MADDEN–JULIAN OSCILLATION IN AUSTRALIA

WHAT IS IT?

The Madden–Julian Oscillation, or MJO, is a pulse of wind, enhanced cloud and rainfall that cycles eastwards around the globe near the equator.

WHEN DOES IT OCCUR?

THE MJO CAN OCCUR AT ANY TIME OF YEAR BUT INFLUENCES AUSTRALIA MOSTLY DURING THE NORTHERN WET SEASON FROM OCTOBER TO APRIL

TYPICAL WEEKLY RAINFALL IN AN ACTIVE MJO PHASE

NORTHERN WET SEASON

BLUE = WETTER THAN NORMAL

AN MJO CAN BE FORECAST UP TO A FORTNIGHT IN ADVANCE

TYPICALLY THE MJO CIRCLES THE GLOBE EVERY 30 TO 60 DAYS

HOW DOES THE MJO TYPICALLY IMPACT AUSTRALIA?

RAINFALL

can significantly increase or decrease depending on MJO location

WIND

Active MJO typically generates a westerly wind pattern across northern Australia, favourable for widespread rainfall

TEMPERATURE

can be significantly warmer or cooler than average depending on MJO location

TROPICAL CYCLONES

more likely when MJO is active

MONSOON

MJO can drive bursts and breaks in monsoon rainfall

EL NIÑO

can be triggered by the MJO

THE MJO CYCLE

WEEK 1: EMERGING OVER AFRICA

MORE RAINFALL OVER INDIAN OCEAN
LESS RAINFALL OVER NORTHERN AUSTRALIA
WIND EASTERLY OVER NORTHERN AUSTRALIA

WEEK 2–3: ENTERING AUSTRALIAN LONGITUDES

MORE RAINFALL OVER NORTHERN AUSTRALIA AND SOUTHWEST PACIFIC OCEAN
LESS RAINFALL OVER INDIAN OCEAN
WINDS WESTERLY OVER NORTHERN AUSTRALIA

WEEK 4–5: SHIFTING INTO THE PACIFIC

MORE RAINFALL OVER CENTRAL EQUATORIAL PACIFIC OCEAN
LESS RAINFALL OVER NORTHERN AUSTRALIA
WINDS EASTERLY OVER NORTHERN AUSTRALIA

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