

IN The Name of God

CLIMATE OUTLOOK

# El Niño Status & Seasonal Forecast Autumn–Winter 2026/27

Based on WMO El Niño/La Niña Update (Aug-Sep 2026)  
and Global Seasonal Climate Update (SON 2026)

Sahar Tajbakhsh,  
Vice Minister of Roads and Urban development,  
President of IRIMO and PR of Iran with WMO  
[sahartajbakhsh@gmail.com](mailto:sahartajbakhsh@gmail.com), [dr.Tajbakhsh@irimo.ir](mailto:dr.Tajbakhsh@irimo.ir)

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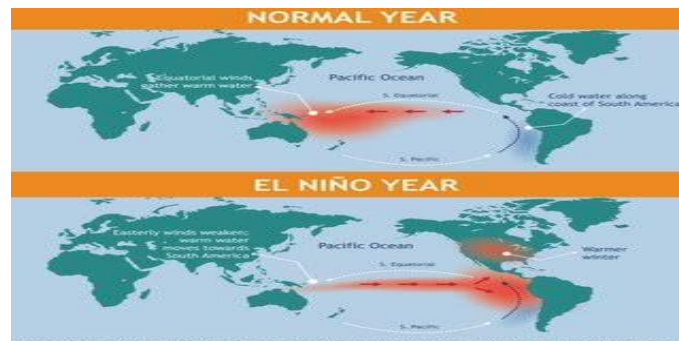
# Current Climate Context

## Global Warming



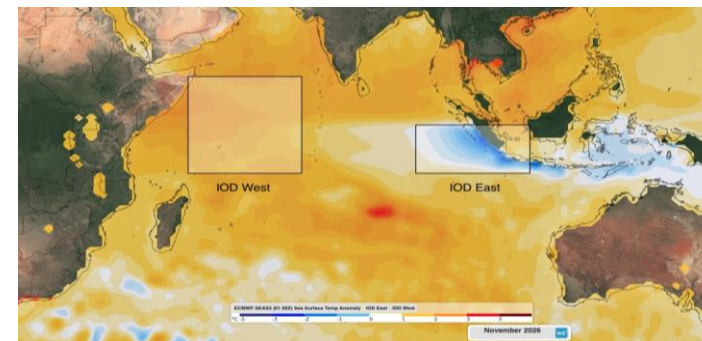
Long-term temperature rise continues. 2020s remain among the warmest decades on record. Climate change amplifies the background against which ENSO events occur.

## ENSO as Key Driver



El Niño–Southern Oscillation remains one of the strongest sources of year-to-year climate variability, influencing temperature and rainfall patterns worldwide.

## Other Drivers Matter



Indian Ocean Dipole (IOD), MJO, QBO and North Atlantic Oscillation can reinforce, weaken or modify typical El Niño impacts at regional scales.

# El Niño Status – August 2026

WMO El Niño/La Niña Update – Mid-August 2026

**+2.0°C**

Niño 3.4 (Jul)

**+2.2 to +2.6°C**

Weekly (Aug)

**−29.1**

SOI (Jul)

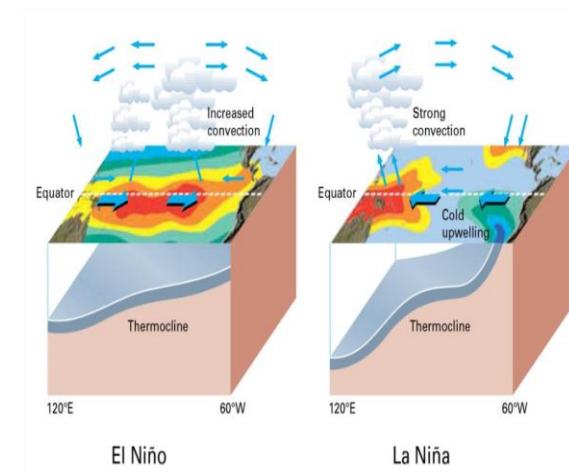
**>+8°C locally**

Subsurface

## Key Findings

- ▶ El Niño is firmly established and intensifying across the central-eastern equatorial Pacific.
- ▶ Near-100% probability that El Niño will persist through September–November 2026 and December 2026–February 2027.
- ▶ Further strengthening expected; event forecast to reach very strong intensity before peaking toward end of 2026.
- ▶ No indication of transition to La Niña or ENSO-neutral conditions during the outlook period.
- ▶ High forecast confidence: spring predictability barrier is no longer a major uncertainty source.

### El Niño/La Niña Background



Typical circulation patterns during El Niño/La Niña (Source: WMO, 2003, "Climate into the 21<sup>st</sup> Century")

# Oceanic & Atmospheric Confirmation

## OCEAN

### Surface

Niño 3.4 anomaly rose from  $+0.9^{\circ}\text{C}$  (May) to  $+2.0^{\circ}\text{C}$  (July). Weekly values reached  $+2.2$  to  $+2.6^{\circ}\text{C}$  by mid-August.

### Subsurface

Exceptionally large heat reservoir. Positive anomalies locally exceeded  $+8^{\circ}\text{C}$  at depth. Deeper-than-average thermocline and eastward Kelvin wave support continued strengthening.

## ATMOSPHERE

### Southern Oscillation Index

July SOI averaged  $-29.1$  — strongly negative, confirming atmospheric coupling.

### Convection Pattern

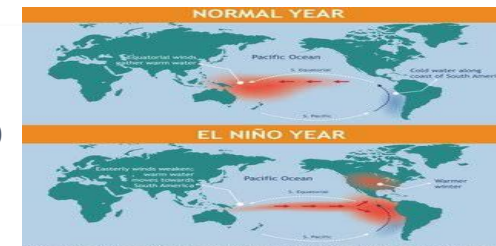
Outgoing Longwave Radiation shows enhanced convection over the central and eastern equatorial Pacific and suppressed convection farther west — classic El Niño signature.

# Key Drivers for Southwest Asia Rainfall

Cold season (Autumn – Early Winter) teleconnections

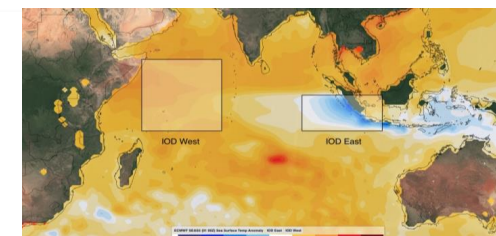
## El Niño (ENSO)

Often associated with enhanced moisture transport from the Arabian Sea and Red Sea into Southwest Asia, increasing the chance of above-normal rainfall in autumn and early winter, especially when combined with a favourable IOD.



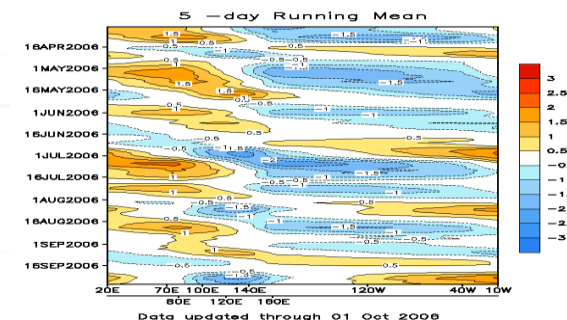
## Indian Ocean Dipole (IOD)

Positive IOD typically reinforces El Niño impacts over the region by altering the Walker circulation and supporting stronger westerly moisture fluxes toward the Middle East and Iran.



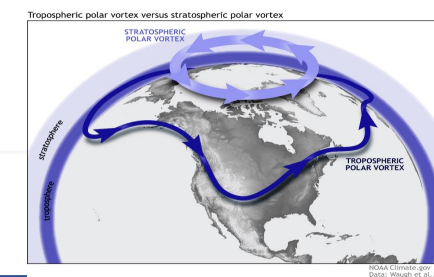
## MJO

Active MJO phases (especially phases 2–4) can trigger short-term wet spells by enhancing convection over the Indian Ocean and promoting Rossby-wave responses that affect the subtropical jet and Mediterranean storm track.



## QBO

The Quasi-Biennial Oscillation modulates the stratospheric polar vortex and can influence the strength and position of the subtropical jet, thereby affecting the frequency of Mediterranean troughs reaching the region.



# El Niño + IOD Impacts on Regional Rainfall

Typical cold-season response over Middle East & Southwest Asia

## EL NIÑO EFFECT

- Enhanced southwesterly moisture transport from the Arabian Sea and tropical Africa
- Increased probability of above-normal rainfall across parts of Iran, Afghanistan, Pakistan and the northern Arabian Peninsula in autumn and early winter
- Effect is strongest when El Niño is moderate to strong and the subtropical jet is well-positioned

## IOD MODULATION

- Positive IOD tends to reinforce El Niño's wet signal over Southwest Asia
- Negative IOD can weaken or even reverse the expected El Niño rainfall anomaly
- Current forecasts indicate a positive IOD developing during SON 2026 (seasonal mean  $\sim +0.9^{\circ}\text{C}$ ), which is favourable for a wetter signal in our region

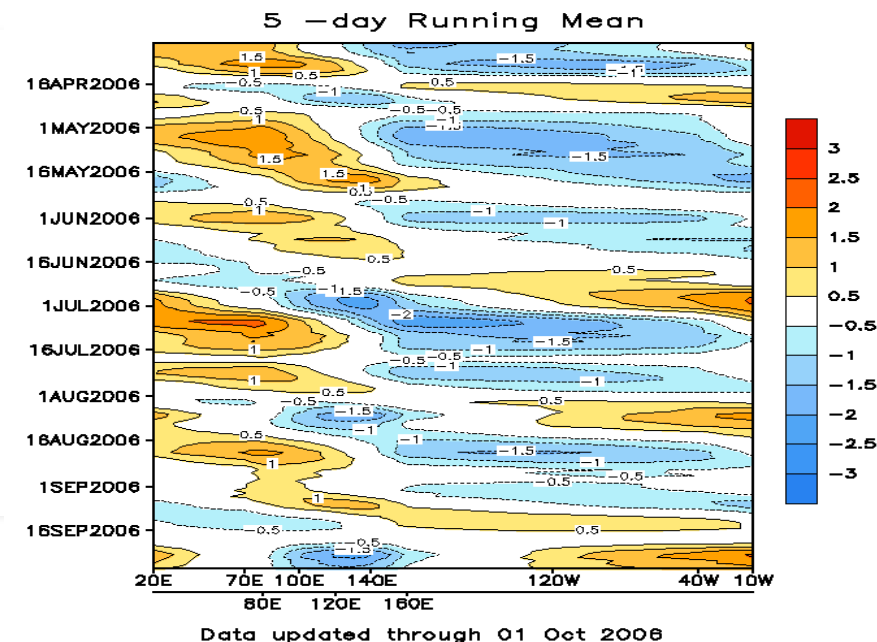
# MJO & QBO – Shorter-term & Stratospheric Influence

## Madden-Julian Oscillation (MJO)

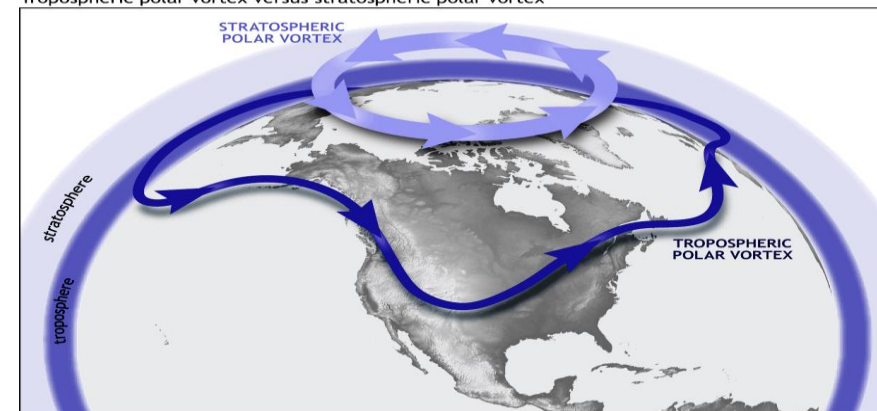
The MJO is the dominant mode of intraseasonal variability in the tropics. When active MJO convection is located over the Indian Ocean (typically phases 2–4), it can generate downstream Rossby-wave trains that enhance the likelihood of Mediterranean troughs and wet spells over the Middle East and Iran on timescales of 1–3 weeks. Monitoring real-time MJO forecasts is therefore essential for sub-seasonal rainfall outlooks.

## Quasi-Biennial Oscillation (QBO)

The QBO is a stratospheric wind oscillation that influences the strength of the polar vortex and the position of the subtropical jet. Certain QBO phases favour a more active Mediterranean storm track and can increase the frequency of precipitation events over Southwest Asia during the cold season. Although its direct signal is weaker than ENSO or IOD, it provides useful additional information for seasonal and sub-seasonal forecasting.



Tropospheric polar vortex versus stratospheric polar vortex



# Temperature Outlook – SON 2026

Global Seasonal Climate Update (prepared 20 August 2026)

Nearly universal increase in probability of above-normal temperatures over landmasses, especially north of 60°S. Strong model consistency.

## High Confidence Above-Normal

Africa, southern Europe, Arabian Peninsula, Indian Subcontinent, eastern Asia, Central America, Caribbean, Arctic, southern Africa, Australia, New Zealand

## Weaker Signal

Parts of northern Asia; northwestern & central North America

## Oceans

Extreme probabilities (>80%) for above-normal SSTs in equatorial Pacific east of Date Line. Widespread above-normal tendency across Indian Ocean and tropical Atlantic.

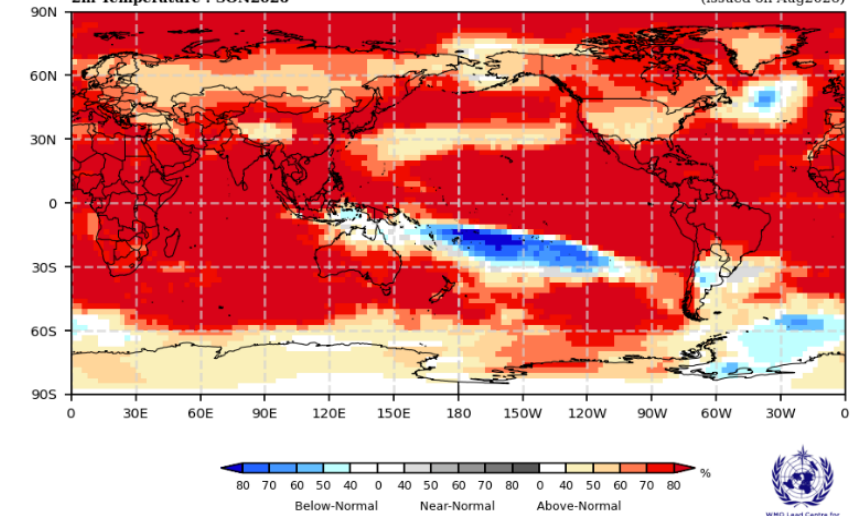
## Probability Forecast for Surface Air Temperature SON 2026

Probabilistic Multi-Model Ensemble Forecast

CMCC, CPTC, ECMWF, Exeter, Melbourne, Montreal, Moscow, Offenbach, Tokyo, Toulouse, Washington

2m Temperature : SON2026

(issued on Aug2026)



# Rainfall Outlook – SON 2026

Classic strong atmospheric response to Pacific El Niño + developing positive IOD

## ABOVE-NORMAL LIKELY

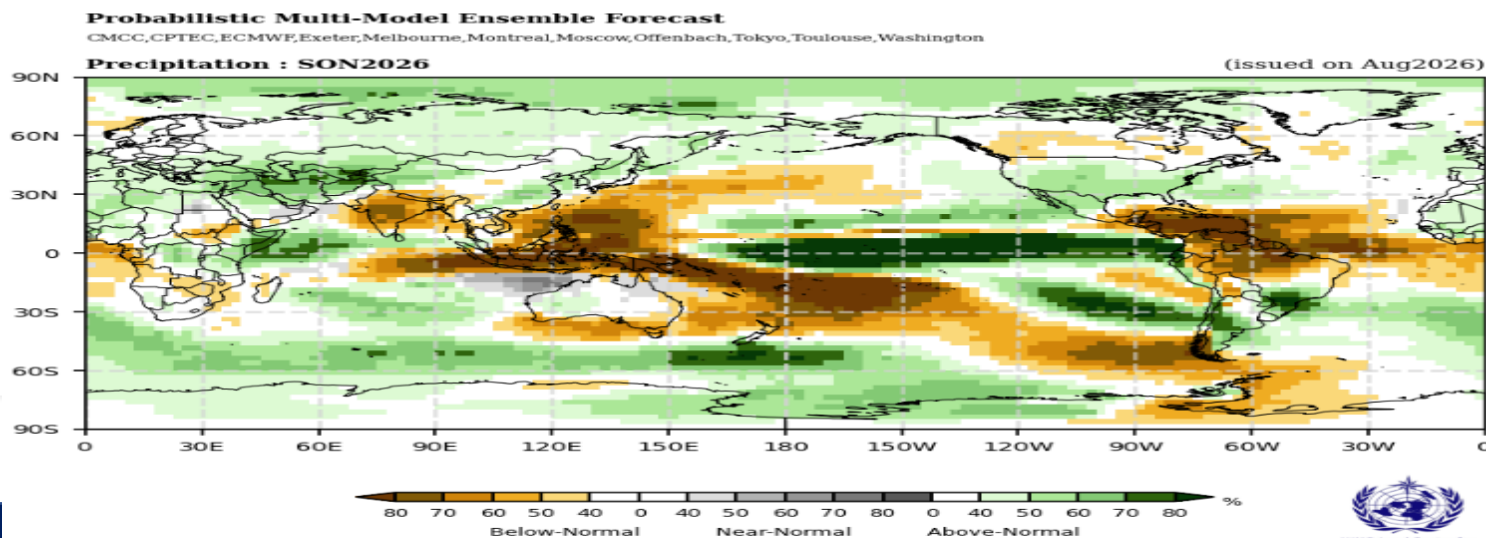
- Central & eastern equatorial Pacific
- Greater Horn of Africa
- Parts of Central Asia & northern Arabian Peninsula
- Southern Europe
- Southeastern South America
- Parts of North America south of 45°N
- Southwest Asia (favoured by El Niño + positive IOD)

## BELOW-NORMAL LIKELY

- Tropical Indian Ocean & equatorial Atlantic
- Indian Subcontinent (high consistency)
- Southern Central America & Caribbean
- Northwest & northern coastal South America
- Southern tip of South America
- Horseshoe pattern into both hemispheres

## Probability Forecast for Precipitation

SON 2026



# Winter 2026/27 & Important Caveats

## Persistence into Winter

Forecasts indicate near-100% probability of continued El Niño through December 2026–February 2027. The event is expected to remain substantially above average and peak toward the end of 2026 / early 2027. Confidence is high.

## Critical Caveats from WMO

1. Event strength does not translate directly into the magnitude of impacts in any given region.
2. Other climate drivers (IOD, MJO, QBO, NAO, Atlantic) can reinforce, weaken or modify typical El Niño influences.
3. Even during a very strong El Niño, impacts can vary substantially between regions and seasons.
4. Regional and national outlooks must integrate ENSO with local drivers and the latest seasonal prediction products.

# Key Takeaways

1

## **Very Strong El Niño Confirmed**

Ocean and atmosphere fully coupled. Further strengthening expected through late 2026.

2

## **High Confidence Persistence**

Near-certain continuation through autumn and winter 2026/27. No La Niña transition expected.

3

## **Positive IOD Expected**

Developing positive Indian Ocean Dipole during SON 2026 supports a wetter signal over Southwest Asia.

4

## **MJO & QBO Matter**

Intraseasonal (MJO) and stratospheric (QBO) drivers will modulate week-to-week and seasonal rainfall outcomes.

5

## **Impacts Remain Conditional**

Regional rainfall depends on the interplay of multiple drivers. Continuous monitoring is essential.

# Recommendations & Next Steps

## Monitor Official Updates

Track monthly WMO El Niño/La Niña Updates, Global Seasonal Climate Updates, and national meteorological service guidance.

## Integrate Multiple Drivers

Do not rely on El Niño alone. Continuously assess IOD evolution, real-time MJO phase, and QBO status for regional modulation.

## Sectoral Risk Assessment

Agriculture, water resources, energy demand and disaster preparedness should plan for elevated probability of temperature and rainfall anomalies.

## Communication

Emphasise that a very strong event raises the likelihood of significant shifts, but local impacts remain uncertain and will be refined by regional outlooks.