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Current condition and forecasts of ENSO and IOD for SON 2021

Issued on 30th August 2021 by Seasonal forecasting Division of the Department of Meteorology, Sri Lanka.

1. El Nino and La Nina update

The El Niño–Southern Oscillation (ENSO) remains neutral and this ENSO-neutral is favored through the remainder of Northern Hemisphere summer (~60% chance in the July-September season), while La Niña is more likely starting in the August-October season and continuing through winter 2021-22 (~70% chance during November-January). (source-CPC-USA) (Fig.3a).

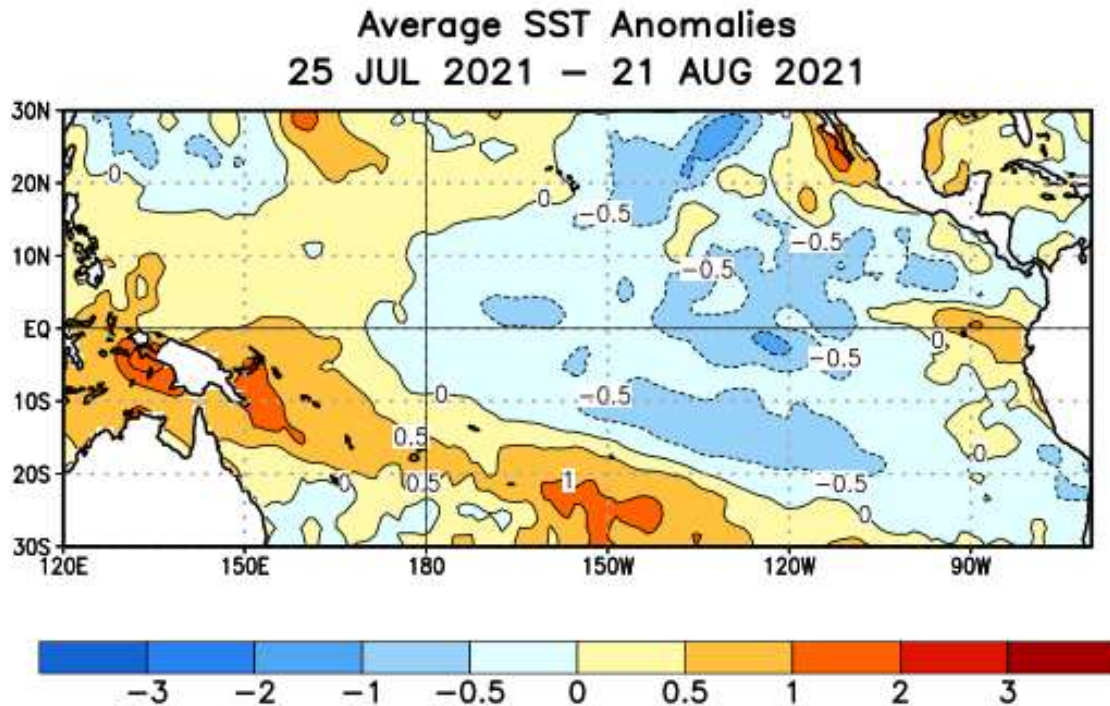


Fig 1: Observed Average sea surface temperature (SST) anomalies (°C)

Weekly SST Anomalies (DEG C)

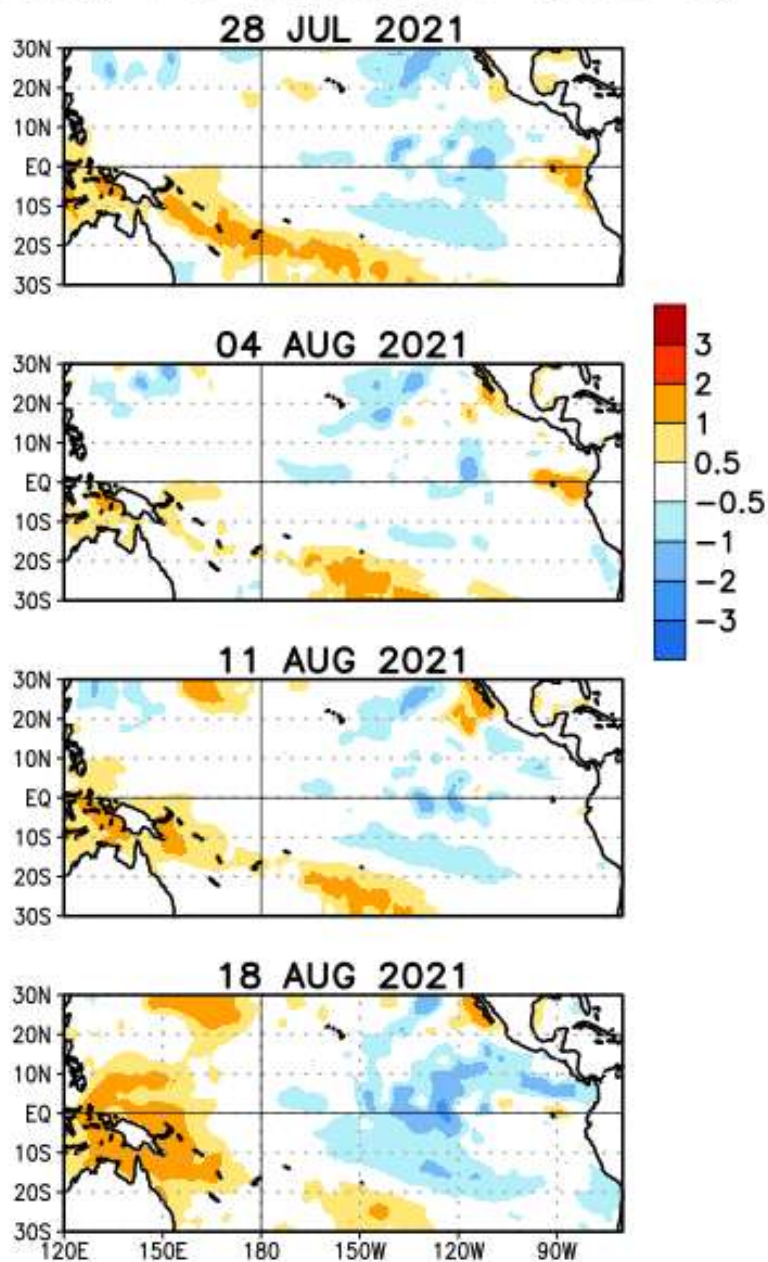


Fig 2: Weekly Observed Average sea surface temperature (SST) anomalies (°C)

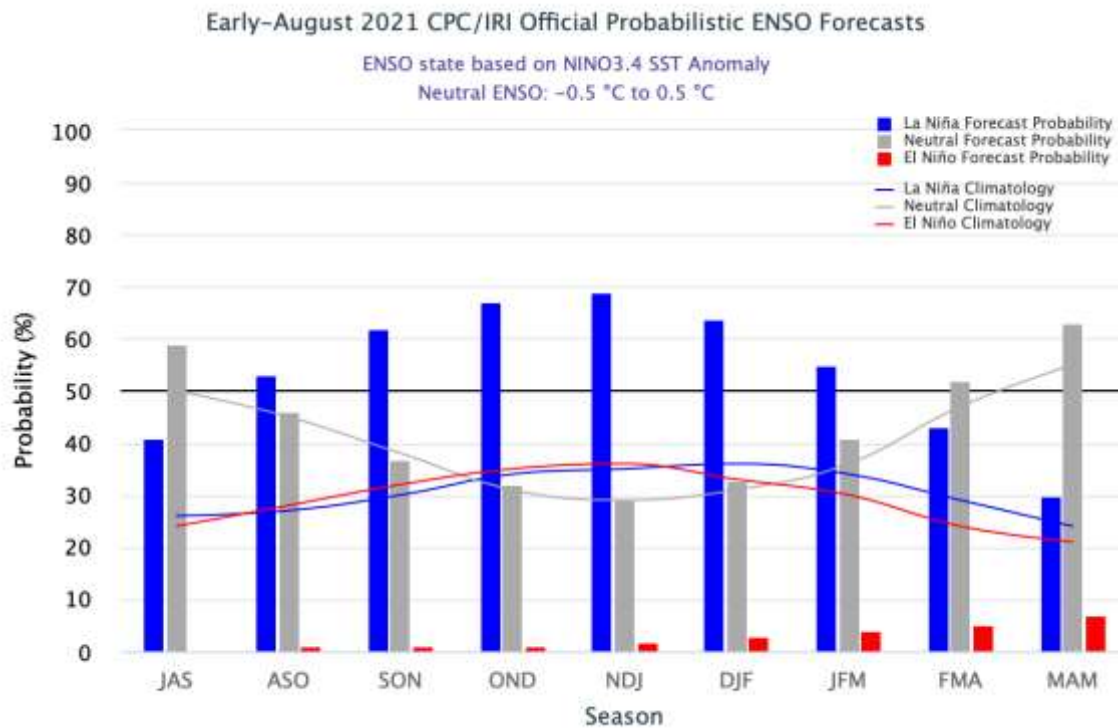


Fig 3a: ENSO forecast from Climate Prediction Center (CPC)/ IRI Forecast

1.1.1 Impacts of La-Nina on monthly rainfall anomaly during September, October and November

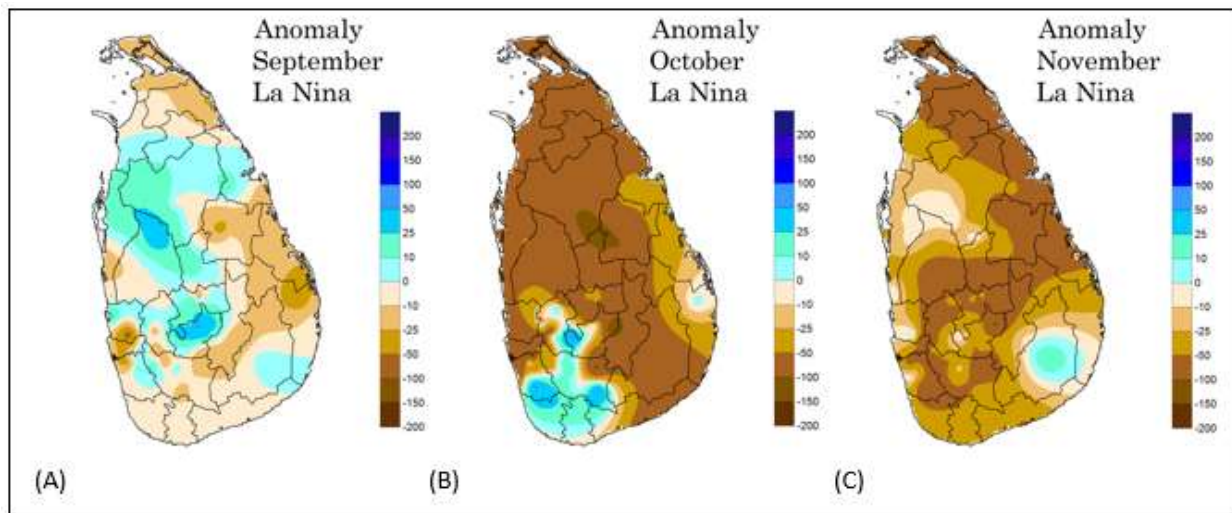


Fig 3b: Monthly Rainfall Anomaly maps of the months of September (A), October (B) and November (C) during La-Nina years (Hapuarachchi et al 2016)

Previous studies conducted by the Department of Meteorology, identified that, during La-Nina years, it is evident that above normal rainfalls over some areas in Mannar, Vavuniya, Anuradhapura, Puttalam, Kurunegala, Matale, Kangy, Nuwara Eliya, Kegalle, Gampaha and Monaragala districts and below normal rainfall over remaining areas of the country during the month of January (Fig 3b-A). During the month of February it is evident below normal rainfall over

most parts of the country except some areas in southwestern part of the country, where above normal rainfall can be expected (Fig 3b-B) and during the month of March below normal rainfall can be expected over most parts of the island except Monaragala district where above normal rainfall can be expected (Fig 3b-C).

2. The Indian Ocean Dipole (IOD) update

Sea surface temperatures (SSTs) in the Indian Ocean were warmer than average across much of the eastern half of the basin but have weakened compared to the past weeks. SSTs around the Horn of Africa and the Arabian Peninsula are mostly closed to average although small areas of cool anomalies persist close to the coastline. The IOD index has been below the negative IOD threshold ($-0.4\text{ }^{\circ}\text{C}$) since mid-May. IOD index will remain within negative thresholds until December 2021. (Source-Bureau of Meteorology, Australia).

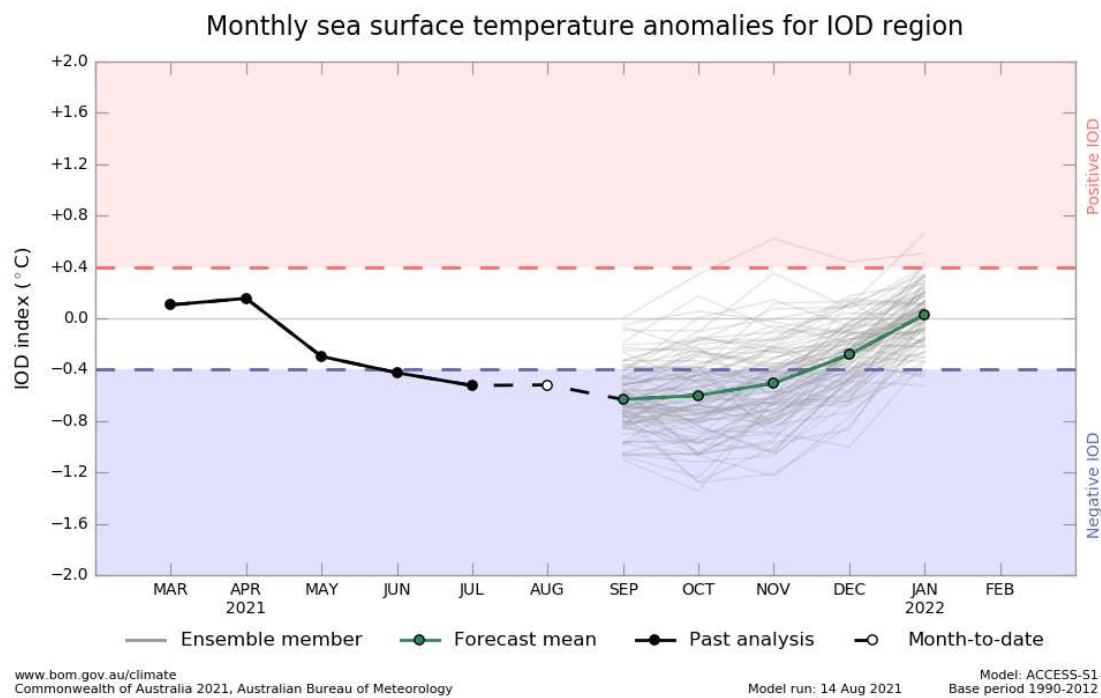


Figure 4a: IOD forecast from Australian Bureau of Meteorology

Impacts of negative IOD on monthly rainfall anomaly during September, October and November

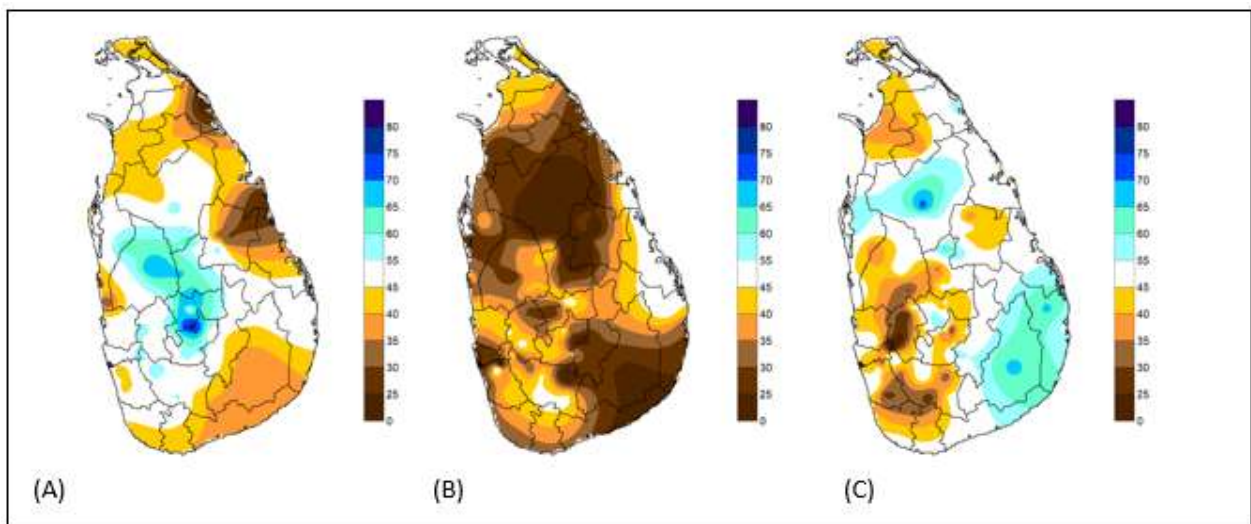


Fig 4b: Median Based Composite maps of Monthly Rainfall during September (A), October (B) and November (C) during IOD years (Hapuarachchi et al 2018)

Previous studies conducted by the Department of Meteorology, identified that there is a probability of getting below normal rainfall in some areas of Jaffna, Mullativu, Mannar, Puttalam, Vavuniya, Anuradhapura, Trincomalee, Batticaloa, Polonnaruwa, Ampara, Monaragala, Hambantota, Galle and Matara districts and near or above normal rainfall elsewhere of the country (Fig 4b (A)) under the negative IOD condition during the month of September. But in the month of October it is showing the higher probability of getting below normal rainfall over most parts of the country except some areas in Rathnapura, Jaffna, Ampara and Batticaloa where near normal rainfall can be expected (Fig 4b (B)). There is a higher probability of getting below normal rainfall in some areas of Jaffna, Killinochchi, Mullativu, Vavuniya, Mannar, Kurunegala, Matale and Polonnaruwa districts and South western part of the country and it can be expected near or above normal rainfall in other areas of the country during the month of November (Fig 4b (C)) under the negative IOD conditions.