Islamic Azad University-Ahar Branch
Geographic Space
An Approved Scientific, Research-based Quarterly

Hamid Reza Fooladmand[1]

Spatial-temporal Evaluation of Monthly Transition Probabilities of Markov Chain for Selecting the Appropriate Places of Dryland Farming in Fars Province

Date received: 20 December 2010 Date accepted: 6 July 2011

Abstract

First order of Markov chain is a process that depends on the previous process. The two-two transition probability which indicates the situation of rainy or non-rainy days should be determined to use the first order of Markov chain. For this study, 49 stations in Fars province were selected, and the transition probabilities of months of November to April were calculated by using the first order of Markov chain, separately and then the spatial variations of the transition probabilities were prepared. These transition probabilities can be used for simulation daily rainfall and different dry day return periods. The results showed that the occurrence probability of rainfall and return periods of different dry day were more in February and March, and in November were lower than the months of December to April. On the other hand, the occurrence probability of rainfall and return periods of different dry day were low in November to April in south of Fars province, and incresed towards the north and north-west of the province. Therefore, the north and north-west of the province are the most appropriate places in the Fars province for dryland farming of different crops such as wheat.

Keywords: Markov chain, Transition probabilities, Appropriate places of dryland farming, Fars province.

1- Associate Professor of irrigation and drainage, Islamic azad University, marvdasht branch.