

## OCEAN CURRENTS

**Ocean currents** are generated by a number of factors including Earth's rotation, wind direction, temperature differences and salinity differences. Movements are both horizontal and vertical.

Currents are designated **warm** or **cold**. This designation comes from their point of origin, not their actual temperature. Any current flowing from the equatorial region toward the polar region is designated as warm; any current flowing from the polar region toward the equator is designated as cold. In actuality, a warm current has a higher temperature than surrounding waters and a cold current has a lower temperature than surrounding waters.

Coupled with wind direction and the current's direction of flow, the temperature of the ocean current affects the formation of climate on the land.

a) Every ocean, **except** the Arctic Ocean, has a North Equatorial Current, a South Equatorial Current and an Equatorial Counter Current. The North and South equatorial currents flow from east to west. The Equatorial Counter Current is located between the North and South equatorial currents and flows in opposition to them, that is, from west to east.

b) Major currents of the North Atlantic Ocean are: Gulf Stream (warm), North Atlantic Drift (warm) and Canary Current (cold).

c) Major currents of South Atlantic Ocean are: Benguela Current (cold) and Brazil Current (warm).

d) Major currents of the North Pacific Ocean are: Japan-Kuroshiro (warm), North Pacific Current (warm), Alaska Current (warm) and California Current (cold).

e) Major currents of South Pacific Ocean are: Peru-Humboldt Current (cold), East Australian Current (warm).

f) Major currents of the Indian Ocean are West Australian (cold), and Agulhas Current (warm).

g) The chief current surrounding Antarctica is the West Wind Drift (cold).

h) There are no primary currents in the Arctic Ocean although there is a circumpolar flow. The Labrador Current (cold) and the East Greenland Current (cold) are outlets of the Arctic Ocean into the North Atlantic Ocean.

See appropriate pages in your atlas and textbook.