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Monitoring of Meteorological Dryness Through Standardized Precipitation Index (SPI) at the end of November_2021

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PREAMBLE

In order to provide latest information regarding meteorological drought to improve the nation's preparedness for drought and more specifically, enhance drought readiness the Department of Meteorology initiate a monthly drought monitoring bulletin since January 2018.

Meteorological drought is usually defined on the basis of the degree of dryness (in comparison to some "normal" or average amount) and the duration of the dry period. This Drought Monitoring Bulletin has been prepared using the World Meteorological Organization (WMO) recommended Standardized Precipitation Index (SPI) technique. Monthly rainfall data from more than 250 stations were used to prepare this high resolution maps .

INTERPRETATION OF MAPS

The 3-month SPI provides a comparison of the precipitation over a specific 3-month period with the precipitation totals from the same 3-month period for all the years included in the historical record. A 3-month SPI reflects short and medium term moisture conditions and provides a seasonal estimation of precipitation. In primary agricultural regions, a 3-month SPI might be more effective in highlighting available moisture conditions.

The 6-month SPI compares the precipitation for that period with the same 6-month period over the historical record. For example, a 6-month SPI at the end of March compares the precipitation total for the October previous year to March this year period with all the past totals for that same period.

The 9-month SPI provides an indication of inter-seasonal precipitation patterns over a medium timescale duration. Droughts usually take a season or more to develop. SPI values below -1.5 for these timescales are usually a good indication that dryness is having a significant impact on agriculture and may be affecting other sectors as well.

12-month SPI reflects long-term precipitation patterns. A 12-month SPI is a comparison of the precipitation for 12 consecutive months with that recorded in the same 12 consecutive months in all previous years of available data. Because these timescales are the cumulative result of shorter periods that may be above or below normal, the longer SPIs tend to gravitate toward zero unless a distinctive wet or dry trend is taking place. 12-month SPI tied to stream flows, reservoir levels, and even groundwater levels at longer timescales.

OBSERVED FEATURES

The maps represent monthly accumulated rainfall (mm) during November 2021 (Fig 1) monthly received rainfall as a percentage with respect to 30 year average (1981-2010) for November 2021 (Fig 2).

Above normal rainfalls were reported over most parts of North, North Western, Western, Sabaragamuwa, Central provinces and in some parts of Galle and Anuradhapura districts (Fig 1 & Fig 2).

Other districts received normal rainfalls except at most parts in Monaragala and Hambanthota districts and isolated pockets in Rathnapura, Mathale and NuwaraEliya districts where below normal rainfalls were observed during the month of November 2021.

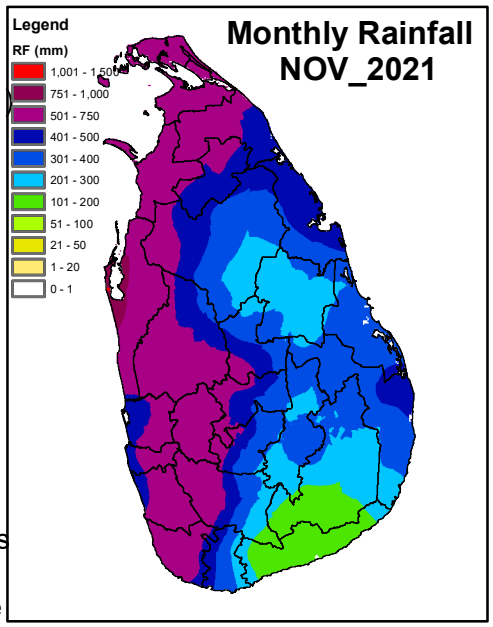


Fig 1 : Monthly accumulated rainfall

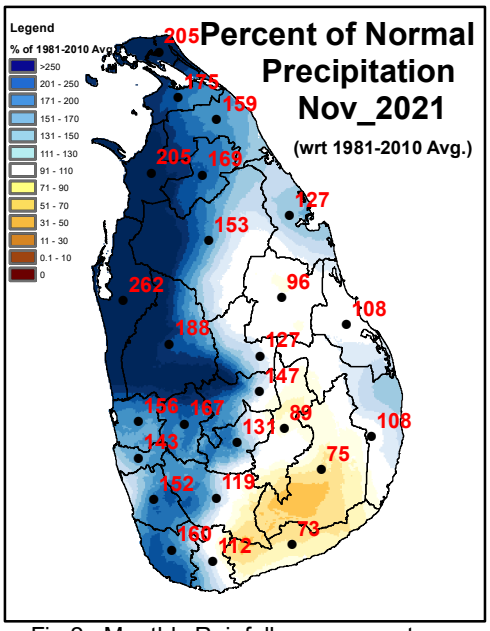


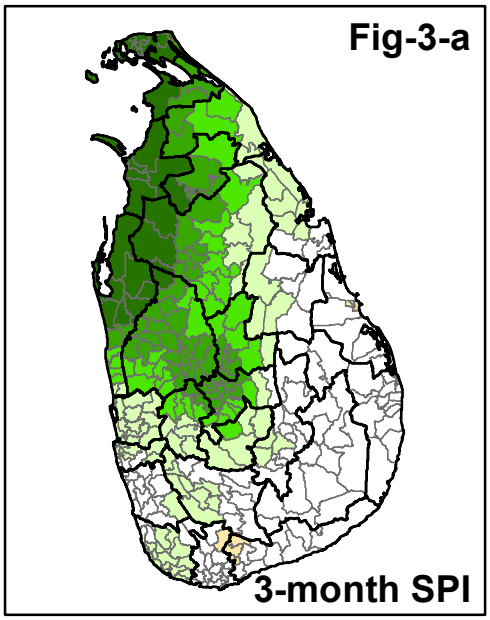
Fig 2 : Monthly Rainfall as a percentage from long-term average (1981-2010) map

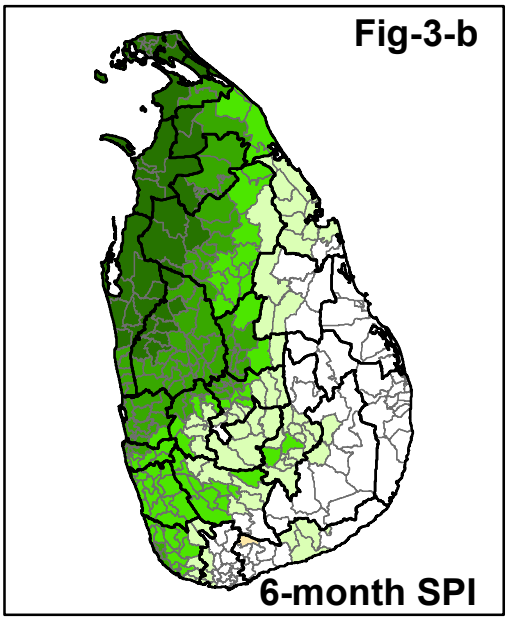
Figure 3 a, b, c ,d, e represents 3-month, 6-months, 9-month, 12-month and18-months SPI calculations using standared color code provided by WMO respectively. They show the degree of wetness and dryness across the country during the periods under review.

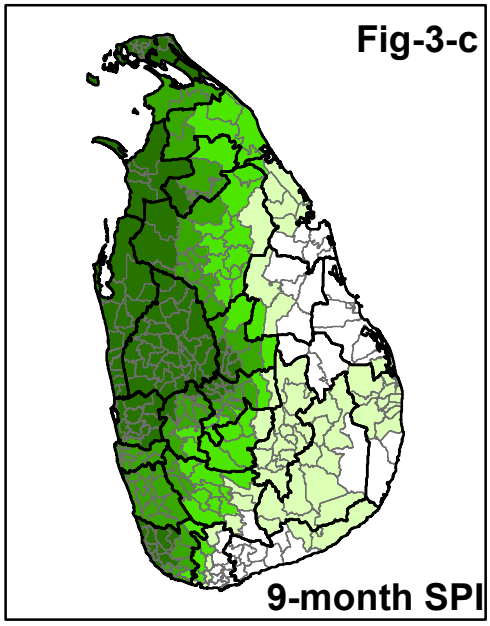
Legend

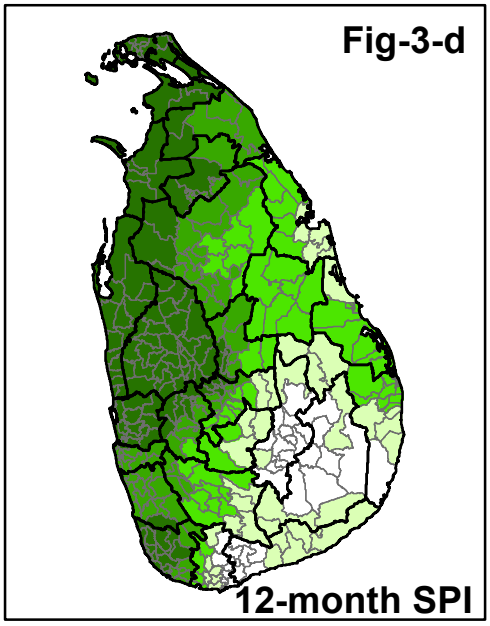
SPI Classification

- -2.0 and below (Extremely dry)
- -1.5 - -1.99 (Severely dry)
- -1.0 - -1.49 (Moderately dry)
- -0.5 - -0.99 (Mildly dry)
- -0.49 - +0.49 (Normal)
- +0.5 -).99 (Mildly wet)
- +1.0 - +1.49 (Moderately wet)
- +1.5 - +1.99 (Severely wet)
- +2.0 and above (Extremely wet)









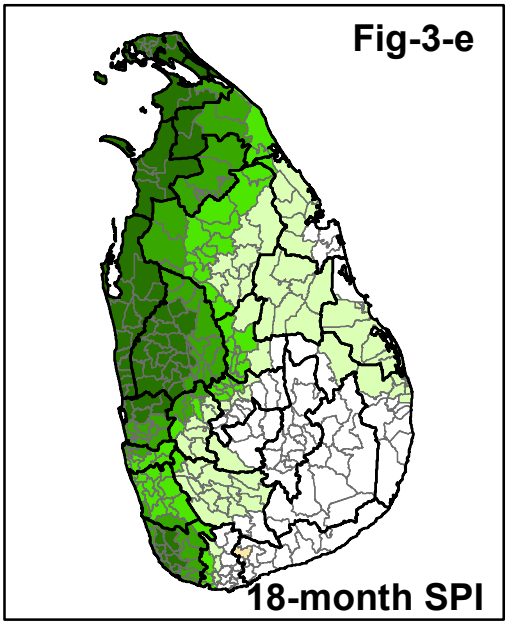


Fig 3 : 3 month (3-a), 6 month (3-b), 9 month (3-c) , 12 month (3-d) , and 18 month (3-e) SPI values through the end of November 2021 for the 331 Divisional Secretariat Divisions (DSD) in Sri Lanka

Most of the SPI scales indicate normal and wet conditions in most parts of the island (Fig 3-a, 3-b, 3-c , 3-d , and 3-e).

Mildly dry conditions were observed in a few pockets in Mathara and Hambanthota districts. (Fig 3-a)

Note;- Data used to develop the maps are not quality controlled.