

## Chapter 5 Movement of Ocean Water

Currents: Stream like movements of water

Surface Currents: Occur at or near the surface of the ocean.

Caused by global winds, Coriolis Effect, continental deflection

Global winds: blow across the Earth's surface

Coriolis Effect: the apparent curved paths of objects that are otherwise moving in a straight path caused by the Earth's rotation.

Continental Deflection: ocean currents change direction when they meet a continent.

May be warm or cold.

Deep Currents: occur far below the ocean's surface

Caused by changes in density

Evaporation: Water at the surface turns to vapor and leaves salt behind that makes the water more salty and more dense. Dense water sinks.

Freezing: Water at the surface freezes and squeezes the salt out and makes the water more salty and more dense. Dense water sinks.

Temperature: the cooling of water causes the molecules to huddle together and makes the water more dense. Dense water sinks.

Near Shore Surface Current: affect the climates or nearby coastal areas.

Gulf Stream Current: A warm water current from Tropics, that warms the east coast of the U.S. and the west coast of Europe.

California Current: Cold water current from the North Pacific that cools the west coast of the U.S..

Warm water at the Equator moves toward the polar regions and cool water from the polar regions move towards the equator.

El Nino: The Trade Winds blowing off the coast of Peru are weakened and the warm water on the coast does not get blown out into the Pacific Ocean. This prevents upwelling (cold nutrient rich water rising to the surface) on the coast. As a result, the Pacific Ocean is warmed and it changes the climate globally.

La Nina: The trade winds blow stronger off the coast of Peru, upwelling is very strong and the Eastern Pacific Ocean is much cooler.

By using buoys near the equator, scientist can record temperature and wind speed to help them predict the coming of an El Nino.