

Q.97. Which of the following is not associated with Coriolis force?

(1) Cyclones (2) Ocean currents (3) Prevailing winds (4) Jet streams.

Answer given by RBSE is (4) i.e. Jet Streams

Option (1) and (3) are mentioned in the NCERT book. No mention is been made for Option (2) i.e. Ocean Currents and Option (4) i.e Jet Streams.

Maps given on Page no.29 of Climate Chapter of Contemporary India, NCERT book of class IX it clearly shows the two Jet Streams - Easterly Jet Stream moving over Indian Peninsula from East to West and Westerly Jet Stream over upper altitudes moving in the West to East direction. Between Equator and Tropic of Cancer in which Easterly Jet Stream flows, South Eastern Trade Winds blow which gets deflected by Coriolis Force. Between Tropic of Cancer and Arctic circle, Westerlies blow in the same direction as Westerly Jet Stream. So its clear that Jet Streams gets affected by Coriolis Force Other than the NCERT book following reference can be taken as examples

1. A large temperature gradient in upper level air combined with the Coriolis effect results in strong westerly winds called Jet Stream

(Page No. 321, Weather Systems, Section 2)

[http://www.glencoe.com/ebooks/science/9780078957222/EGEU\\_Florida\\_OSE/PDF/docs/312\\_341\\_C12\\_874636.pdf](http://www.glencoe.com/ebooks/science/9780078957222/EGEU_Florida_OSE/PDF/docs/312_341_C12_874636.pdf)

2. Influencing factors on the Jet Stream flow

The factors that influence the flow of the jet stream are the landmasses and the Coriolis effect.

Landmasses interrupt the flow of the jet stream through friction and temperature differences, whilst the spinning nature of the earth accentuates these changes. So the jet stream meanders across the earth, like a river meanders before it reaches the sea. The meandering sections of the jet stream continue to change as they interact with landmasses once again, creating an ever-changing state of flux and subsequent temperature differences.

<http://www.netweather.tv/index.cgi?action=jetstream-tutorial;sess=>

3. Jet streams are typically continuous over long distances, but discontinuities are common. The path of the jet typically has a meandering shape, and these meanders themselves propagate east, at lower speeds than that of the actual wind within the flow. Each large meander, or wave, within the jet stream is known as a Rossby wave. Rossby waves are caused by changes in the Coriolis effect with latitude.

[https://en.wikipedia.org/wiki/Jet\\_stream](https://en.wikipedia.org/wiki/Jet_stream)

4. Jet streams typically cover long distances and can be thousands of miles long. They can be discontinuous and often meander across the atmosphere but they all flow east at a rapid speed. The meanders in the jet stream flow slower than the rest of the air and are called Rossby Waves. They move slower because they are caused by the Coriolis Effect and turn west in respect to the flow of air they are embedded in. As a result, it slows the eastward movement of the air when there is a significant amount of meandering in the flow.

<http://geography.about.com/od/climate/a/jetstream.htm>

5. Because of Earth's rotation the streams flow west to east in both the Northern Hemisphere and the Southern Hemisphere due to the Coriolis effect.

[http://www.sciencedaily.com/terms/jet\\_stream.htm](http://www.sciencedaily.com/terms/jet_stream.htm)

Hence it get proves that Jet Streams also get affected by Coriolis Force

**This question should go as Bonus**