

EXPLORING MONSOONAL RAINFALL PATTERNS IN TRINCOMALEE DISTRICT, SRI LANKA USING ISOHYET METHOD

U. Kavithanjali* and P.J.E. Delina

Department of Agricultural Engineering, Faculty of Agriculture, Eastern University, Sri Lanka

Abstract

Climate change emerges as a severe threat, particularly affecting South Asia's agriculture, including Sri Lanka. Variations in rainfall pose a tangible risk, impacting crop yield and water management in a significant manner. The absence of a detailed analysis of rainfall patterns and trends is a critical issue in forecasting water management in Sri Lanka. The study tends to attend to the rainfall dynamics in the context of Trincomalee District, employing the interpolation technique Isohyet method. The examination of Isohyet patterns revealed a remarkable fact which is that the initial extensive wetted areas during the Northeast Monsoon (NEM), First-inter monsoon (FIM), and Southwest Monsoon (SWM) in the first decade gradually diminished and contracted over time as NEM, FIM and SWM rainfall especially in western side of Trincomalee received 625, 178.75 and 400 mm/decade respectively at first decade then this pattern had been gradually diminishing till the 4th decade where it was 550, 112 and 200 mm/ decade respectively. Through a thorough analysis, it became clear that the coverage of wet isohyet patterns had been decreasing from 1983 to 2022, simultaneously, the coverage of dry or minimal isohyet patterns had been increasing from 1983 to 2022 over the past 40 years. Divisional Secretariat Divisions (DSDs) closer to the coastal region consistently experienced the least rainfall isohyets than the interior regions. Further, it was noted that Verugal and Muttur showed the lowest rainfall isohyets compared to other DSDs, in NEM, FIM, SWM and Second-inter monsoon (SIM) with values of 476.75, 67.88, 216.5 and 359.38 mm/year respectively.

Keywords: Interpolation, Isohyet, Monsoon, Rainfall

**Corresponding author: saikavithanjali.u@gmail.com*