

ABSTRACT:

This study investigated the spatial pattern and trends of the daily rainfall data in Peninsular Malaysia based on seasonal rainfall indices. Five rainfall indices which describe the main characteristics of rainfall, the total amount of rainfall, frequency of wet days, rainfall intensity, extreme frequency, and extreme intensity, were employed in this study. The statistics of rainfall indices were calculated in terms of their means for four regions in Peninsular Malaysia for the period 1975 to 2004. The findings indicate that the southwest monsoon had the greatest impact on the western part of the Peninsula, particularly in characterizing the rainfall pattern of the northwest region. During this season, the northwest region could be considered as the wettest region since all rainfall indices tested are higher than in other regions of the Peninsula. Otherwise, the northwest region is denoted as the driest part of the Peninsula during the northeast monsoon period. The northwest region is less influenced by the northeast monsoon because of the existence of the Titiwangsa Range, which blocks the region from receiving heavy rainfall. On the other hand, it is found that the lowlands areas such as the eastern part of the Peninsula are strongly characterized by the northeast monsoonal flow. Based on the results of the Mann-Kendall test, as the trend of the total amount of rainfall and the frequency of wet days during the southwest monsoon decrease at most of the stations, the rainfall intensity increases. In contrast, increasing trends in both the total amount of rainfall and the frequency of wet days were observed at several stations during the northeast monsoon, which give rise to the increasing trend of rainfall intensity. The results for both seasons indicate that there are significantly decreasing trends in the frequency of wet days during the extreme events for most of the stations on the peninsula. However, a smaller number of significant trends was found for extreme intensity.