

UPSC Civil Services Examination

UPSC Notes [GS-I]

Topic: Temperate Cyclone (Extra-tropical Cyclones) [NCERT Notes For Geography UPSC]

Temperate cyclones are also known as Extra-tropical cyclone where the term “Extra-tropical” signifies that this type of cyclone generally occurs outside the tropics with a latitude range between 30° and 60°.

Characteristics of Temperate Cyclone (Extra-Tropical Cyclones)

- The Extra-Tropical Cyclones are storm systems emerging in the mid and high latitudes, away from the tropics.
- They are low-pressure systems with associated cold fronts, warm fronts, and occluded fronts.
- These cyclones are formed along the polar front.
- In the beginning, the front is stationary.
- Extra-tropical cyclones are also known as mid-latitude storms or baroclinic storms.
- In the Northern hemisphere, cold air blows from the north of the front and warm air blows from the south.
- When the pressure descends along the front, the cold air move towards the south and the warm air moves northwards setting in motion an anticlockwise cyclonic circulation.
- The cyclonic circulation results in a well-built extra-tropical cyclone, with a cold front and a warm front.
- There are pockets of warm air compressed between the forward and the rear cold air.
- The warm air climbs over the cold air and a series of clouds appear over the sky ahead of the warm front and cause rainfall.
- The cold front approaches the warm air from behind and pushes the warm air up.
- As an outcome, cumulus clouds develop along the cold front.
- The cold front moves faster than the warm front eventually surpassing the warm front.
- The warm air is entirely lifted up and the front is occluded and the cyclone dissipates.
- They can originate over the land and sea and cover a larger area.

Major Differences between Temperate Cyclone and Tropical Cyclone

Tropical Cyclone	Temperate Cyclone
Tropical cyclones move from east to west.	These cyclones move from west to east
A tropical cyclone has an effect on a comparatively smaller area than Temperate cyclone.	Temperate cyclone affect a much larger area
The velocity of wind in a tropical cyclone is much higher and it is more damaging.	The velocity of air is comparatively lower
Tropical Cyclone form only on seas with temperature more than 26-27degree C and dissipate on reaching the land.	Temperate cyclones can be formed on both land and sea
A tropical cyclone doesn't last for more than 7 days	Temperate cyclone can last for a duration of 15 to 20 days