* The ability for the ocean to absorb and store energy from the sun is due to:
	+ The transparency of the water that allows the sun’s ray to penetrate deep into the ocean.
	+ Constant turbulence from wind and weather mixes the water, distributing surface heating throughout
* Composed of two opposing flows
	+ One at the surface (called sea breeze)
	+ One aloft (a return flow)
* Two flows are a result of the difference in air density between the land and sea caused by the sun’s heating.



**Sea Breeze**

1. Sun warms ground and ocean, ground’s heat radiates into atmosphere, warming air. As air warms, density decreases creating a weak low pressure area called a “thermal low”
2. The cooler, more dense air from water, spreads inland.
3. Air from ocean undercuts less dense air over land forcing it to rise. (Sea breeze front - develops due to the large difference between the air temperature over land and over water)
4. Air begins to cool, density increases, forms small area of high pressure (Occurs from 3,000 to 5,000 feet in elevation.)
5. High pressure/density air flows back over water (where there is low air pressure/density)
6. Air cools, density increases, air sinks toward the earth’s surface
7. Enhances high pressure near the ocean’s surface.

**Land Breeze**

1. Land temperature falls below ocean temperature resulting in increase in air’s density. Gravity’s pulls dense air offshore.
2. More dense air undercuts the lighter, warmer air over water.
3. Forces air up into the atmosphere
4. Raising air from a weak low pressure area.
5. Rising air accumulates aloft forming an area of higher pressure
6. Air flows back toward land from high pressure to low pressure
7. Air cools, increases in density, then sinks causing an increase in density and high pressure.

**Land Breeze Weaker than Sea Breeze**

* At night:
	+ Cooling ground inhibits vertical motion which weakens the land breeze circulation
	+ Nighttime cooling produces a shallower change in temperature so land breeze circulation is shallower
	+ Terrain, vegetation, and buildings inhibit the flow of air from land to water.