

CLASS -3



2

**In Search of the
Source of Wind**

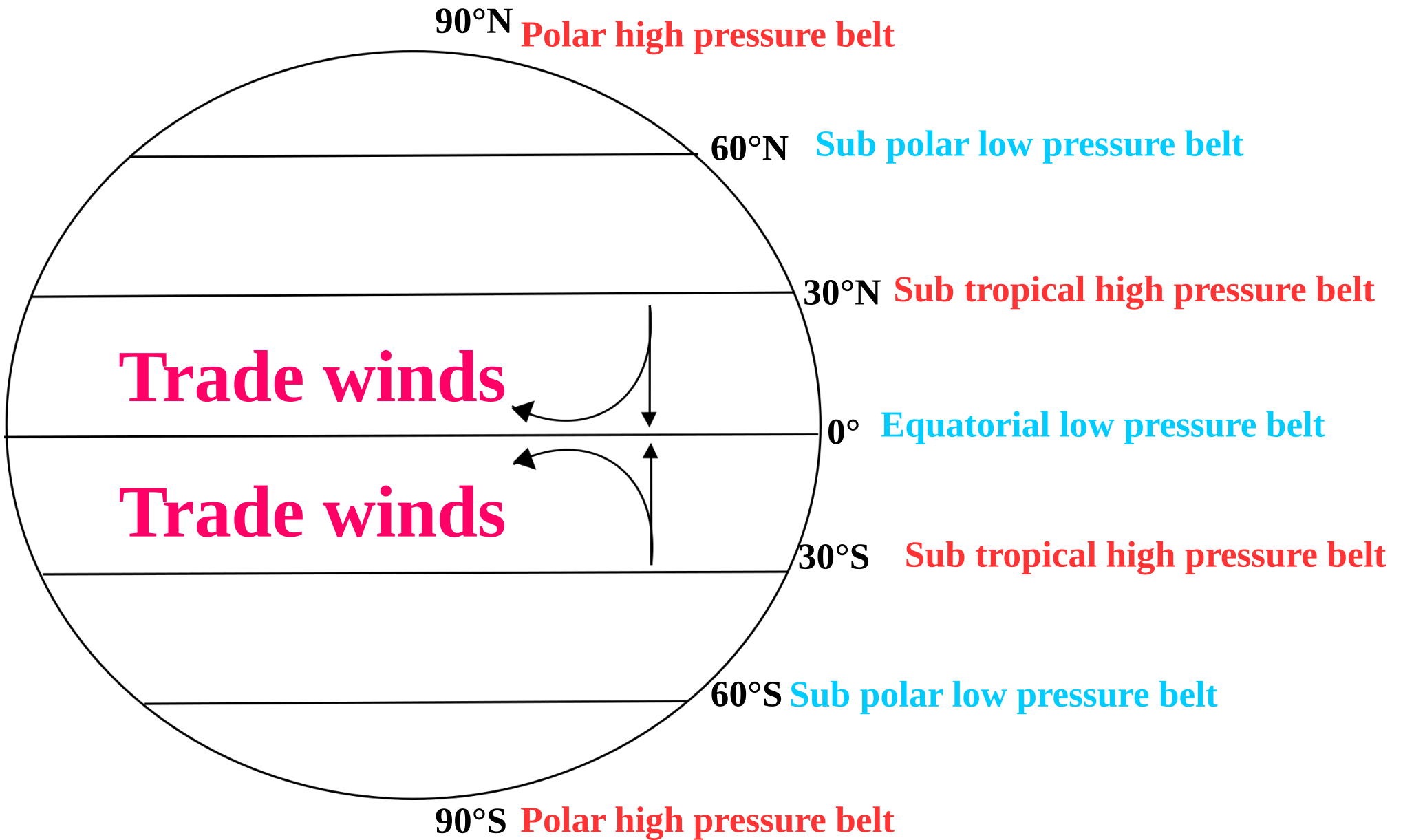
Pressure belts and winds (The different planetary winds)

- There were differences in pressure over different latitudinal zones at the global level.
- These pressure differences lead to the formation of winds.
- Winds blow from high pressure regions to low pressure regions.
- The winds developed between the global pressure belts is called as planetary winds.

Planetary Winds.

- Trade winds
- Westerlies
- Polar easterlies

Trade winds



Trade winds

-The winds are constantly blowing from the sub tropical high pressure belt of both hemispheres towards the equatorial low pressure belt is known as Trade winds.

-The Trade winds blows From 30°N & 30°S latitude to 0° latitude.

-As these winds blow from the north east in the Northern Hemisphere, they are known as north east trade winds..

-This wind is blowing from the south east in the Southern Hemisphere, so it is known as the South east trade winds

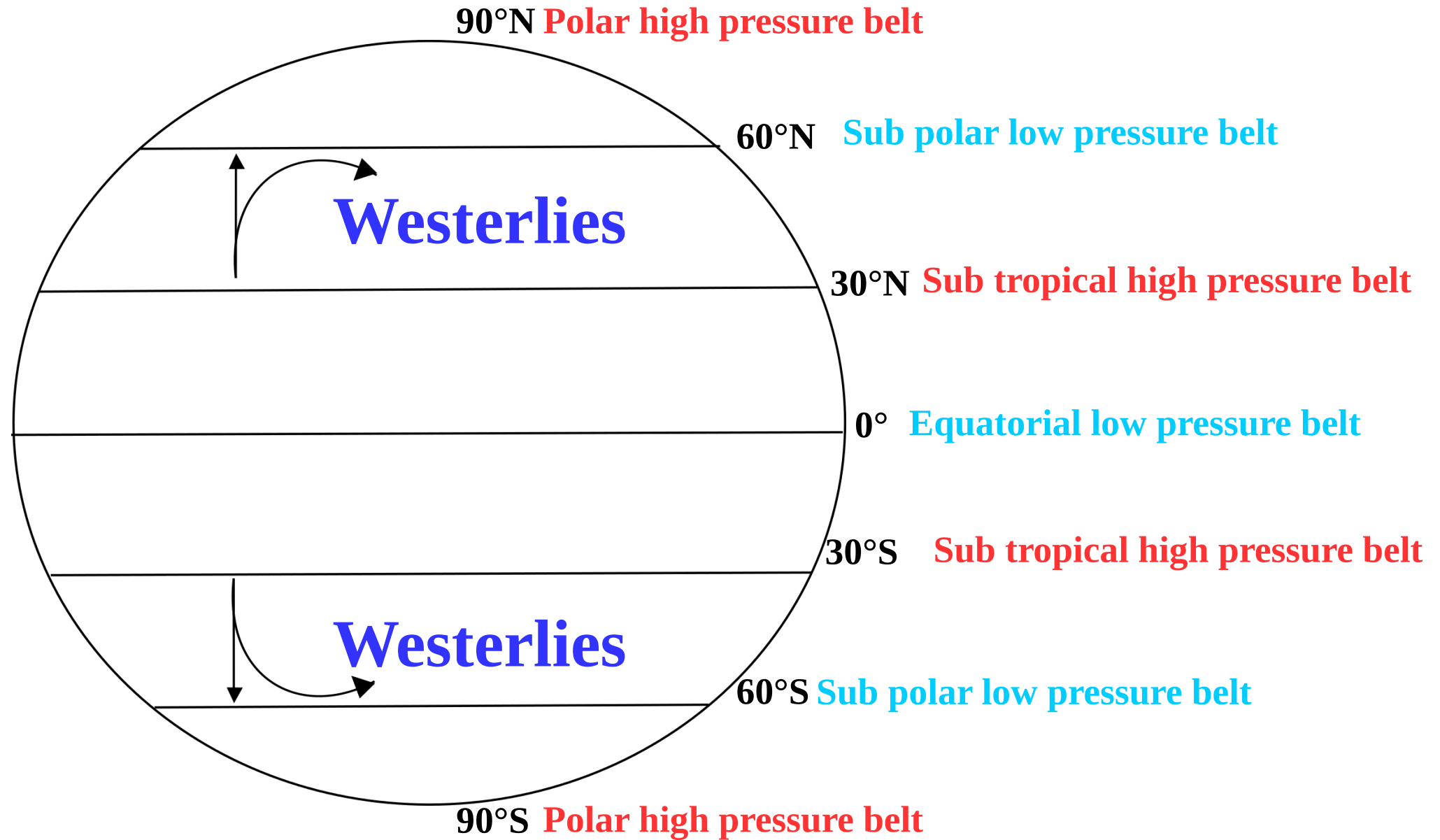
-The equatorial low pressure zone where the trade winds from both the hemispheres converge is known as the Inter Tropical Convergence Zone (ITCZ).

What could be the reason for the trade winds blowing from the south east and the north east directions?

- Winds change direction due to the Earth's rotation (through the Coriolis force).**
- In the northern hemisphere, trade winds are blowing in the north-east direction as they move to the right.**
- In the southern hemisphere, trade winds are blowing in the south-east direction as they move to the left.**

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Westerlies



Westerlies

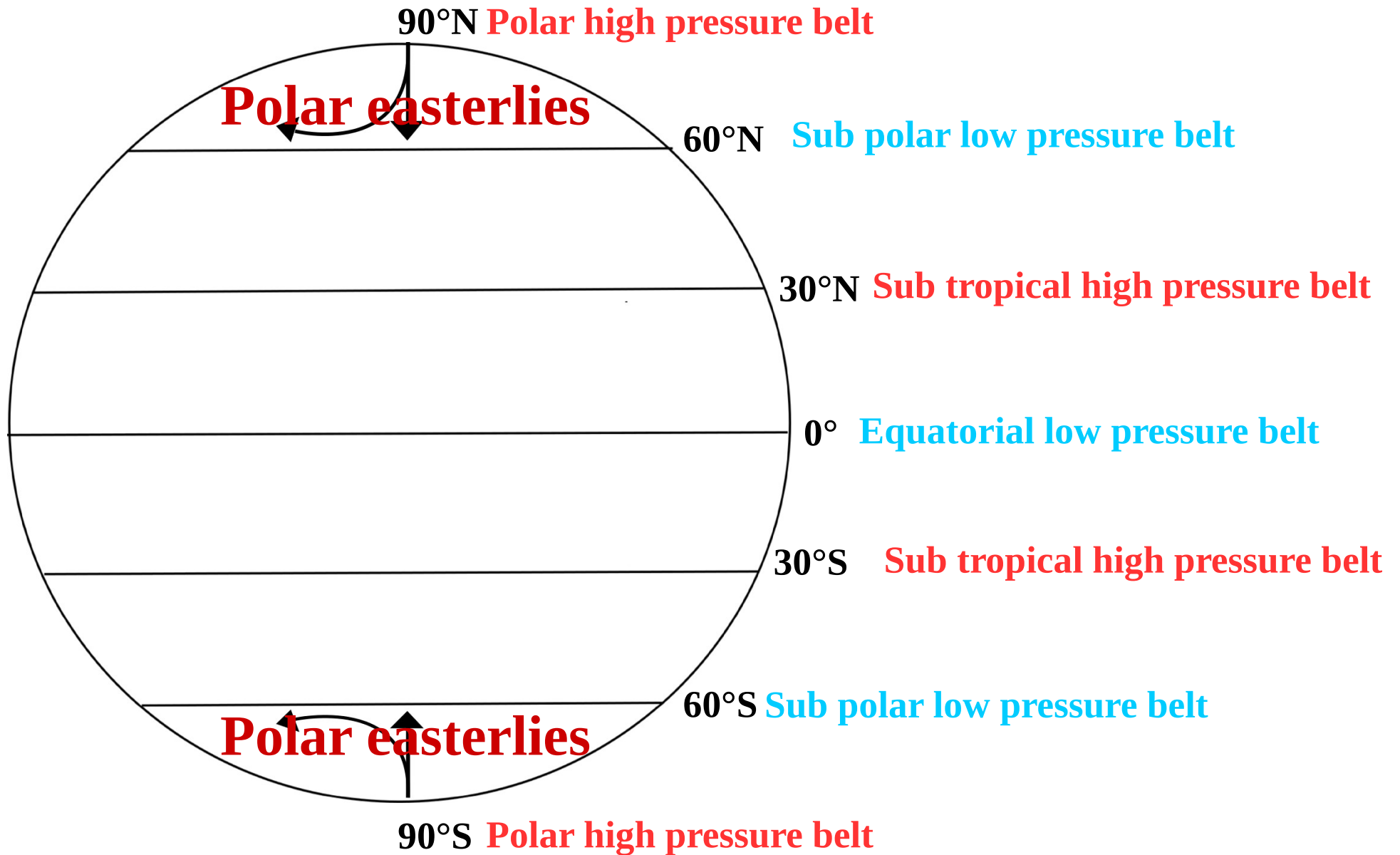
-The Westerlies are blow continuously from the sub tropical high pressure zones (30 ° latitudes) into Sub polar low pressure zones (60 ° latitudes) In both hemispheres.

-As the direction of these winds is mostly from the west, they are known as the westerlies.

- Due to the vast expanse of oceans in the Southern Hemisphere the westerlies are stronger in the Southern Hemisphere than in the Northern Hemisphere.

- The ancient mariners had given different names to the rough westerlies in the Southern Hemisphere, such as 'Roaring Forties' (along 40° latitudes), 'Furious Fifties' (along 50° latitudes) and 'Shrieking Sixties' (60° latitudes).

Polar Easterlies



Polar Easterlies

- The cold polar regions are centres of high pressure.
- The polar winds are the cold winds that blow from these high pressure areas towards the sub polar low pressure belts.
- These winds blow from the East in both the hemispheres due to the Coriolis Force.
- Hence these are known as polar easterlies.
- These winds play a significant role in determining the climate of North America, the eastern European countries, and Russia.

Periodic winds

-Periodic winds are winds that repeat at regular intervals of time and can be seasonal or diurnal.

- **Monsoon winds**

- **Land and sea breeze**

- **Mountain and valley breeze** are the main periodic winds

Monsoon winds

- The term 'monsoon' is derived from the Arab word 'mousom'.
- It means 'winds that change direction in accordance with season'.
- Monsoon is the seasonal reversal of wind in a year.

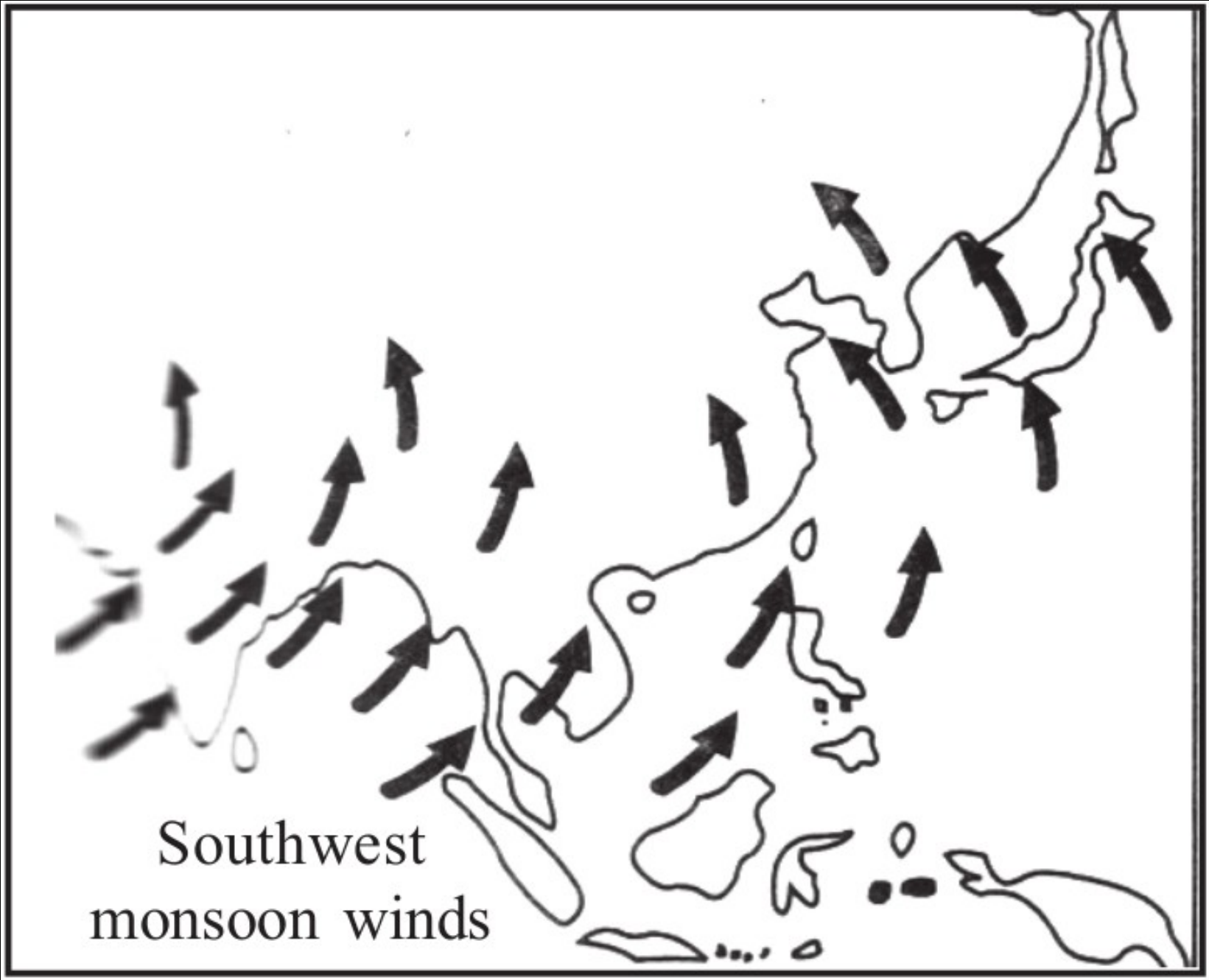
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Factors responsible for the formation of the monsoon winds?

- The apparent movement of the sun
- Coriolis force
- Differences in heating

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South west Monsoon winds

-Sun's rays fall vertically to the North of the Equator during certain months due to the tilt of the Earth's axis.

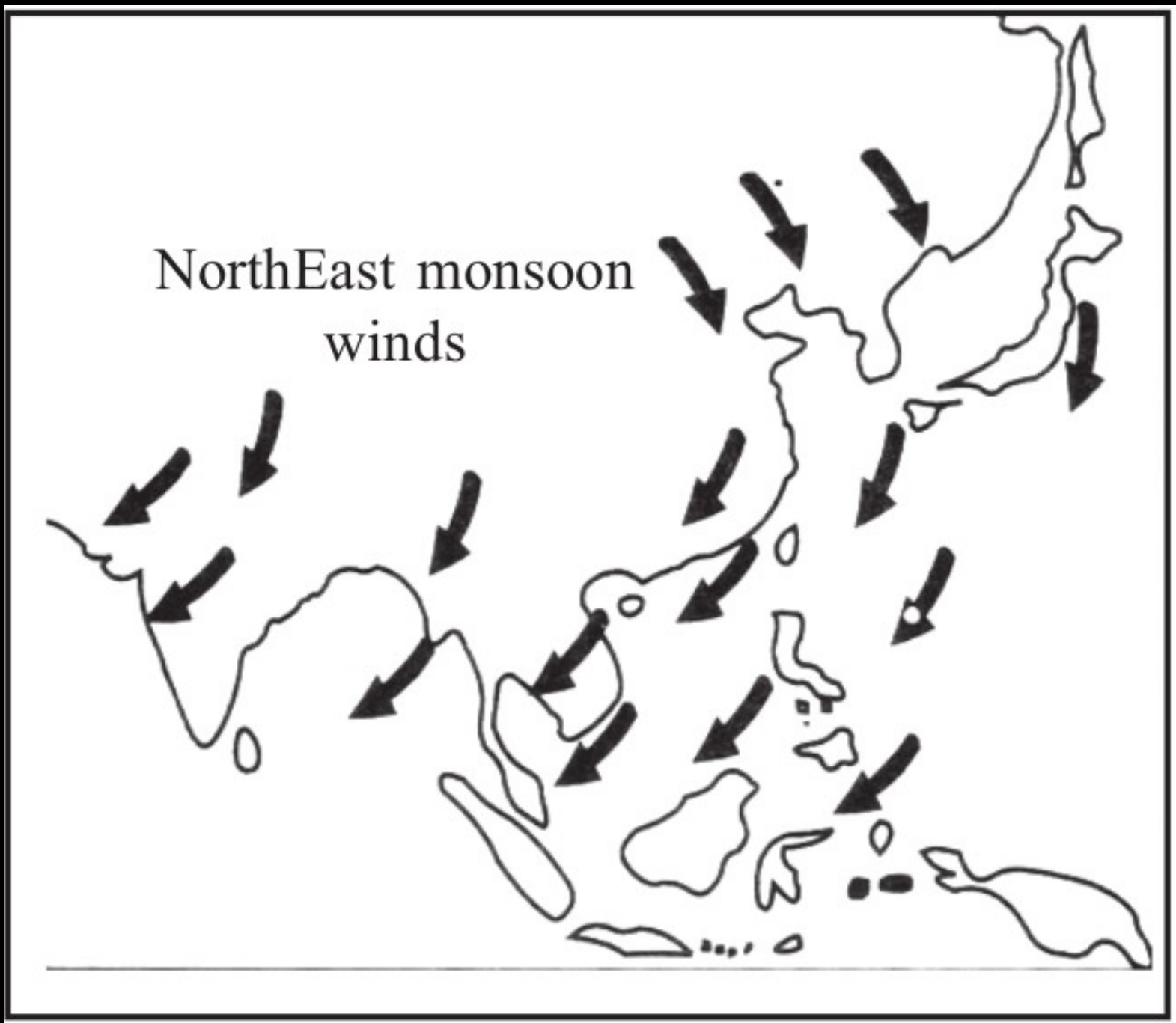
-The pressure belts also shift slightly northwards in accordance with this.

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-The south east trade winds also cross the equator and moves towards the north as the Inter Tropical Convergence Zone (ITCZ) moves northwards during the summer in the northern hemisphere.

-As the trade winds cross the Equator they get deflected and are transformed into south west monsoon winds due to the Coriolis Effect.

-The low pressure formed over the land due to the intense day temperature attracts these sea winds and further contributes to the formation of the South west monsoon winds.



North East monsoon winds

-As a result of the formation of high pressure zones over the Asian landmass and low pressure zones over the Indian Ocean during winter, the north east trade winds get strengthened.

-These are the North East monsoon winds.

ALL THE BEST

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