

Vetrii's TNPSC Material Geography



VETRII IAS STUDY CIRCLE

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TNPSC GEOGRAPHY

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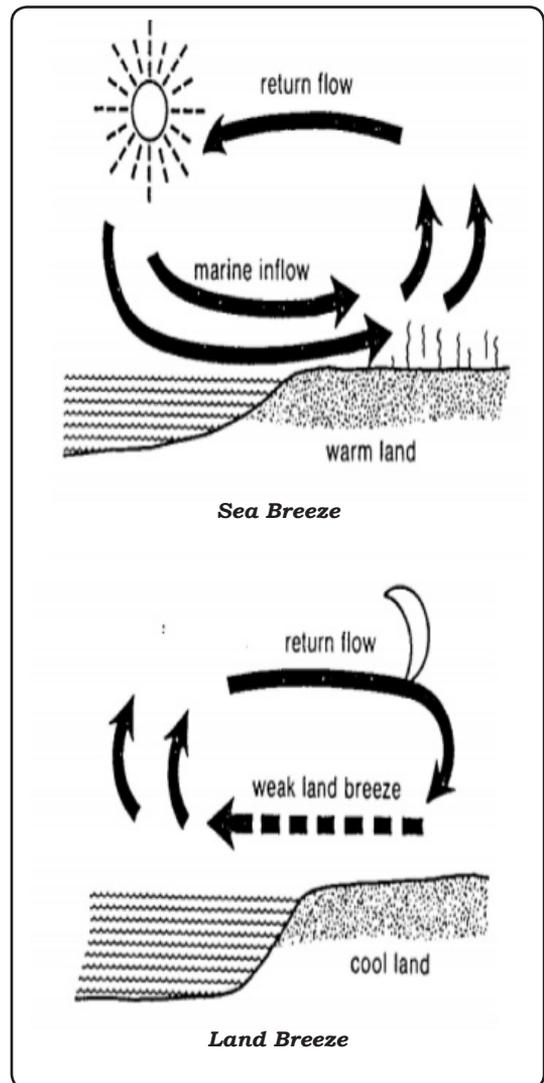
The general circulation of the atmosphere also affects the oceans. The large-scale winds of the atmosphere initiate large and slow moving currents of the ocean. Oceans in turn provide input of energy and water vapour into the air. These interactions take place rather slowly over a large part of the ocean.

1.5.2 Seasonal and Periodic Winds:

Differences in the heating and cooling of earth surfaces and the cycles those develop daily or annually can create several common, local or regional winds.

Land and Sea Breezes:

The land and sea absorb and transfer heat differently. During the day the land heats up faster and becomes warmer than the sea. Therefore, over the land the air raises giving rise to a low pressure area, whereas the sea is relatively cool and the pressure over sea is relatively high. Thus, pressure gradient from sea to land is created and the wind blows from the sea to the land as the sea breeze. In the night the reversal of condition takes place. The land loses heat faster and is cooler than the sea. The pressure gradient is from the land to the sea and hence land breeze results.



Mountain and Valley Winds:

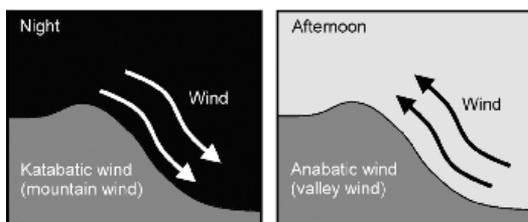
In mountainous regions, during the day the slopes get heated up and air moves upslope and to fill the resulting gap the air from the valley blows up the valley. This wind is known as the valley breeze. During the night the slopes get cooled

and the dense air descends into the valley as the mountain wind. The cool air, of the high plateaus and ice fields draining into the valley is called katabatic wind. Another type of warm wind occurs on the leeward side of the mountain ranges. The moisture in these winds, while crossing the mountain ranges condenses and precipitates. When it descends down the leeward side of the slope the dry air gets warmed up by adiabatic process. This dry air may melt the snow in a short time.

Anemometer: It is an instrument used to measure the velocity and direction of wind.

Wind Vane: It is used to indicate the direction of the wind.

Katabatic Wind:



The mountain cools down, the air becomes heavier so it descends

The sun warms the mountain, the air is lighter and ascends

Day Time:

- Slope gets heated and the air moves up slope the air from the valley blows up.
- A warm wind which blows up a steep slope, driven by heating of the slope through isolation is known as

Anabatic wind.

Night Time:

- The cool air of high Plateau and ice fields draining into Valley is called catabetic wind.
- During night the slope gets cooled and the dense air descends into valley as mountain wind.

Monsoon Winds:

They are like land and sea breezes on a large scale. They are periodic seasonal winds that are characterized by a seasonal reversal of winds. They blow from land to sea in winter and sea to land in summer. They prevail in the regions of the Indian sub-continent, South East Asia and Northern Australia. The term 'monsoon', meaning season, is derived from the Arabic word Mousim. The South-west monsoon brings heavy to moderate rain to the Indian landmass from June to September. In winter, the monsoon receives its direction so that winds blow out of the continent as the North-east monsoon towards the Bay of Bengal and Indian Ocean.

1.5.3 Local Winds:

These winds blow with some special characteristics over a small area and last for a short period. All these winds are mostly seasonal and given local names.

Name	Location	Characteristics
Loo	Northern Indian Plains	Hot and dry, Dust storm It can be fatal. Period: May to June
Chinook means Snow eater	Wind ward and leeward side of Rocky mountains. Originating from the pacific ocean which blows eastward over the Rockies, then cools on the mountainous slopes and warms significantly as it blows downward onto the prairies (temperate Grasslands) in North America.	Warm and dry wind. Gives rain and snow to windward side of Rocky mountains. Melts snow in the leeward side of Rockies (Prairies).
Foehn	Alps of Europe	Similar to Chinook in character
Berg	Off the South African plateau	Similar to Chinook in character
Santa Ana	Southern California	Hot dry descending winds. They may even cause fires in the dry areas.
Mistral	Shores of north-west Mediterranean in France	Cold dry winds
Bora	Shores of north-west Mediterranean in Italy	Cold dry winds
Leveche	Spain	Furious warm wind
Sirocco	Northern Africa, Southern Sicily	Hot and dry wind originating in the Sahara desert and blows through the Mediterranean sea to reach Sicily. Rainfall brought by these winds are usually brown in colour (due to desert sand and dust in air) It is called Blood Rain.