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வளிமண்டலவியல் திணைக்களம்

Department of Meteorology

TP : 011 2686686

Fax : 011 2691443

E-mail : metnmc@gmail.com

Web : www.meteo.gov.lk

No SF-2023-11-ENSO-IOD

Current condition and forecasts of ENSO and IOD for NDJ 2023/24

Issued on 6th November 2023 by Seasonal forecasting Division of the Department of Meteorology, Sri Lanka.

1. El Nino and La Nina update

El Niño conditions are observed. Equatorial sea surface temperatures (SSTs) are above average across the central and eastern Pacific Ocean. The tropical Pacific atmospheric anomalies are consistent with El Niño. El Niño is anticipated to continue through the Northern Hemisphere spring (with an 80% chance during March-May). Scientists are expected a 75-85% chance it will become a strong (NOAA Climate.Gov) event 2024.

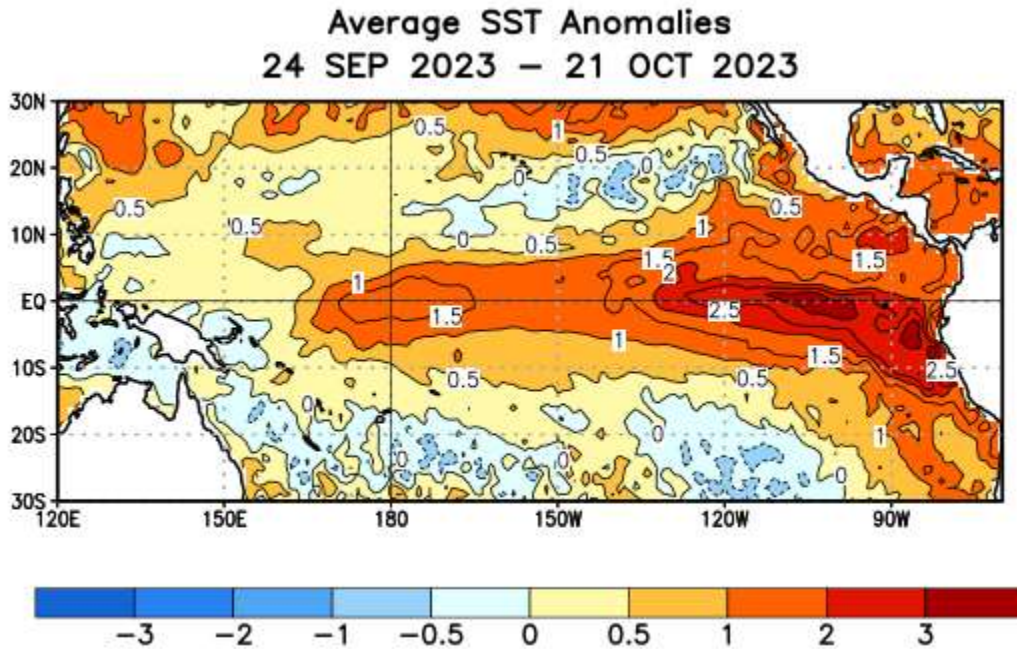


Fig 1: Observed Average sea surface temperature (SST) anomalies (°C)

Weekly SST Anomalies (DEG C)

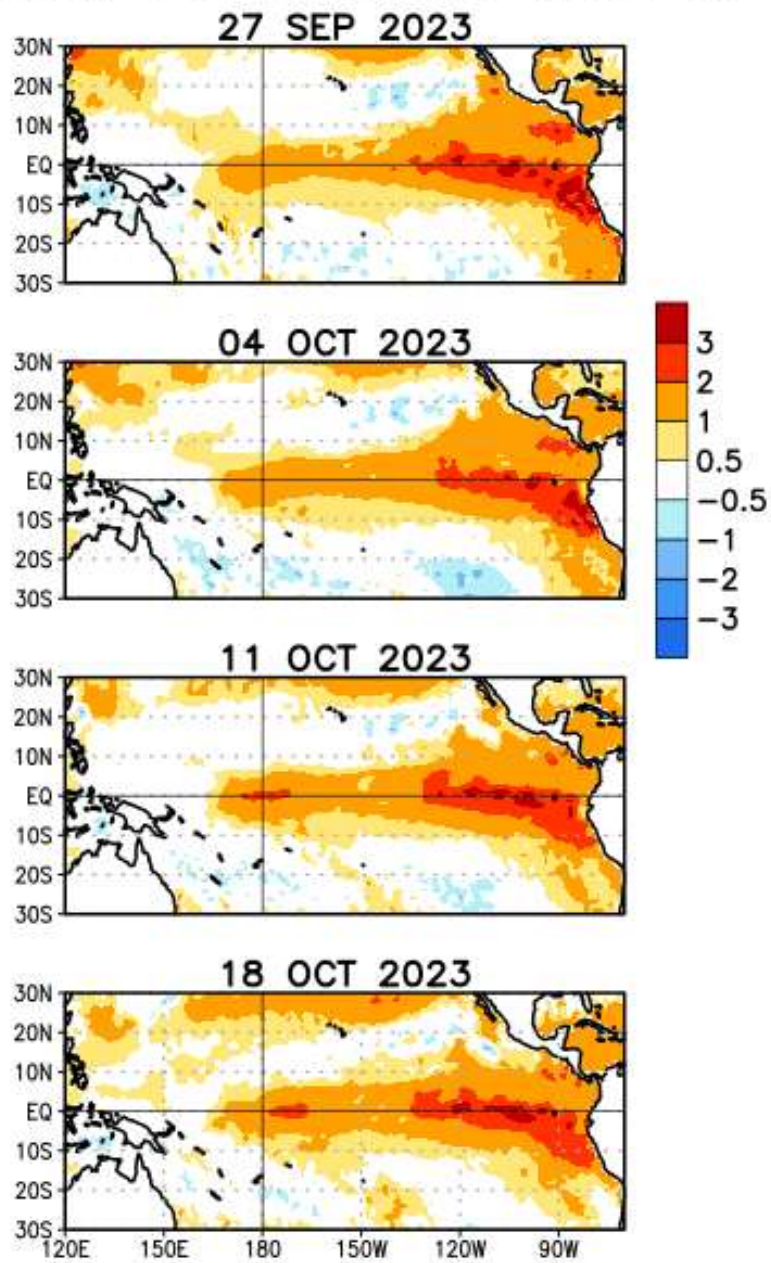


Fig 2: Weekly Observed Average sea surface temperature (SST) anomalies (°C)

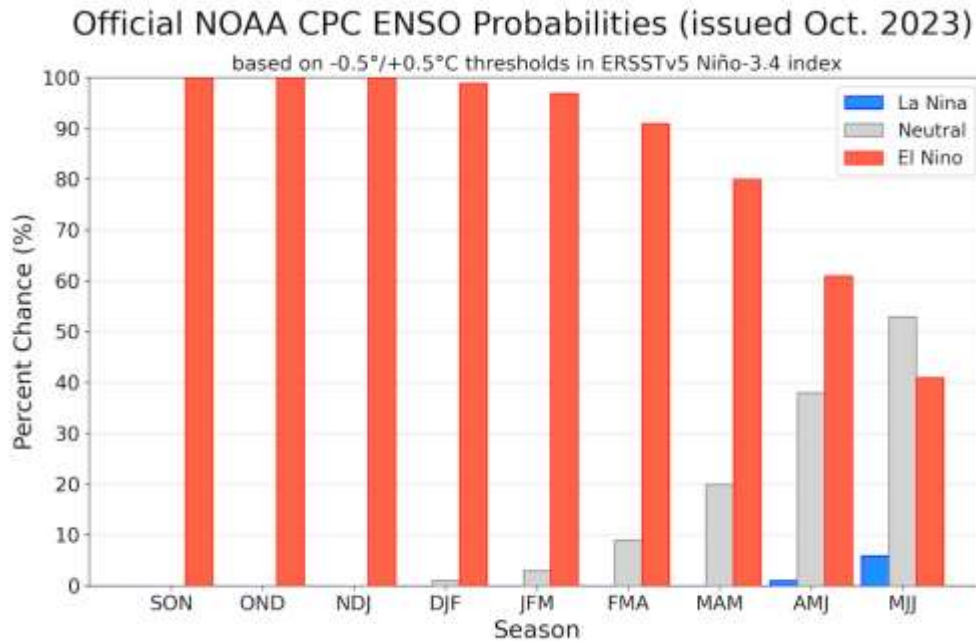


Fig 3a: ENSO forecast from Climate Prediction Center (CPC)/ IRI Forecast

1.1.1 Impacts of El-Niño on monthly rainfall anomaly during November, December and January

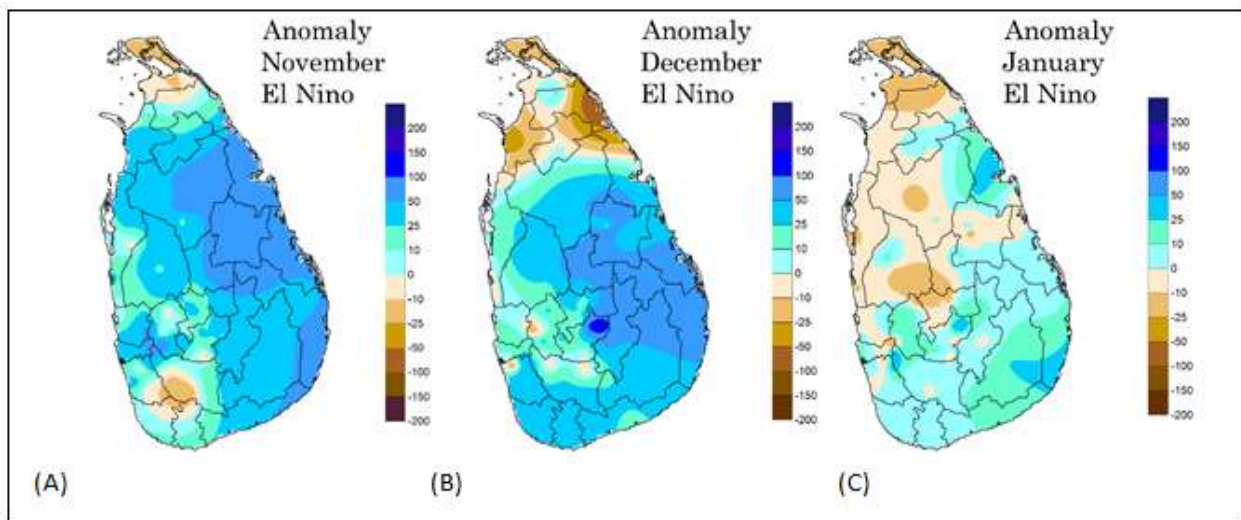


Fig 3b: Monthly Rainfall Anomaly maps of the months of November (A), December (B) and January (C) during El-Niño years (Hapuarachchi et al 2016)

Previous studies conducted by the Department of Meteorology, identified that, during El-Niño years, above normal rainfalls are likely over most parts of the country, while below normal rainfalls are expected in some areas in Jaffna, Killnochi, Rathnapura, Kalutara, Galle and Mathara districts during the month of November (Fig 3b(A)). During the month of December above normal rainfalls are likely over most parts except northern province, where below normal rainfalls are likely (Fig 3b(B)). During the month of January above normal rainfalls are likely over Southern, Sabaragamuwa and Uva provinces and some areas in Nuwara Eliya, Ampara, Trincomalee, Kalutara and Vavuniya districts. Below normal

rainfalls are possible in most of the remaining areas when El-Niño conditions were persisting (Fig 3b(C)).

2. The Indian Ocean Dipole (IOD) update

A positive Indian Ocean Dipole (IOD) is underway. All models indicate that this positive IOD will likely be sustained at least December 2023.

(BOM-Australia).

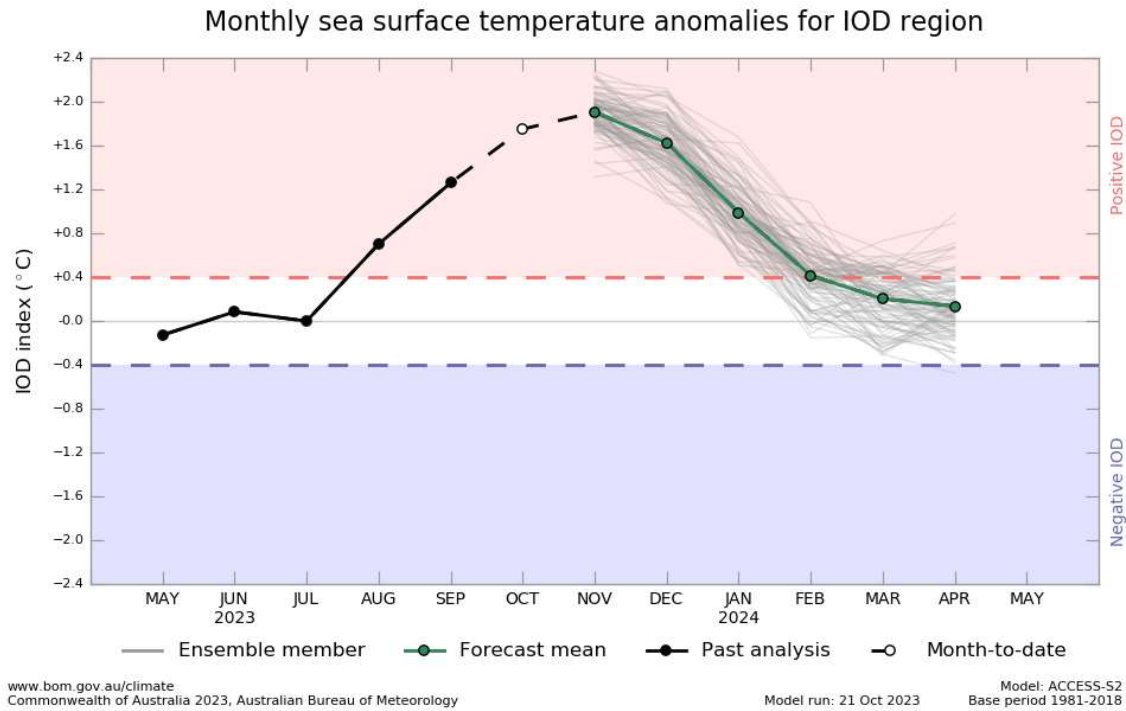


Figure 4a: IOD forecast from Australian Bureau of Meteorology

2.1 Impacts of positive IOD on monthly rainfall anomaly during November, December and January

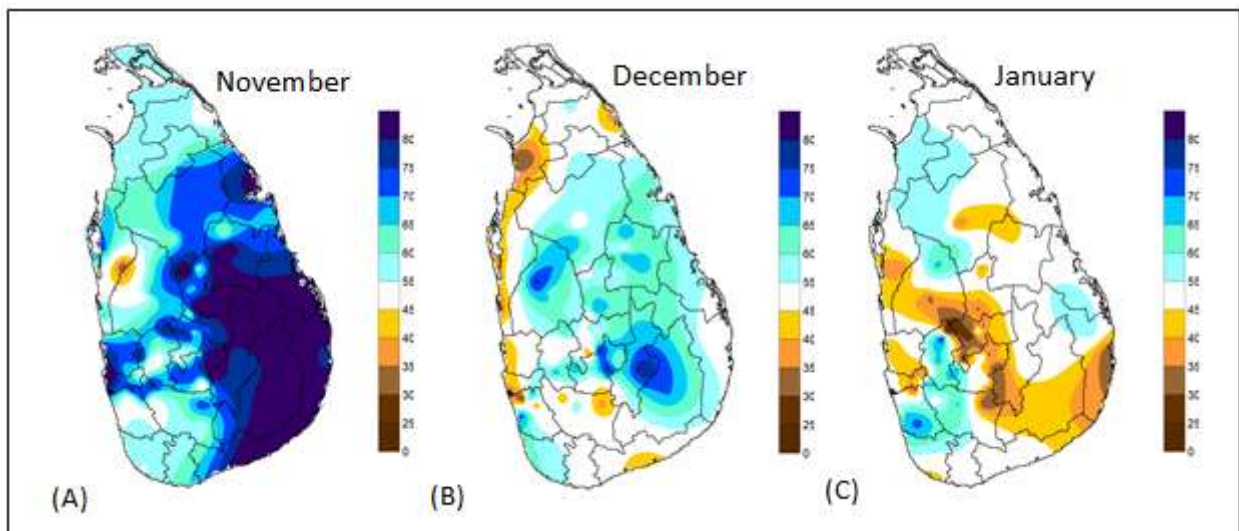


Fig 4b: Median Based Composite maps of Monthly Rainfall during November(A), December (B) and January (c) during positive IOD years (Hapuarachchi et al 2018)

Previous studies conducted by the Department of Meteorology identified that there is a higher probability of getting above normal rainfalls in most of the areas of the country during the month of November (Fig 4b (A)). During the month of December near or above normal rainfalls are possible except Western coastal areas (Fig 4b (B)) under the positive IOD condition. During the month of January it is showing the higher probability of getting below normal rainfall all over some parts in North western, Central and Uva provinces as well as Colombo, Gampaha, Anuradhapura, Ampara and Hambantota districts under the positive IOD condition (Fig 4b (C)).