

# Ocean Currents and Climate

## Study Guide

# Ocean water

- The ocean water never stands still.
- Ocean currents are like rivers that move within the ocean.
- This movement influences the surrounding climate.



# Surface Currents

- Surface currents are caused by the wind and usually move only the upper few hundred meters of water.
- These currents do not move in straight lines.
- Coriolis Effect
- Surface Currents in the northern hemisphere curve right.
- Surface currents in the southern hemisphere curve left.

# Examples of Surface Currents



- **Gulf Stream-originates near the equator and travels up the east coast-it is a warm current.**
- **California Currents-originates in the north and travels down the west coast-it is a cold current.**

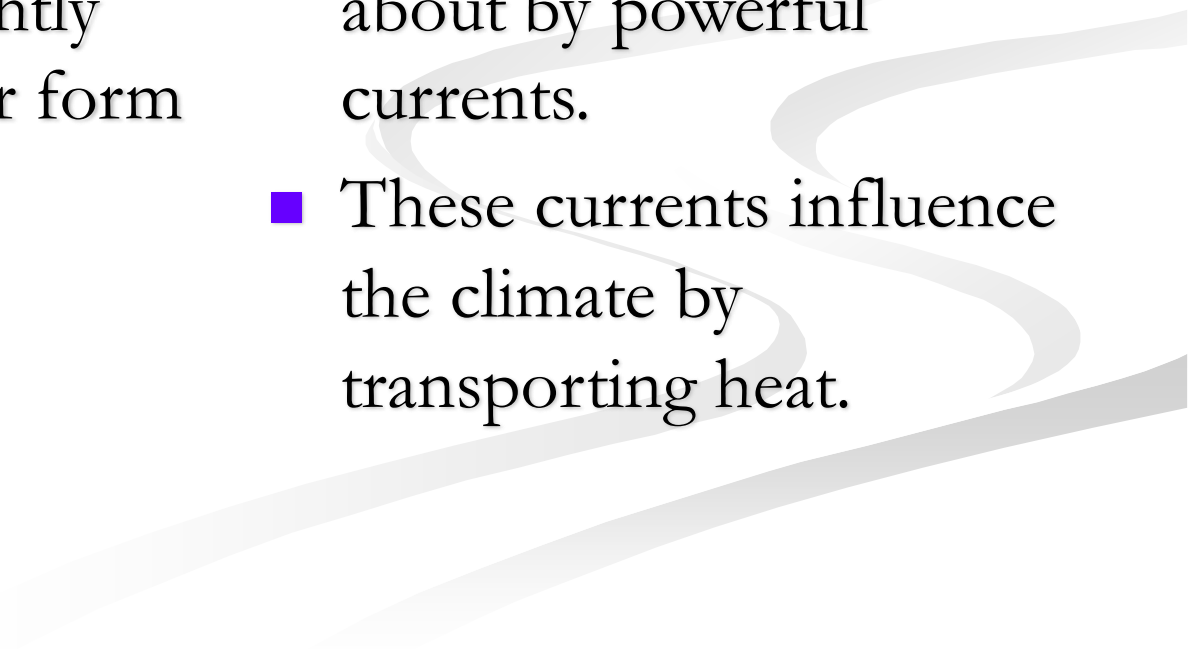
# Density Currents

- Occur when more dense seawater sinks beneath less dense seawater.
- Seawater becomes more denser when it gets colder or becomes saltier. This movement causes currents.
- Cold salty water is very dense so it sinks and slowly flows southward along the ocean floor.

# Upwelling

- A current in the ocean that brings deep, cold water to the ocean surface.
- Surface winds blow parallel to the land because of the Coriolis effect.
- Cold, deep water continually replaces the surface water that is pushed away from the coast.
- This cold water causes cool summers and fog in San Francisco.

# How the oceans influence climate

- The oceans influence climate over both long and short time periods.
  - The oceans and atmosphere are tightly linked and together form the most dynamic component of the climate system.
  - The oceans play a critical role in storing heat.
  - The oceans waters are constantly being moved about by powerful currents.
  - These currents influence the climate by transporting heat.
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# How the oceans influence climate continued...

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- Currents involved in “deep-water formation” are particularly important for climate.
- An apparently small change in just one aspect of the oceans behavior can produce major climate variations over large areas of earth.



# Climate is not weather

- Climate- the average pattern of weather in a place.
- Weather- is the condition of the atmosphere at a particular place and time measured in terms of such things as wind, temperature, humidity, cloudiness, precipitation, and atmospheric pressure.

