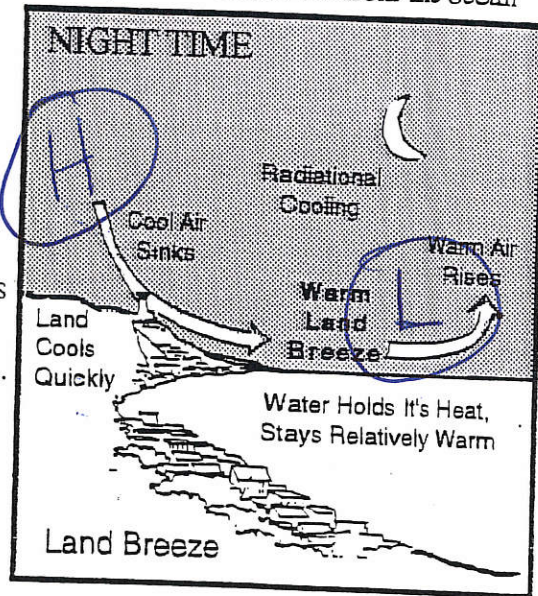


Why is the shore so popular in hot summer weather? During the day, when the sun shines, the land heats up more than water. You may recall that when air is heated, it expands and becomes less dense. A local wind result when the warm, light air over the land rises, and the cooler air from the ocean blows in to replace it.

Not only does this temperature differential make a breeze, but the wind is relatively cool. Continued heating of the land sustains these winds until the sun sets and the land begins to cool off. Then the breeze reverses.



The night breezes blow from the land back out to sea. This is because at night, the land cools off rapidly, but the water holds more of its warmth. Now the ocean is warmer than the land, and the warm ocean air rises, causing the air from over the land to blow out to sea.

These localized winds make the shore a popular place in hot summer weather. As long as there are no large scale weather systems to overpower these land and sea breezes, these localized winds moderate the summer temperatures at the shore. Heat flow caused by differences in the density of a fluid is known as convection.

Many of these answers can be found in, *Air Pressure and Winds* and in the *Earth Science Reference Tables*.

1. Winds *always* blow from hi pressure to low pressure.
2. What causes low pressure over the land during the day? depending on % of insolation heating of the earth → heats air → warm air rises
3. What are the U.S. *and* Metric units of air pressure?(Ref. Tables) inches of Mercury + kilopascals
4. What name is applied to the circulation of energy by density currents in a fluid? convection
5. Wind is a vector quantity because it has both speed and direction.
6. What is a sea breeze? a breeze blowing from the "ocean" towards the land
7. On each of the diagrams above, write an "H" and an "L" to show where the surface atmospheric pressure is relatively high and relatively low. (Show an "H" and an "L" on both diagrams.)
8. Why does the water temperature change less than the land temperature? H<sub>2</sub>O has a high specific heat
9. According to the Reference Tables (page 14),  
 29.5 inches of mercury = \_\_\_\_\_ mb, 999 mb = 37.4 inches of mercury  
 30.22 inches of mercury = \_\_\_\_\_ mb, 1016 mb = \_\_\_\_\_ inches of mercury