

METEOROLOGICAL DROUGHT HAZARD ASSESSMENT FOR AGRICULTURE AREA IN EASTERN REGION OF THAILAND

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Abstract

Drought disasters in the eastern region of Thailand occur more frequently now than in the past. The trend of observed rainfall or precipitation is reducing as a consequence of climate change and global warming. This study investigates the assessment of meteorological drought on rice, field crops and orchard fruits using Standard Precipitation Index (SPI) and observed daily rainfall data (1951-2017) from 16 meteorological stations. The analysis considers the observed daily rainfall delineating into four time steps: 1960s (1951-1970), 1980s (1971-1990), 2000s (1991-2010) and 2020s (2011-2017). The Theory of Runs (ToR) was used to define the drought characteristics such as drought duration (DD), drought event (DE), drought severity (DS) and drought intensity (DI) based on the result from SPI values. The result of drought hazard in May 2015 was categorized into five levels; very low (0.05%); low (12.80%); medium (49.11%); high (29.31%) and very high (8.70%). In a long-term period from 1960s to 2000s, all drought characteristics tend to slightly increase from 1.90 to 2.06 months for drought duration; 54 to 59 events for drought event; -1.31 to -1.50 for drought severity; -0.66 to -0.72 for drought intensity, respectively.

Keywords: *Standardized Precipitation Index SPI, Drought Characteristics, Drought Hazard Assessment, Agricultural Crops, Eastern Thailand*