

salinity, flow and ebb, warm/cold ocean currents, surfs/waves/tides, tsunami, natural resources, seaweed, inexhaustible energy source, pollution, oil tanker accidents, storage of radioactive waste