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$$Y_t = (2k + 1)^{-1} \sum_{j=-k}^k X_{t+j} \quad ()$$

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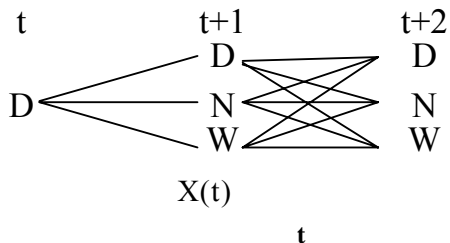
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X_t

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$$P[X(t) = x_t | X(0) = x_0, X(1) = x_1, \dots, X(t-1) = x_{t-1}] ()$$

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Extreme Wet Severe Wet Normal Wet
 Normal Normal Drought Severe Drought
 Extreme Drought - Step One Transition Probability

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P_{ij}

(j)

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$$p_{ij}(t) = P[X(t) = j | X(t-0) = i] \quad ()$$

SMADA

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$$\sum_{j=1}^r p_{ij}(t) = 1 \quad i = 1, \dots, r \quad ()$$

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SPSS

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	ED	SD	ND	N	NW	SW	EW
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	ED	SD	ND	N	NW	SW	EW
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		ED	SD	ND	N	NW	SW	EW
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ArcView GIS

() $i=1,2,\dots,n$ n $Z_{(ui)}$

$Z_{(uk)}$ k

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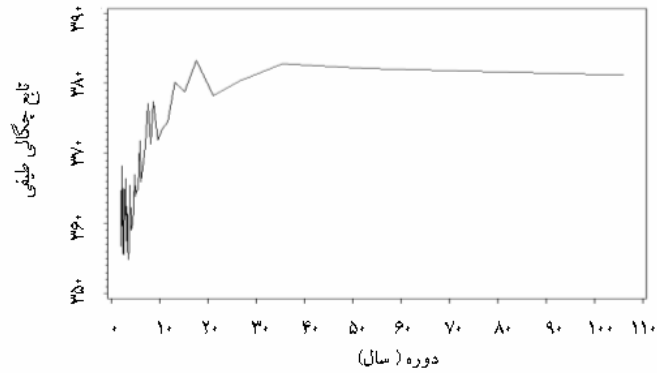
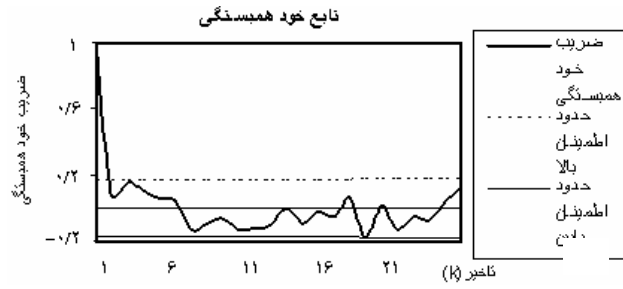
$$Z(u_k) = \sum_{i=1}^n \lambda_i Z(u_i) \quad ()$$

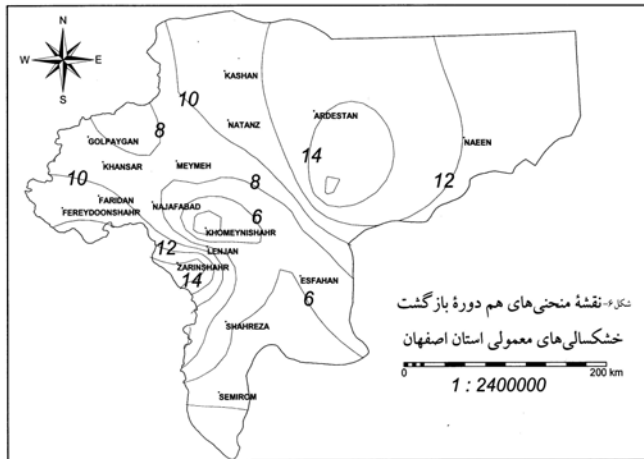
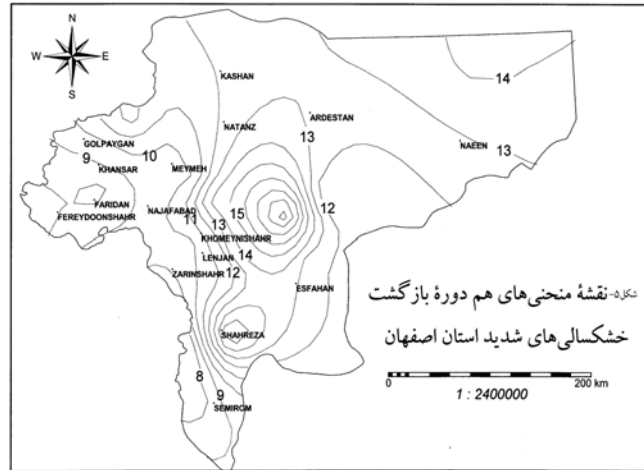
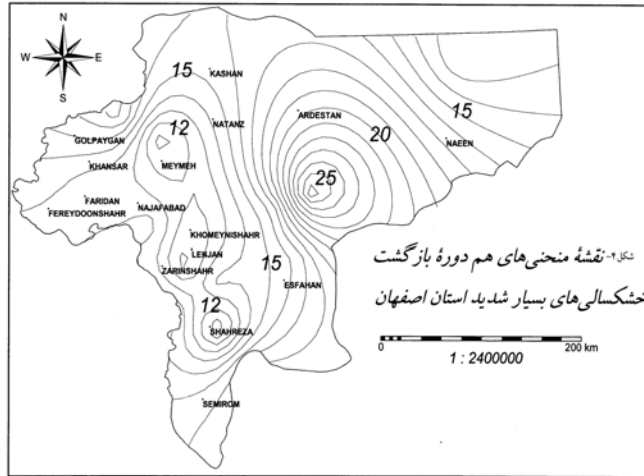
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Spatial Correlation

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An Analysis of Meteorological Drought Frequency and Severity, Isfahan Province

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Abstract

Drought is a meteorological event the adverse effects of which can be observed not only in arid and Semi arid, but in humid regions as well. To reduce these effects, drought should be studied in a scientific manner, and in correct frameworks. As drought can also be considered as a hydrologic event, we can apply hydrologic methods to analyze it. Markov chain is one of the most important and classic stochastic models having many applications in hydrology as well as in meteorology. To prepare a map of drought probability occurrence, the probabilities of different conditions derived from Gibbs and Maher procedure for 22 stations in Isfahan province were considered as Markov chain and the return period for each condition was calculated for each station. Applying ordinary Krigging, the map of drought return period was drawn for Isfahan province.

Keywords: Isfahan province, Drought frequency, Gibbs and Maher method, Markov chain, Ordinary Krigging

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