

GEOGRAPHY

Winds

Part 1

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- **Horizontal movement of air is called Wind.**
- **Air moves from high pressure area to low pressure area.**
- **Winds are named on the basis of the direction from which they blow.**

Major factors affecting the direction and Speed of Wind

- 1. Pressure Gradient force**
- 2. Friction**
- 3. Coriolis force**

- The differences in air pressure experiencing on earth surface is called Pressure gradient.
- If the pressure gradient is high, the speed of wind also will be high.
- If the friction is higher , the speed of wind will be lesser.
- The major factor affecting the wind direction is Coriolis Effect.

- **Coriolis Force - All freely moving bodies in earth's surface get deflected to the Right in Northern Hemisphere and to the Left in Southern Hemisphere.**
- **Coriolis Force is generated due to the rotation of earth.**
- **Coriolis Force increases on moving to poles.**
- **It was discovered by Gustave De Coriolis.(French mathematician)**

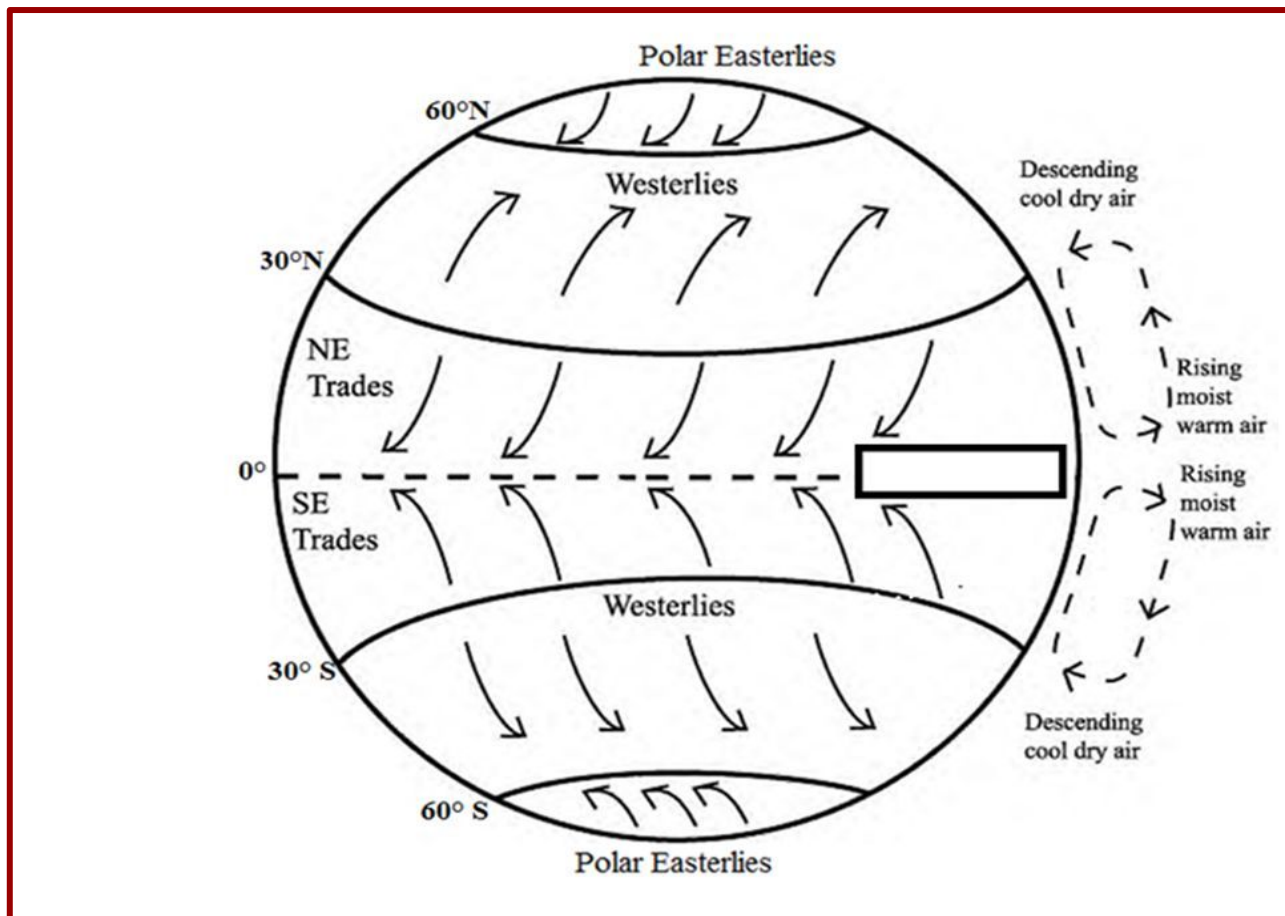
- **Ferrel's Law – Ferrell found that winds in the northern hemisphere deflect towards their right and those in the southern hemisphere deflects towards their left due to Coriolis Effect.**
- **Study of wind – Anemology.**
- **Device used for measuring wind speed – Anemometer.**
- **Device used to demonstrate wind direction – Wind Vane.**

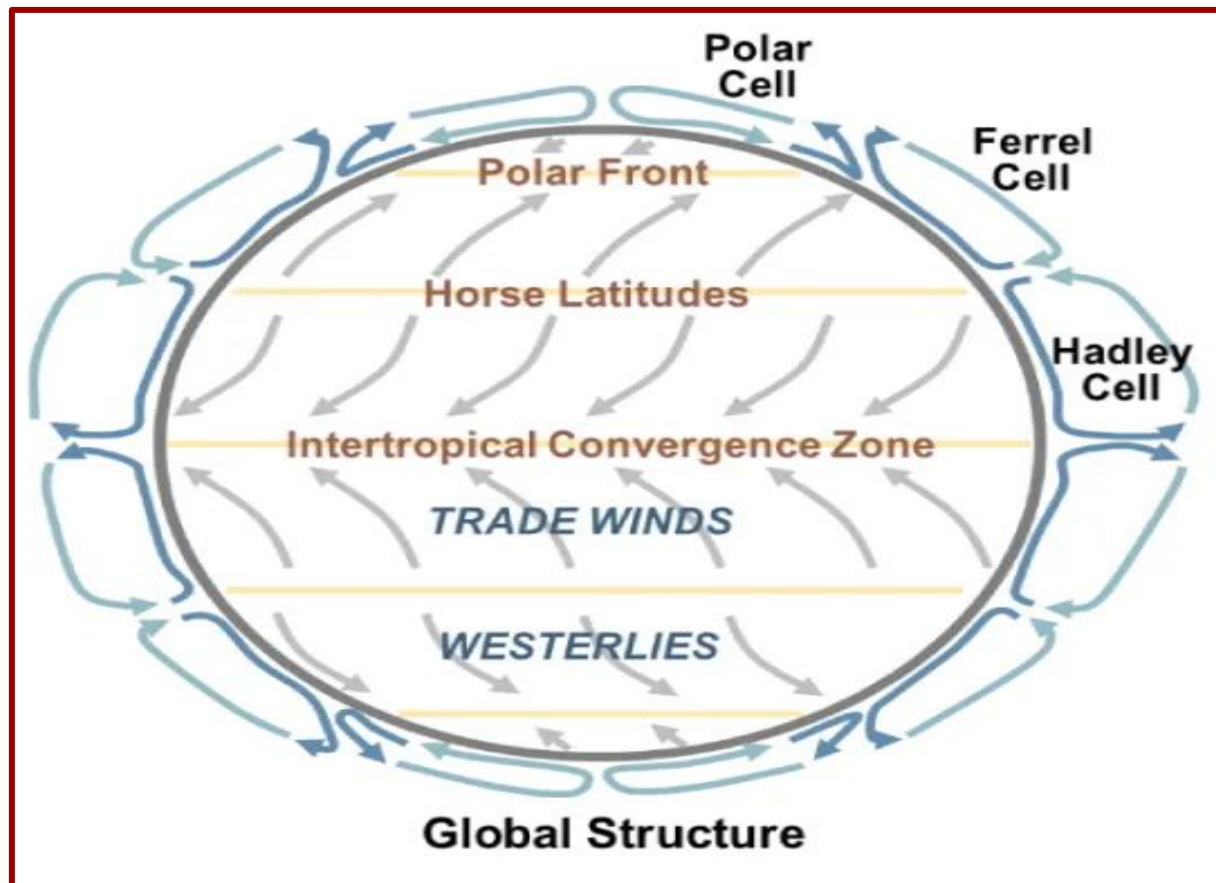
Winds are mainly classified into 4.

- 1. Planetary Winds / Permanent Winds / Global winds.**
- 2. Variable Winds.**
- 3. Seasonal Winds / Periodic winds.**
- 4. Local Winds.**

Planetary Winds / Permanent Winds

- Winds blowing throughout the year from high pressure belt to low pressure belt in the same direction are called Planetary Winds / Permanent Winds
- There are 3 types of Planetary Winds.
 1. Trade Winds.
 2. Westerlies.
 3. Polar Easterlies.





Trade winds

- Winds blow continuously from subtropical high pressure zone to equatorial low pressure zone .
- Trade winds blow from north east to south west in northern hemisphere and southeast to northwest in southern hemisphere.
- Trade winds converges near equator and it is called as Intertropical convergence zone (ITCZ)
- ITCZ is located inside Doldrums.(locates between 5 degree north and south latitudes)

WESTERLIES

- **Winds blow continuously from subtropical high pressure zone to Sub polar low pressure zone.**
- **Westerlies blow from South west to north east in Northern hemisphere and North west to South east in Southern hemisphere.**
- **Due to the vast expanse of ocean in southern hemisphere, Westerlies are stronger in Southern hemisphere.**

- **Strong westerly wind found in the southern hemisphere between 35° to 45° is called Roaring Forties**
- **Strong westerly wind found in the southern hemisphere between 45° to 55° is called Furious Fifties**
- **Strong westerly wind found in the southern hemisphere between 55° to 65° is called Screaming Sixties.**

POLAR EASTERLIES

- Cold winds blow from polar high pressure zones to sub polar low pressure zones.
- Polar easterlies blow from North east to South west in Northern hemisphere and South east to North west in southern hemisphere.
- HADLEY CELL - 0° to 30° .
- FERREL CELL- 30° 60° .
- POLAR CELL - 60° - 90° .



THANK YOU