

# Coastal Breezes: An Overview

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## Editorial

Wind and weather phenomena connected with coastal areas include land and sea breezes. A land breeze is one that blows from the land to a body of water. A sea breeze is a wind that blows from the sea and lands on land. Differential heating between land and water surfaces causes land and sea winds to form. Land and sea breezes can travel up to 100 miles inland, or they might be localised to within a few hundred yards of the shoreline. Land and sea winds diminish their weather and cloud impacts 20-30 miles inland from the coast on average.

Fog dispersal and pollution deposition or dispersion over inland areas can be substantially influenced by land and sea airflow patterns. Attempts to estimate wind patterns that affect energy requirements). Because water has a far higher heat capacity than sands or other crustal minerals, water temperature will increase less than land temperature for a given amount of sun irradiation. Regardless of temperature scale, land temperatures can fluctuate by tens of degrees during the day, but ocean temperatures fluctuate by less than half a degree. Water's large heat capacity, on the other hand, inhibits fast fluctuations in water temperature at night, thus while land temperatures may drop by tens of degrees, water temperatures stay relatively steady. Furthermore, crustal materials' reduced heat capacity allows them to cool below the temperature of adjacent water.

Conduction with the respective land and water surfaces warms or cools the air above them. During the day, the warmer land temperature results in a warmer air mass above the coast, which is less dense and lighter than the neighbouring air mass over the water's surface. As warmer air rises due to convection, cooler air from the ocean is drawn in to fill the void. To complete a convective cell, the warmer air mass returns to sea at higher elevations. As a result, there is frequently a cooling sea breeze coming from the ocean to the shore during the day. Sea breezes can gust 15 to 20 miles per hour depending on temperature variations and the amount of elevated air.

The air mass above the coastal land rapidly loses heat after sunset, whereas the air mass above the water often stays much closer to its daytime temperature. The wind direction and convective cell currents reverse when

the air mass above the land becomes cooler than the air mass over water, and the land breeze blows from land to sea. Large-scale weather systems sometimes swallow or overrun land breezes and sea breezes since they are localised weather patterns. Winds will always follow the most dominant pressure gradient, regardless.

The updraft of warm, moist air from the sea causes daytime cloud formation around the shoreline. Sea breezes are frequently used by glider pilots to ride thermal convection currents. Land breezes and sea breezes are both common near major bodies of water, while they are most common around the shore. In coastal areas, land winds and sea breezes produce high humidity, heavy precipitation, and temperature moderation [1-5].

## Conflict of Interest

None.

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