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Q5

In the South Atlantic and South-Eastern Pacific regions in tropical latitudes, cyclone does not originate. What is the reason?

(a) Sea surface temperatures are low (b) Inter-tropical Convergence Zone seldom occurs (c) Coriolis force is too weak (d) Absence of land in those regions Official key: A.

UPSC Civil Services Prelims 2015 · General Studies · 2 marks · Geography

Physical, Indian and world geography - Prelims GS Paper I.

Explanation**(a) Official key**

(a) Sea surface temperatures are low. The South Atlantic and south-eastern Pacific tropical belts sit under the cold Benguela and Humboldt (Peru) currents. SST often stays below the ~26-27 °C threshold needed for tropical cyclone genesis. That thermal barrier is why cyclones do not originate there, and it is the official key.

(b)

(b) Inter-tropical Convergence Zone seldom occurs. The **ITCZ** does shift into tropical latitudes of both oceans in the southern summer. 'Seldom occurs' overstates the case and is not the keyed reason.

(c)

(c) Coriolis force is too weak. Coriolis is weak only very near the equator. These named regions lie well into tropical latitudes where deflection is adequate; Coriolis is not the limiting factor.

(d)

(d) Absence of land in those regions. Cyclones are oceanic heat engines; lack of land does not stop genesis (open Pacific and Atlantic basins prove that). Land absence is not the key.

Summary

Official key is (a) Sea surface temperatures are low. Cold eastern-boundary currents keep the tropical South Atlantic and south-east Pacific too cool for cyclone cores. **ITCZ** does visit those latitudes, Coriolis is not vanishing there, and missing land is irrelevant to genesis. Only the cold SST explanation matches the keyed option.

Related possible facts

These can be asked in a future Prelims paper.

Benguela Current

Cold current, south-east Atlantic off Africa

Humboldt/Peru Current

Cold current, south-east Pacific off South America

Cyclone SST threshold

About 26-27 °C over a deep warm layer

ITCZ

Low-pressure belt of converging trades

Coriolis near equator

Too weak within about 5° of the equator

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