

## **Identification of Meteorological Drought Using SPI Index in Kurunegala District, Sri Lanka**

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As Sri Lanka is an island located near the equator, it has felt the full impact of climate change. Unlike other natural disasters, droughts are difficult to identify as they can continue for longer periods of time. One of the most serious issues related to climate change has been the droughts which have severely made a damaging impact on the livelihood of the people living especially the dry and intermediate zone. In Sri Lanka droughts mainly occur due to prolonged periods of dry weather and lack of proper rainfall for a certain period. Therefore, this study was conducted in order to identify the temporal patterns of the meteorological drought conditions from 1987 to 2018 covering a period of 31 years and to identify the spatial distribution of meteorological drought conditions in Kurunegala district which is the most affected intermediate zone in the country from droughts. The study used the Standardized Precipitation Index (SPI) to identify the temporal patterns and the spatial distribution of meteorological drought conditions in Kurunegala district. The study used the inverse distance weighted interpolation method of ArcGIS for indicating the drought-impacted areas in the maps through the data gathered from SPI. The results showed that in the mid-term (six-month period) there has been a gradual increase of the drought incidents of the study area where from 1988-1997 had a drought occurrence of 26.2% and from 1998-2007 30.9% and from 2008-2018 42.0.%. In considering the spatial distribution of meteorological drought conditions in Kurunegala district it was observed that drought conditions have occurred more frequently in the south-western part of the district. Findings also revealed that the intermediate zone suffered from high meteorological droughts than the dry zone in the district.

**Keywords:** Climate change, Meteorological drought, Standardized precipitation index