

# Wind & Its Types

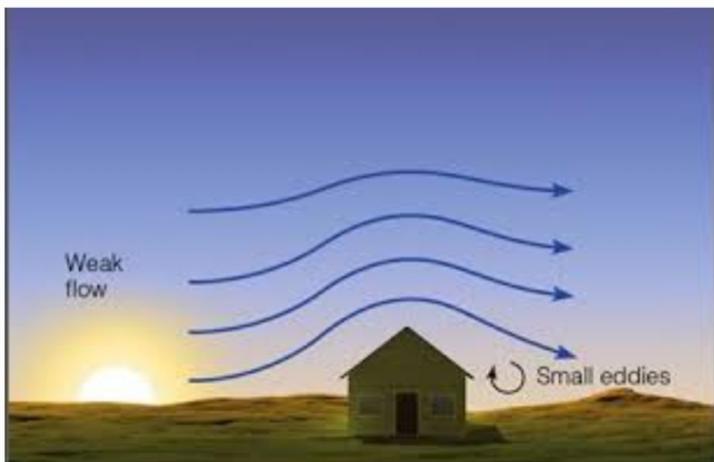
Wind can be described as the movement of air from the high-pressure area to the low-pressure area. There are many types of wind such as permanent, seasonal and local winds. A wind is named after the direction from which it blows, e.g. the wind blowing from the west is called westerly.

- What is WIND?
- It is an air movement having both direction and speed. It is made up of gusts and eddies that can only be felt and not seen, unlike rain and snow. Wind makes the leaves fall, sand move, trees wave, hair fly, etc. Since it cannot be seen, a conventional instrument is used to measure wind direction called weathercock or weather vane.

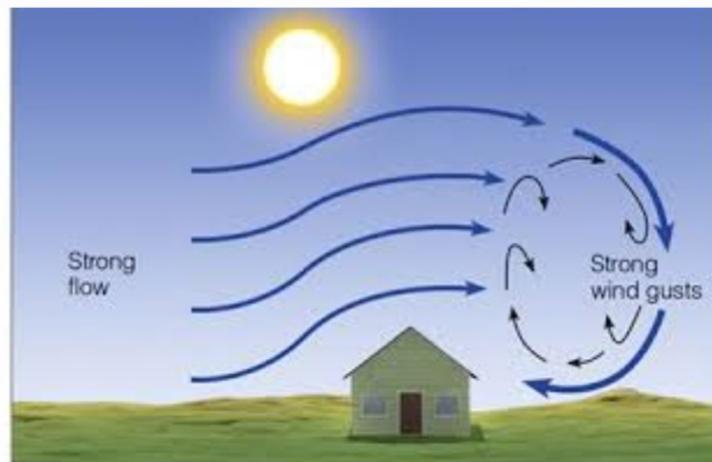


## Anemometers

Anemometers are a common weather station instrument which is used for measuring the speed of the wind. Cup anemometer, hot wire anemometer, windmill anemometer, sonic anemometer, and laser doppler anemometer are the different types of anemometer



(a) Stable air



(b) Unstable air

- **Types of Wind**

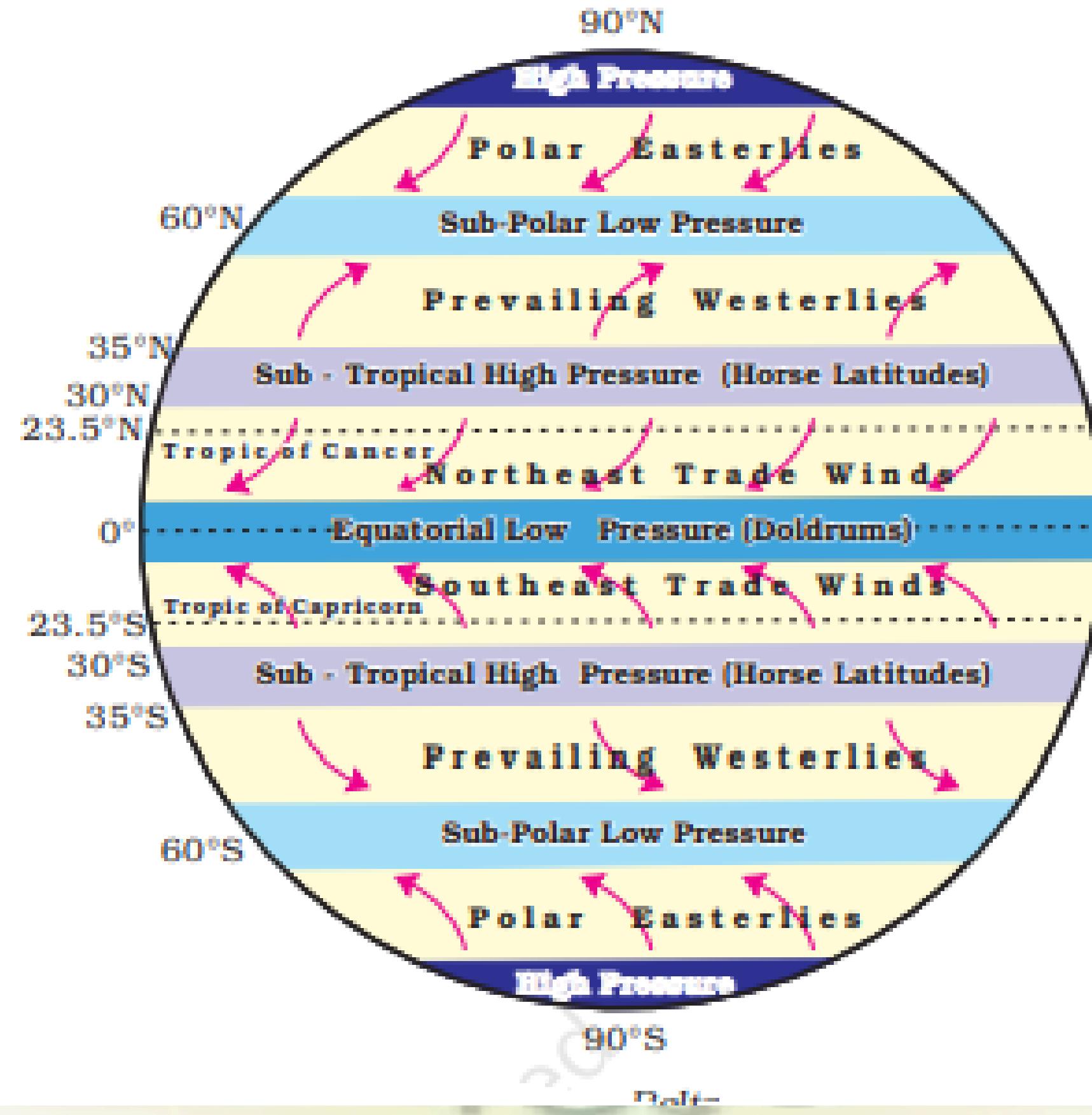
### **Types of Wind**

S.No	Type
1.	Permanent Winds
2.	Seasonal Winds
3.	Local Winds

## Type of Wind - Permanent Winds

The winds that blow constantly throughout the year are called Permanent Winds. They also blow constantly in a particular direction. There are types of permanent winds:

1. **Trade Winds** - These are permanent winds flowing from east-to-west. It flows in the Earth's equatorial region (between  $30^{\circ}\text{N}$  and  $30^{\circ}\text{S}$  latitudes).
2. **Easterlies** - It is a prevailing wind blowing from the east. The trade winds in tropical regions and the prevailing winds in the polar regions are easterlies.
3. **Westerlies** - These are prevailing winds that flow from the west towards the east. It flows in the Earth's middle latitudes between 30 and 60 degrees latitude. Also called as anti-trades, these winds originate from the high-pressure areas in the horse latitudes and trend towards the poles and steer extratropical cyclones in this general manner.



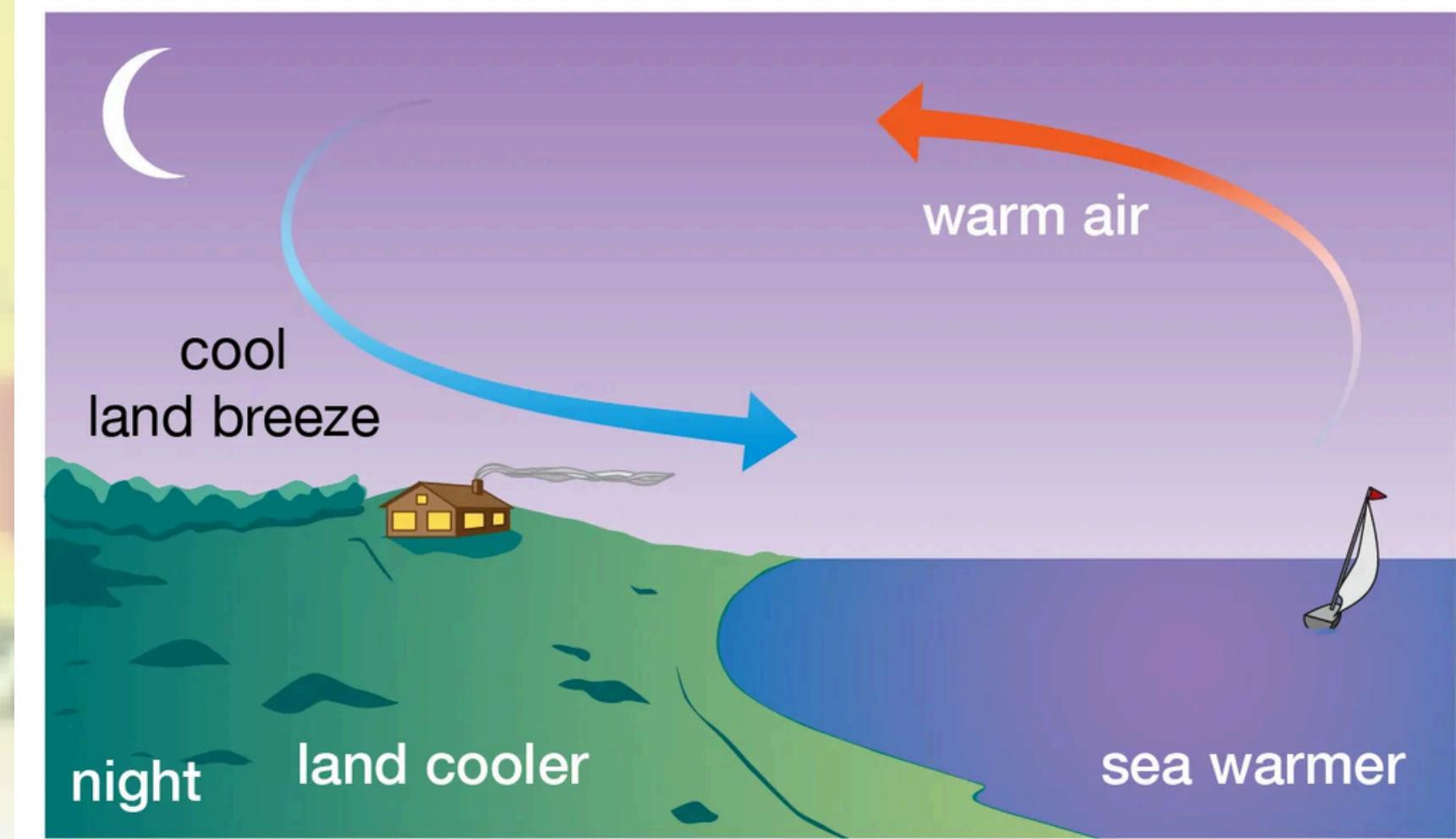
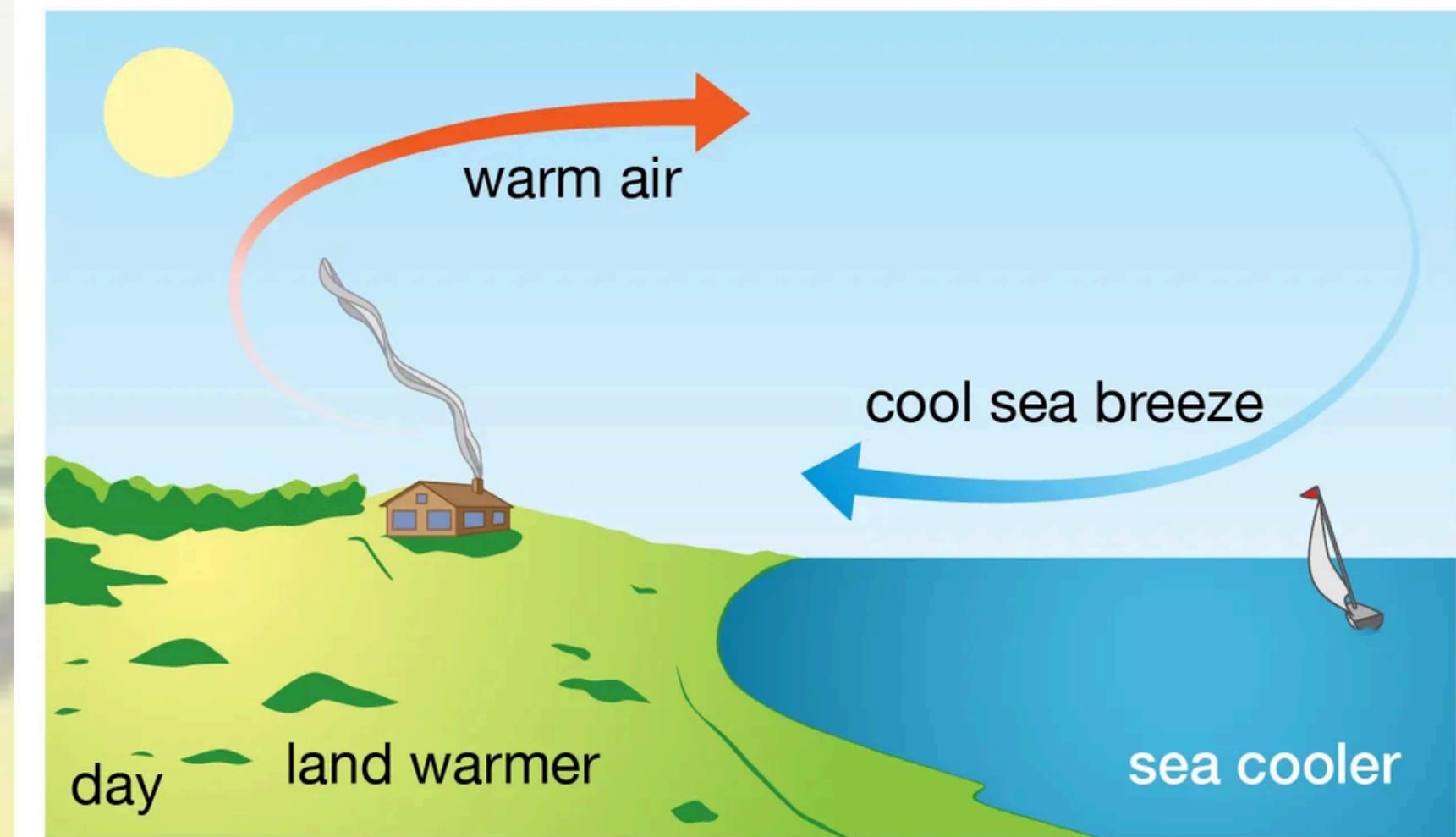
## Type of Wind - Seasonal Wind

The winds that change their direction with onsets of different seasons. These are hence called as Seasonal Winds. A monsoon is a type of seasonal wind in low-latitude climates that seasonally changes direction between winter and summer. Monsoon is prevalent in India.

## Type of Wind - Local Wind

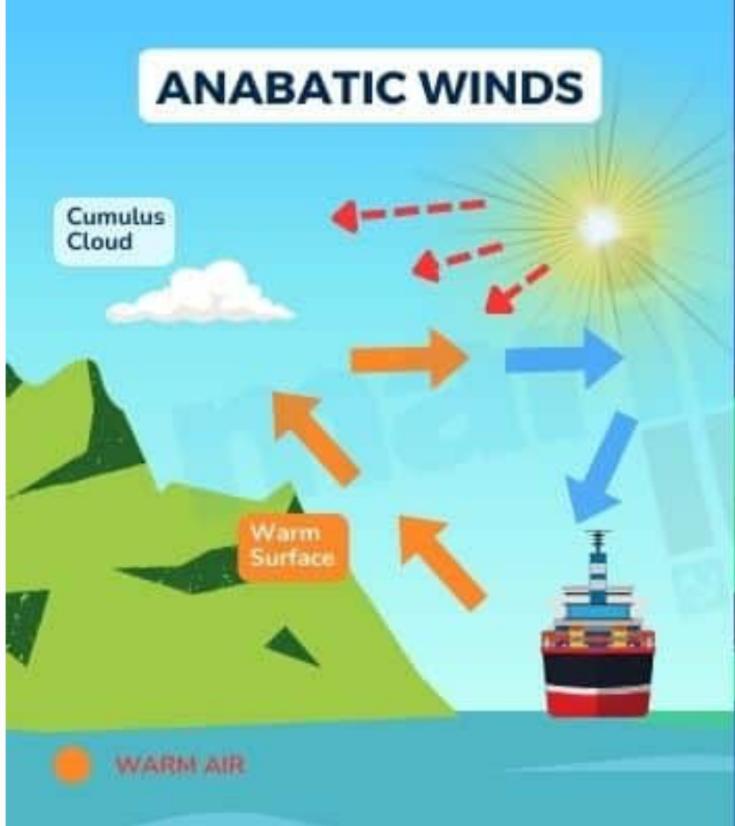
These blow only during a particular period of the day or year in a small area. For example, land and sea breeze. The types of local wind are given below:

1. **Land Breeze** - It is a wind that flows from the land towards the sea. It flows often at night.
2. **Sea Breeze** - It is a wind that blows towards land from the direction of a large water body. Sea breeze develops due to differences in air pressure created by the differing heat capacities of water and dry land.
3. **Anabatic Winds** - These Winds are upslope winds driven by warmer surface temperatures on a mountain slope than the surrounding air column.
4. **Katabatic Winds** - Katabatic winds are downslope winds created when the mountain surface is colder than the surrounding air and creates a downslope wind.



<b>Aspect</b>	<b>Sea Breezes</b>	<b>Land Breezes</b>
<b>Time of Occurrence</b>	Daytime	Nighttime
<b>Direction</b>	From sea to land	From land to sea
<b>Cause</b>	Land heats up faster than the sea, creating a low-pressure area over land.	Land cools down faster than the sea, creating a low-pressure area over the sea.
<b>Temperature</b>	Brings cooler air from the sea to the warmer land	Brings cooler air from the land to the warmer sea
<b>Strength</b>	Generally stronger, especially in the afternoon	Generally weaker compared to sea breezes
<b>Effect on Weather</b>	Helps in cooling down coastal areas during hot days	Can lead to mild warming of coastal areas at night

## ANABATIC WINDS



## KATABATIC WINDS





## **Cold wind**

- Pampero**
- Gregale**
- Bora**
- Tramontane**
- Mistral**

## **Warm winds**

- Foehn or Fohn**
- Chinook**
- Zonda**
- Loo**
- Sirocco**

### List of Names of Local Winds of the World

Name	Region
Abrolhos	Brazil
Alisio	Caribbean
Alize	Central Africa and the Caribbean
Barguzin wind	Russia
Berg	South Africa
Harmattan	Central Africa
Gibli	Libya
Loo	India, Pakistan
Pampero	Argentina, Uruguay
Föhn or foehn	Alps, North Italy
Chinook	Rocky Mountains
Roaring Forties	Southern Hemisphere
Southerly Buster	Sydney













