

Large Bodies of Water

Large bodies of water can influence an area's climate. Water absorbs and releases heat slower than land does. Because of this quality, water helps to moderate the temperatures of the land around it. So, sudden or extreme temperature changes rarely take place on land near large bodies of water. For example, the state of Michigan, which is surrounded by the Great Lakes, has more-moderate temperatures than other places at the same latitude. The lakes also increase the moisture content of the air, which leads to heavy snowfall in the winter. This "lake effect" can cause 350 inches of snow to drop in one year!

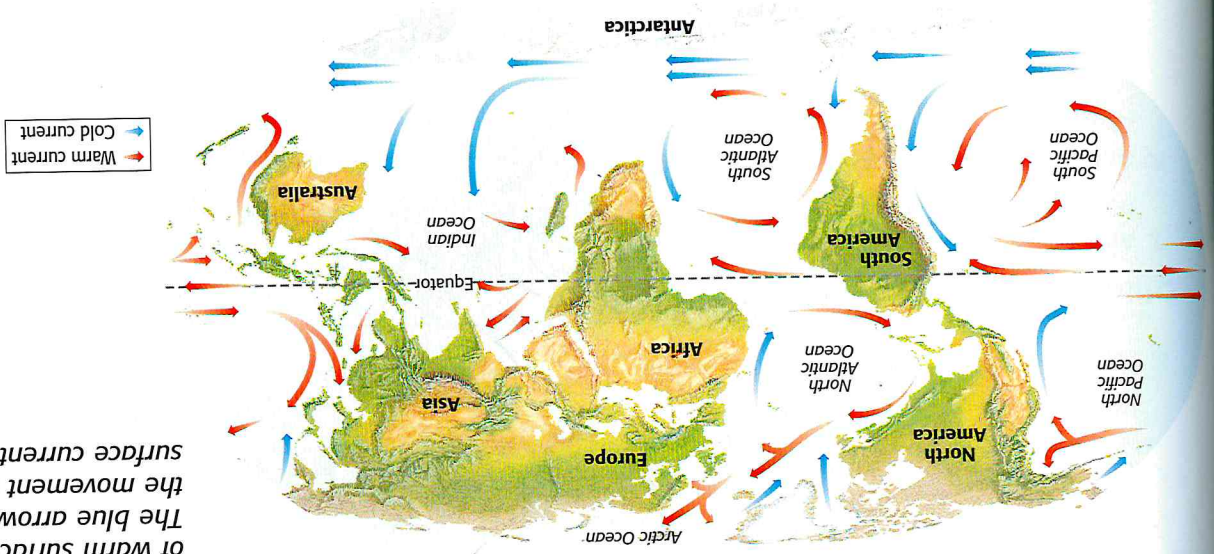
Ocean Currents

The circulation of ocean surface currents has a large effect on an area's climate. **Surface currents** are streamlike movements of water that occur at or near the surface of the ocean. **Figure 8** shows the pattern of the major ocean surface currents.

As surface currents move, they carry warm or cool water to different locations. The surface temperature of the water affects the temperature of the air above it. Warm currents heat the surrounding air and cause warmer temperatures. Cool currents cool the surrounding air and cause cooler temperatures. The Gulf Stream current carries warm water northward off the east coast of North America and past Iceland. Iceland is an island country located just below the Arctic Circle. The warm water from the Gulf Stream heats the surrounding air and creates warmer temperatures in southern Iceland. Iceland experiences milder temperatures than Greenland, its neighboring island. Greenland's climate is cooler because Greenland is not influenced by the Gulf Stream.

Reading Check Why does Iceland experience milder temperatures than Greenland?

Figure 8 The red arrows represent the movement of warm surface currents. The blue arrows represent the movement of cold surface currents.



elevation the height of an object above sea level

surface current a horizontal movement of ocean water that is caused by wind and that occurs at or near the ocean's surface