

Title: Drought Analysis Using Standardized Precipitation Index (SPI): A Case Study in Jaffna Peninsula in Sri Lanka

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Abstract: The drought analysis is a prime component in the preparedness of drought and the water resources management. The status of drought in Jaffna was investigated using standardized precipitation index (SPI) at 1, 3, 6, 9 and 12 months' time scale using monthly rainfall (1985 – 2019) data of Thirunelveli meteorological station. Results revealed that the annual rainfall has no trend in long term but there were seasonal and short term variations found. Around 29% of study period was under dry condition. October, November, December and January months can be recorded as rainy months. Higher number of wet events was recorded during January to March. The second inter monsoon and northeast monsoon received high amount of rainfall. The number of wet event increases with years in Yala and vice versa during Maha. That is there was some variation in the onset of rainfall in this region. Nine hydrological years 1988- 89, 1990-91, 1994-95, 2000-01, 2004-05, 2009-10, 2013-14, 2016-17 and 2018-19 as dry years and 1985-86, 1993-94, 2001- 02, 2003-04, 2005-06, 2007-08 and 2014-15 have been identified as wet years. The result obtained through this time scale much with the country's rainfall pattern. Therefore, SPI analysis confirms the historical drought situations over the country by using rainfall as an input.