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Prelims PYQ, Mains model answers, and copy evaluation. Write to the desk for this paper, a doubt, or the AI waitlist.

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Q4

What is sea surface temperature rise? How does it affect the formation of tropical cyclones?

UPSC Civil Services Mains 2024 · GS I · 10 marks · Geophysical Phenomena

Important Geophysical phenomena such as earthquakes, tsunami, volcanic activity, cyclone etc., geographical features and their location-changes in critical geographical features (including water-bodies and ice-caps) and in flora and fauna and the effects of such changes.

Facts & figures for this PYQ only.

Numbers move. Confirm the latest Budget, Economic Survey or census round. This sheet is for revision, not a substitute for the model answer.

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SST threshold

Textbook tropical cyclogenesis is favoured when sea surface temperatures are near or above about 26-27°C over a sufficient depth.

Ocean heat uptake

The global ocean has absorbed the large majority of excess heat from anthropogenic warming, which shows up partly as SST rise.

Potential intensity

A theoretical upper bound on cyclone wind speed that increases with a warmer, moister sea surface when shear is not destructive.

Rapid intensification

A sharp rise in cyclone winds over a short period, more likely over a deep warm layer when vertical shear is weak.

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