

PROBABILITY MODELS FOR WET SPELLS IN PENINSULAR MALAYSIA DURING THE PERIODS OF 1940s-1976 & 1977-2004

(Model Kebarangkalian bagi Rentetan Basah di Semenanjung Malaysia
untuk tempoh 1940-an - 1976 & 1977-2004)

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ABSTRACT

The analysis of rainfall behavior, particularly in terms of occurrence, is greatly important in many areas such as water resource management and agricultural planning. This aim of this study is to fit various types of probability models including simple geometric, log series as well as the mixture probability models to describe the distribution of wet spells. Daily rainfall data of the period 1977 to 2004 and the observed frequency of wet spells data sets for the period of 1940s to 1976 for each of the eight selected rainfall stations in Peninsular Malaysia are used in this study. In selecting the best fitting probability model to describe the observed distribution of wet spells for each rainfall station, chi square goodness-of-fit test is considered. The findings of this present study revealed that the mixed geometric distribution is the probability model found to be the most successful in representing the distribution of wet spells for both periods since all the data sets fitted the model well.

Keywords: daily rainfall occurrence; wet spells; probability models

ABSTRAK

Analisis perilaku hujan terutamanya keberlakuan hujan adalah sangat penting dalam pelbagai bidang seperti pengurusan pembekalan air dan juga perancangan pertanian. Kajian ini bertujuan menyuaikan pelbagai model kebarangkalian seperti geometri mudah, siri log dan juga model kebarangkalian campuran bagi mewakili taburan rentetan basah. Data hujan harian bagi tempoh 1977 hingga 2004 dan juga frekuensi cerapan dari tahun 1940-an hingga 1976 untuk lapan stesen hujan di Semenanjung Malaysia telah digunakan dalam kajian ini. Dalam pemilihan model kebarangkalian yang paling sesuai bagi mewakili taburan rentetan basah bagi setiap stesen, ujian kebagusan khi kuasa dua telah digunakan. Hasil kajian mendapati taburan geometri campuran adalah model kebarangkalian yang paling sesuai bagi mewakili taburan rentetan basah untuk kedua-dua tempoh kerana kesemua set data berjaya disuaikan pada model tersebut.

Kata kunci: kejadian hujan harian; rentetan basah; model kebarangkalian

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