The wind in your sails

Hard a-port!

Fast or slow?

The wind's paths

Against the wall

Solar energy

Under the stars

Hard a-port!

Point ho!

- "With the wind at our backs like this, we're best to go to the left around the island. There's plenty of clearance over the shoals and we'll be able to go faster. The wind is amazing! There's no speed limit, but you can depend on it to follow its own rules."

Corner effect

Whenever the wind encounters an obstacle, it tends to shift to the left, and to strengthen.

This is true in the case of islands, capes and points.

When the wind is with you, it's always tempting to go along with it and sail around an island to the left. Just be careful to check your charts to make sure you won't find any unpleasant surprises in the form of shoals.

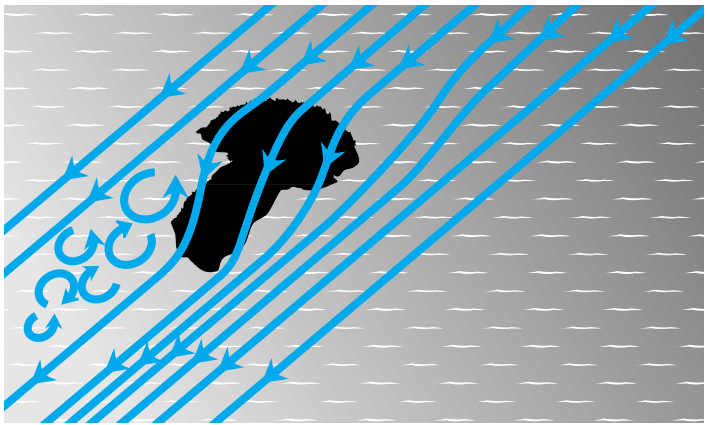
Slower to the right

Obviously, in such a case, there won't be much wind to the right of the obstacle. In the lee of the island, you may run into turbulence for quite a while, but you can avoid it by staying very close to the shore.

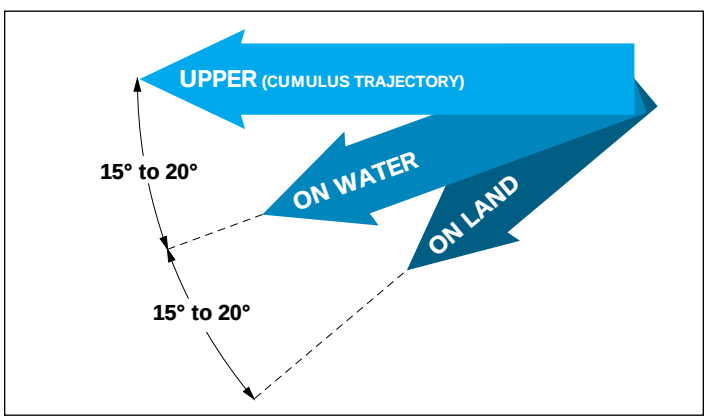
The rules

High above the earth's surface, the wind blows freely. Over the ocean, friction between the water and the wind slows it down slightly and deflects it to the left.

The braking and deflection effects are stronger over the land, since there is greater friction between the land and the wind.



Corner effect



Wind deflection

Fast or slow?

10 nautical miles off Matane - Destination: Grande-Vallée - Wind direction: Southwesterly; wind speed: 15 knots.

- "We're going to head for the shore. If my grandfather is right, the wind will pick up closer in."

When the wind is blowing parallel to the shore, it creates a narrow band in which the wind picks up speed or drops off sharply, depending on whether the shore is on your right or your left with the wind at your back.

Convergence

When the shore is on your right and less than 3 nautical miles off, the convergence effect means that the wind will automatically be 25 % stronger.

The wind will shift slightly to the left because of the friction created by the shore and will join forces with the sea wind.

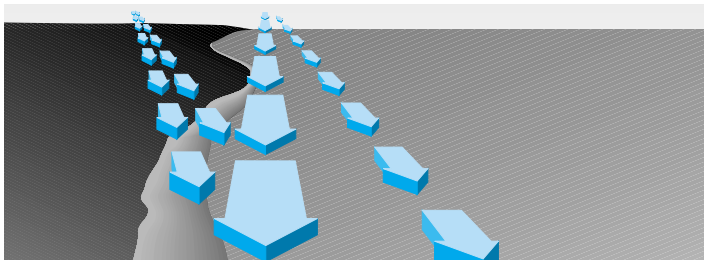
Divergence

The effect is the opposite when the shore is on your left.

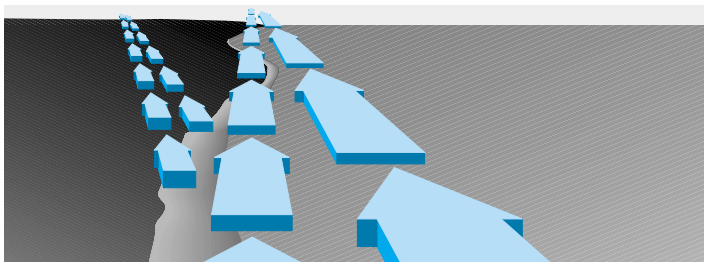
The airstream that diverges to the left because of friction on the shore will meet and slow down the sea wind.

Intersection

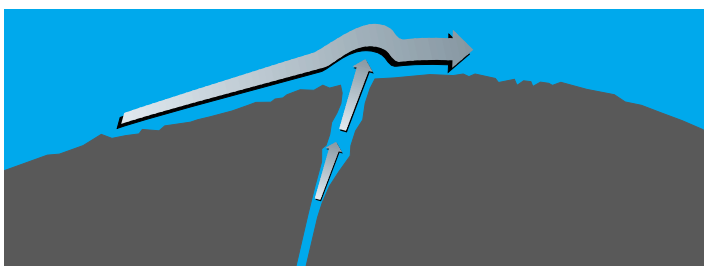
Watch out for drainage winds. Where there is convergence, the wind over the ground will flow down a valley and, when it meets the sea, may give a nasty shock to anyone caught hugging the shore too closely



Convergence



Divergence



Drainage wind

The wind's paths

La Malbaie

- “Be careful around Tadoussac. You think the Northwesterly wind is strong here? It's three times as strong at the mouth of the Saguenay. It's a regular cannon there.”

Channelling

The wind finds its own paths. They may sometimes be as wide as immense valleys, and other times merely a passage between two islands or two shores.

When the wind is blowing over a chain of mountains, it may come shooting out of a valley with great force. Mariners on the Saguenay actually call it *THE CANNON*.

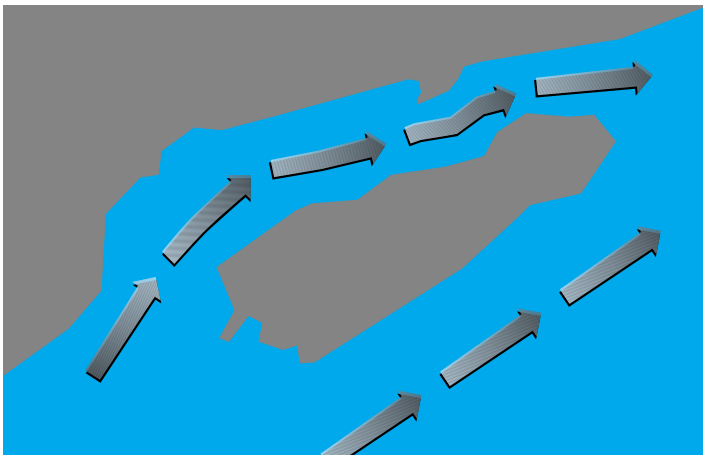
These natural channels may make it seem that the wind is coming out of nowhere, but that isn't really so. It is merely subject to local deviation.

Before navigating in an unfamiliar area, be sure to take a look at the topography.

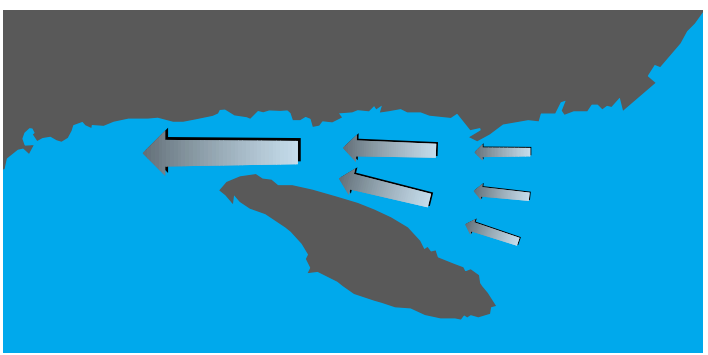
Funnelling

This effect corresponds to the size of the funnel created by the topography. The steeper and closer the banks or shores, the more the wind will be forced into a narrow passage and the more it will accelerate. It may even double in speed.

Gusts of wind, strong funnelling effects, steep shores and mountains all add up to very hazardous conditions



Channelling



Funnelling

Offshore

- "We're coming up to the Péninsule de la Gaspésie. With those mountains and high cliffs, this Northwesterly wind will have to turn Westerly. If we stay offshore a few nautical miles, we should get to Mont-Louis a lot faster. With this wind, it would be a lot harder if we hugged the Charlevoix shore."

Barrier

When the wind strikes a steep shore at an angle, it is deflected along the shoreline and strengthens. This increase in wind speed results as the air piles up.

The steeper the barrier, the stronger the wind and the more pronounced the effect. It may be felt as far as ten nautical miles off the Péninsule de la Gaspésie.

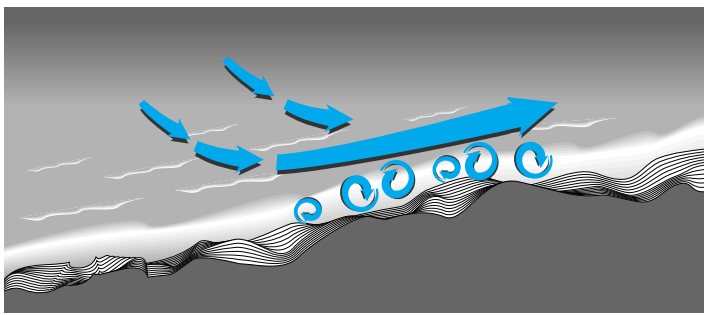
Close to the shore, the wind will be very turbulent because of this barrier effect.

Eddies

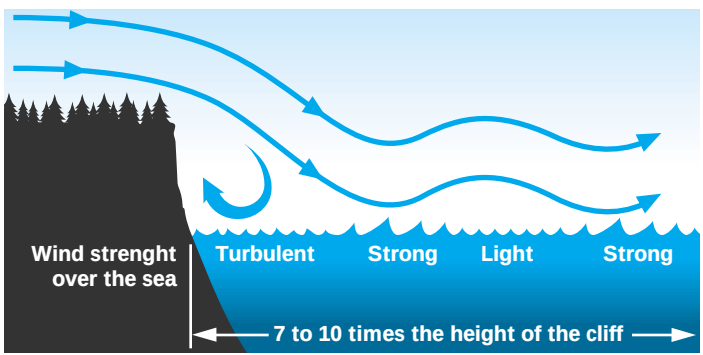
The situation is very different if the wind is blowing off the top of a cliff. The wind will blow toward the sea, but when it meets the sea it will eddy back toward the cliff just where you would have thought that you were sheltered from the wind.

Farther offshore, the wind will bounce along the water's surface for a distance of about 7 to 10 times the height of the cliff.

These eddy and bouncing effects create very turbulent winds



Barrier effect



Cliff effect

Solar energy

Côte-Nord

The sun is shining brightly. The air is calm. The smell of coffee lingers in the air. It looks like a beautiful morning.

Gradually, a cool breeze picks up over the water. It's time to hoist the sails if you want to enjoy a few hours of good sailing wind. The sea breeze is in your favour.

Sea breeze

The sea breeze is the result of the sun shining on the shore. As the land heats up, the air becomes lighter and rises. The cooler air from the sea moves in to take its place.

Initially, the breeze is perpendicular to the shore. Then, as it picks up speed, it gradually shifts to the right and ends up blowing against the shore at an angle.

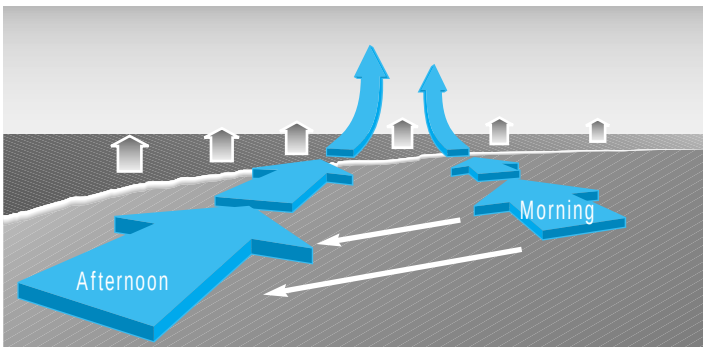
It disappears shortly before sunset.

On the Basse-Côte-Nord, it may be felt as far as 15 nautical miles offshore and may reach 25 knots.

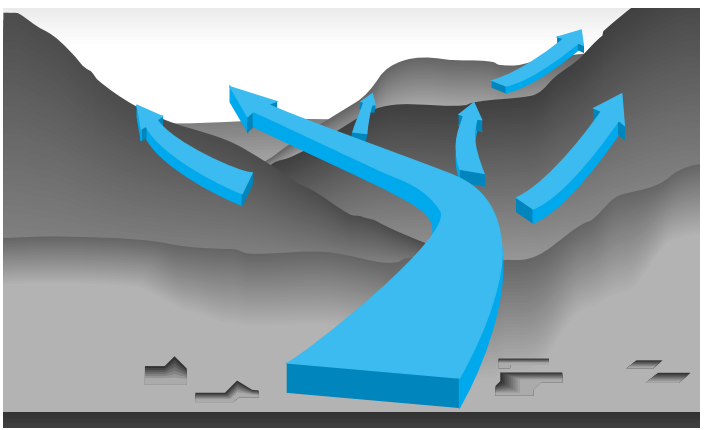
Anabatic wind

When the sea breeze hits the opening of a steep valley, it is strengthened by the anabatic wind. This is a wind that flows up the valley, as it is created by the warm air rising up the hillsides.

The anabatic wind is stronger when the mouth of the valley faces south.



Gradual shift in sea breeze


Anabatic wind

A bay at the mouth of a steep valley

22:00. It's time we were all in bed. New horizons await us tomorrow. 23:18. All hands are jolted awake.

The boat is straining at its anchor. It's shuddering in the wind. No one expected this on such a fine, clear night after such a beautiful, warm day. It's *katastrophic*!

Land breeze

The calm before the storm. A few hours after the sun sets, it's time for the air from the shore to flow out to sea, but this phenomenon is not as strong as the sea breeze.

On a clear night, the cooler air from the shore will replace the warmer air over the sea.

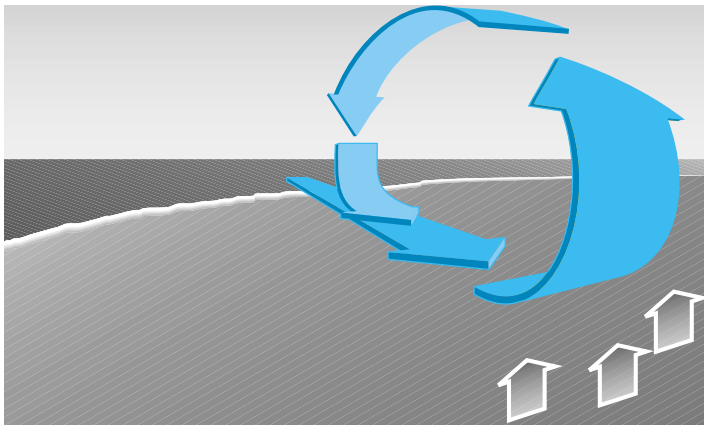
This is known as the land breeze. It blows until morning.

Katabatic wind

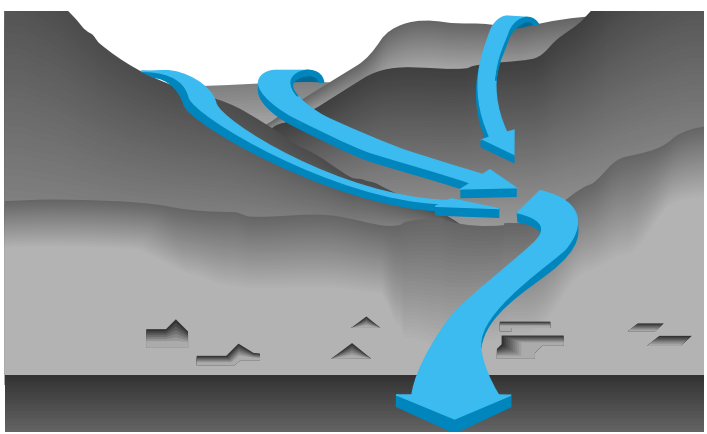
While the land breeze is rather gentle, not so the katabatic wind. It doesn't believe in sweet dreams.

After a warm, windless and cloud-free summer day, the katabatic wind will blow in strong gusts. The cooler air from above will flow down the deep valleys and rush out to sea.

This local wind, which tends to spoil the most pleasant nights, can easily reach 25 or even 30 knots. It blows from late evening until sunrise. *Kata means "downward"*



Land breeze



Katabatic wind

Pierre Pelletier