

ABSTRACT

Drought in Semarang Regency is very vulnerable to ENSO and IOD climate anomalies, this is followed by a decrease in average sea surface temperature in Indonesian waters below the normal average which has an impact on reducing rainfall so that the problem of drought has a significant impact on Semarang Regency. This study aims to analyze the spatial temporal of drought disaster due to the El Nino phenomenon in Semarang Regency and the pattern of drought from the influence of ENSO and IOD. The data used are secondary data, namely CHIRPS rainfall data and ENSO and IOD anomaly data for a 12-year period, namely 2012-2023. CHIRPS data is processed using the SPI method in R studio, then analyzed with IDW interpolation in Arcgis application to obtain a drought distribution map, besides that the data is also tested using Pearson correlation to determine the influence of ENSO and IOD on SPI results. The results showed that Semarang Regency has the potential to experience drought that is evenly distributed and varied. Drought classification results ranging from mild to very dry. Extreme drought occurred in July and August 2012 in Bandungan with SPI values of -2.03 and -2.08. Evenly distributed drought across the region occurred in March 2016 and April 2020. Ambarawa sub-district experienced the most droughts with 26 events. ENSO is significant and correlates to changes in SPI with a moderate correlation. From the results of the Pearson correlation test, it also proves that IOD is significant and correlates to changes in SPI with a weak correlation relationship.

Keywords: Drought, Semarang Regency, Standardized Precipitation Index (SPI), Climate Hazard Group InfraRed Precipitation with Station Data (CHIRPS), Inverse Distance Weight (IDW), ArcGis, El Nino-Southern Oscillation (ENSO), Indian Ocean Dipole (IOD).