

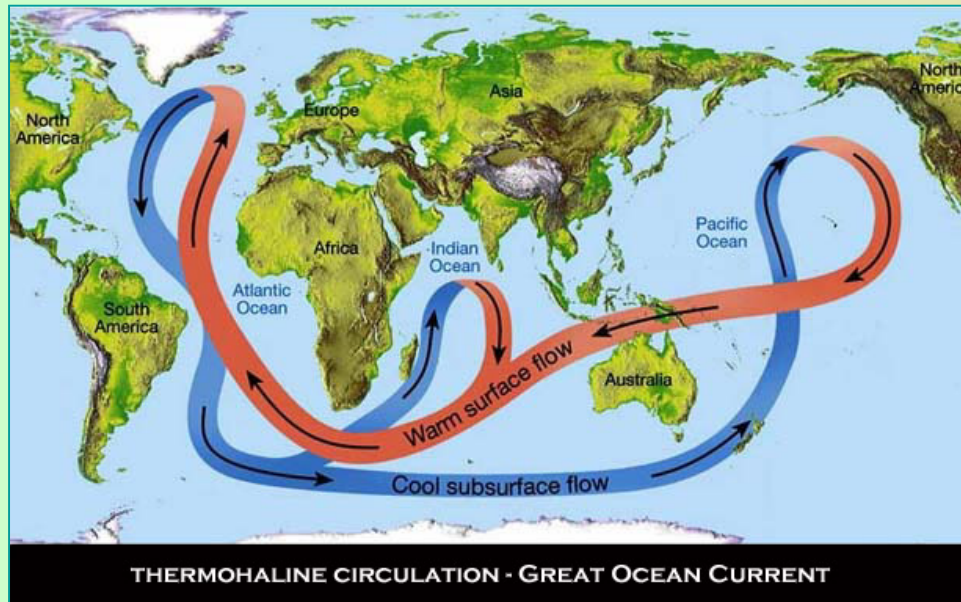
Thermohaline Circulation

Thermohaline circulation

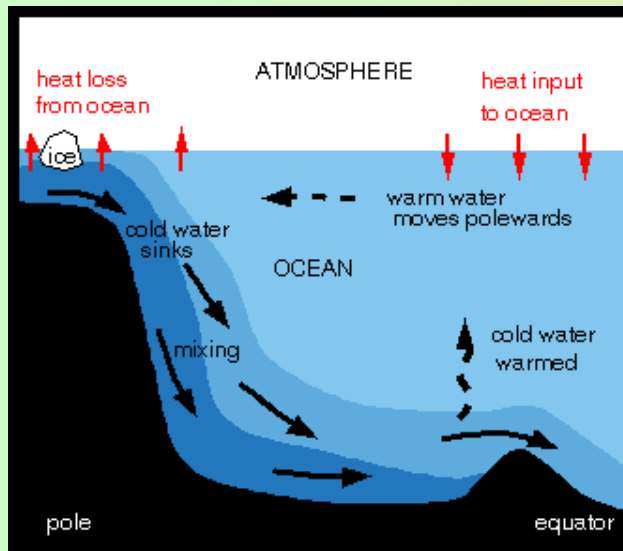
The world has several oceans, the Pacific, the Atlantic, the Indian, the Arctic, and the Southern Ocean.

While we have different names for them, they are not really separate. There are not walls between them.

Water is able to move freely between oceans. They are all connected in one global ocean.

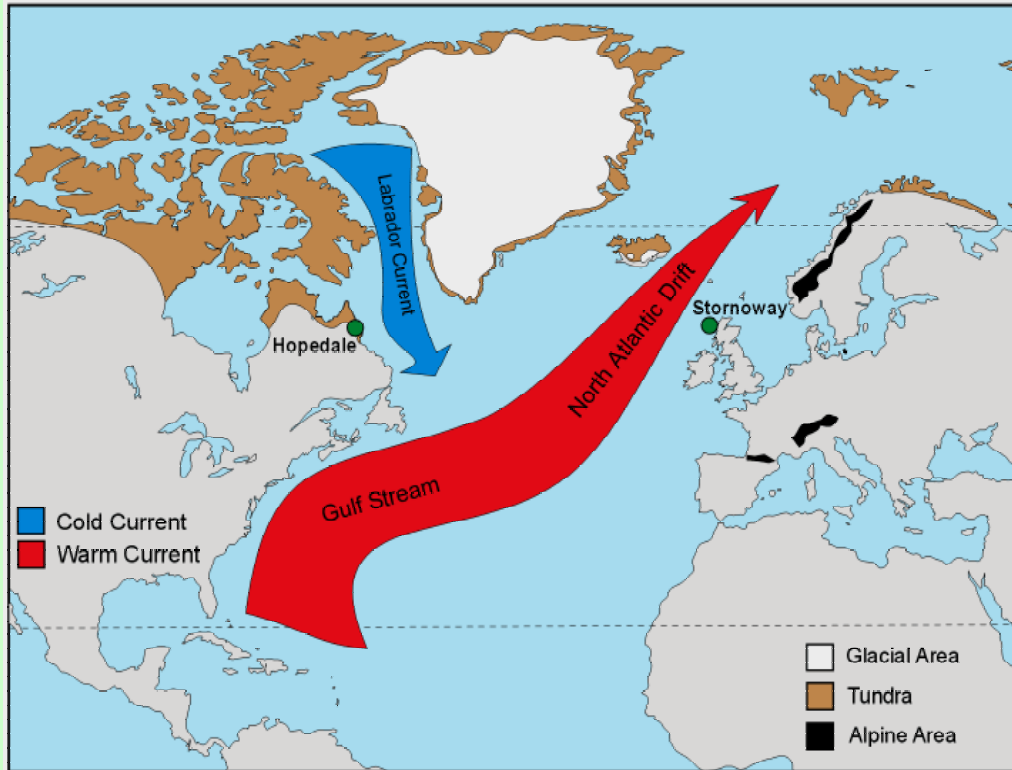


<http://www.global-greenhouse-warming.com/images/thermohaline.jpg>



<http://www.liv.ac.uk/physocean/schematics/thc.gif>

Thermohaline Circulation



<http://www.solcomhouse.com/images/gulfstream.gif>

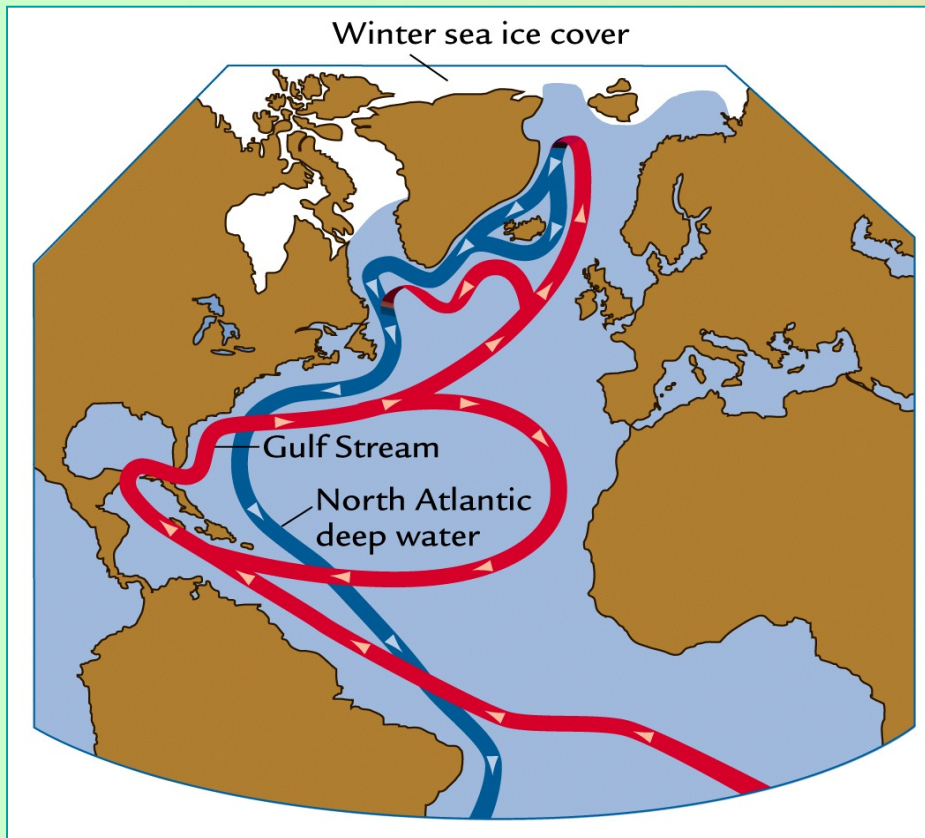
Thermohaline circulation

There is a large-scale pattern to the way that seawater moves around the world ocean. This pattern is driven by changes in water temperature and salinity that change the density of water.

It is known as the *Global Ocean Conveyor* or thermohaline circulation.

It affects water at the ocean surface and all the way to the deep ocean. It moves water around the world.

Thermohaline Circulation



<http://www.sonoma.edu/users/f/freidel/global/figure%2002-24.jpg>

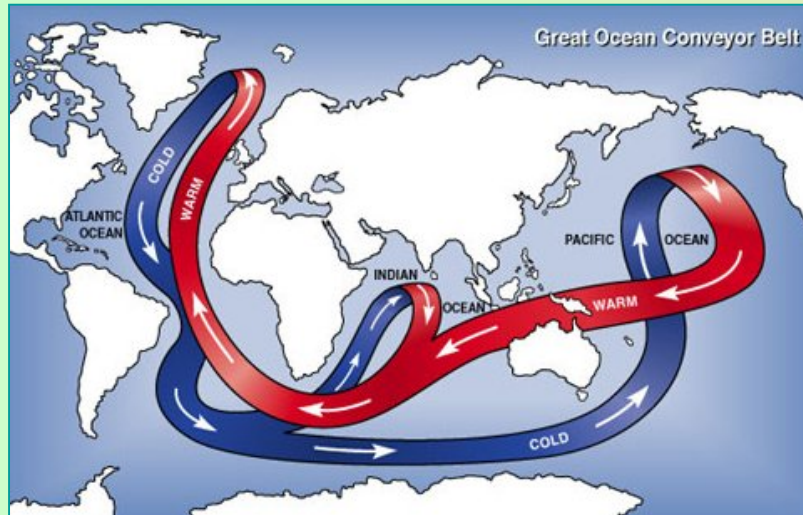
Thermohaline circulation

The Global Ocean Conveyor moves water slowly, 10 cm per second at most, but it moves a lot of water. One hundred times the amount of water that is in the Amazon River is being transported by this huge slow circulation pattern.

The water moves mainly because of differences in relative density. Water that is more dense sinks below water that is less dense. Two things affect the density of seawater: temperature and salinity.

Thermohaline Circulation

Thermohaline circulation



<http://www.windows.ucar.edu/earth/images/currents1.jpg>

Recent research shows that Arctic sea ice is melting faster than expected. As the Earth continues to warm and Arctic sea ice melts, the influx of freshwater from the melting ice is making seawater at high latitudes less dense.

The less dense water will not be able to sink and circulate through the deep ocean as it does currently. This will disrupt or stop the Global Ocean Conveyor. Scientists estimate that, given the current rate of change, the Global Ocean Conveyor may slow or stop within the next few decades.

If the Global Ocean Conveyor were to stop completely, the average temperature of Europe would cool 5 to 10 degrees Celsius.