

Daily Probability Model of Storm Events in Peninsular Malaysia

Authors : Mohd Aftar Abu Bakar, Noratiqah Mohd Ariff, Abdul Aziz Jemain

Abstract : Storm Event Analysis (SEA) provides a method to define rainfalls events as storms where each storm has its own amount and duration. By modelling daily probability of different types of storms, the onset, offset and cycle of rainfall seasons can be determined and investigated. Furthermore, researchers from the field of meteorology will be able to study the dynamical characteristics of rainfalls and make predictions for future reference. In this study, four categories of storms; short, intermediate, long and very long storms; are introduced based on the length of storm duration. Daily probability models of storms are built for these four categories of storms in Peninsular Malaysia. The models are constructed by using Bernoulli distribution and by applying linear regression on the first Fourier harmonic equation. From the models obtained, it is found that daily probability of storms at the Eastern part of Peninsular Malaysia shows a unimodal pattern with high probability of rain beginning at the end of the year and lasting until early the next year. This is very likely due to the Northeast monsoon season which occurs from November to March every year. Meanwhile, short and intermediate storms at other regions of Peninsular Malaysia experience a bimodal cycle due to the two inter-monsoon seasons. Overall, these models indicate that Peninsular Malaysia can be divided into four distinct regions based on the daily pattern for the probability of various storm events.

Keywords : daily probability model, monsoon seasons, regions, storm events

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