Geography · GS - I

Why does a strong El Niño not necessarily lead to drought in India? Discuss the role of the Indian Ocean Dipole, Eurasian snow cover and the Madden–Julian Oscillation in shaping the Indian monsoon.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 04/11/2026	GS - I	Geography

MARKS	WORD LIMIT
10	~150 words

Answer Hint

El Niño and Walker circulation, positive Indian Ocean Dipole, Eurasian snow cover and land–sea thermal contrast, Madden–Julian Oscillation, monsoon variability, limitations of single-factor predictions.

Model Answer

Introduction

El Niño is a periodic warming of the central and eastern equatorial Pacific Ocean that often weakens the Indian southwest monsoon. However, its influence is not deterministic because monsoon rainfall depends on interactions among several oceanic, atmospheric and land-surface processes.

Role of the Indian Ocean Dipole

A positive Indian Ocean Dipole (IOD), involving warmer western and cooler eastern equatorial Indian Ocean waters, can favour atmospheric circulation and moisture transport that partly offset El Niño's adverse influence.

Role of Eurasian Snow Cover

Reduced winter and spring snow cover over Eurasia may increase land heating during summer. The resulting thermal contrast can favour monsoon circulation. However, this relationship varies regionally and is not a reliable

standalone predictor.

Role of the Madden–Julian Oscillation

The MJO is an eastward-moving tropical disturbance affecting convection, winds and rainfall. Its active phase over the Indian Ocean can enhance monsoon convection, while its suppressed phase may temporarily reduce rainfall.

Other Influences

Monsoon depressions, intraseasonal oscillations, regional sea-surface temperatures and atmospheric circulation also affect rainfall distribution.

Conclusion

El Niño raises drought risk but does not determine India's monsoon outcome. Reliable forecasting requires integrated, multi-factor assessment rather than reliance on a single climate indicator.

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