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NOAA-AVHRR

MODIS

NOAA-AVHRR

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NDVI

() Uzma Rabab .

AVHRR

NDVI

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NOAA-AVHRR

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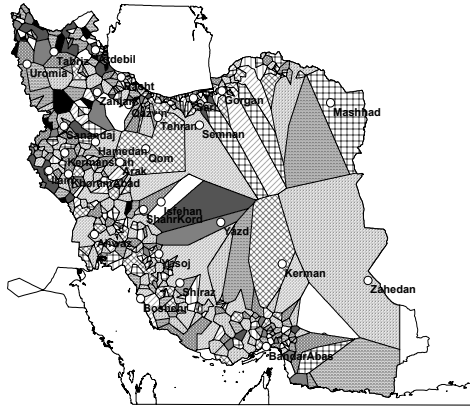
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NOAA-AVHRR

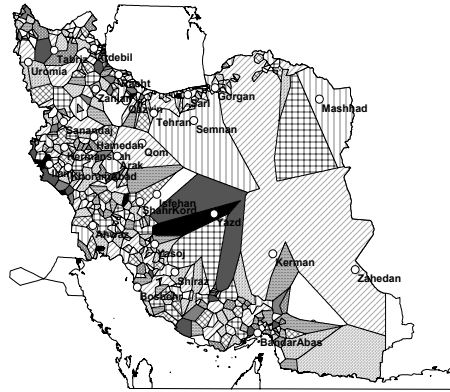
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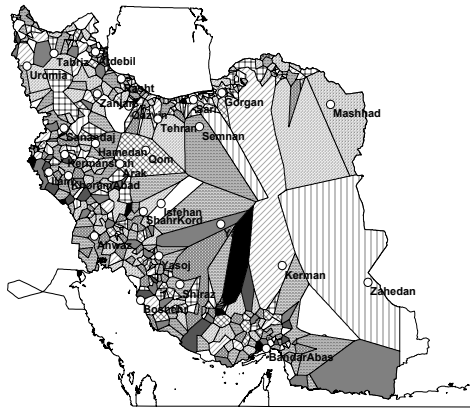
NOAA-AVHRR



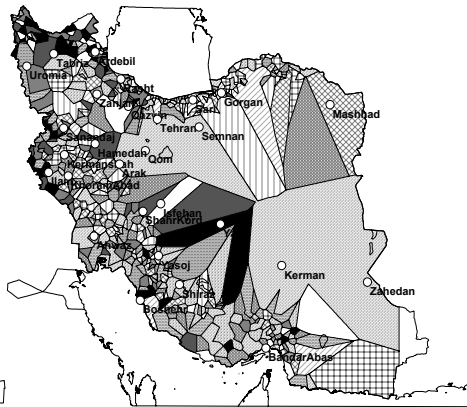
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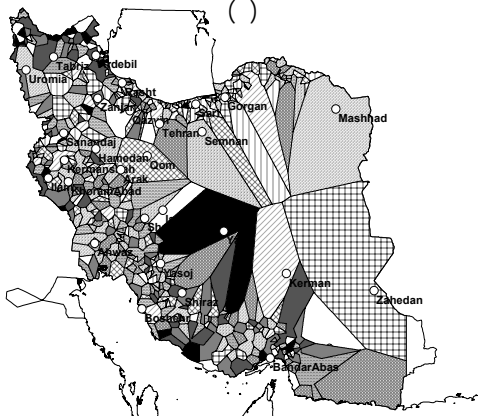
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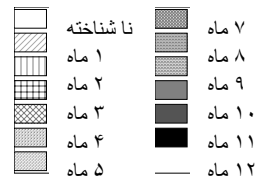
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NOAA-AVHRR

NOAA-AVHRR

(NDVI)

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$$\text{NDVI} = (\text{NIR} - \text{RED}) / (\text{NIR} + \text{RED}) \quad (\quad)$$

:NIR

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:RED

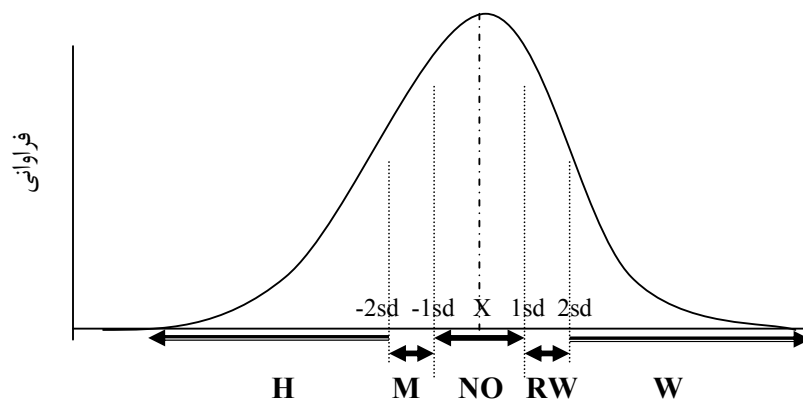
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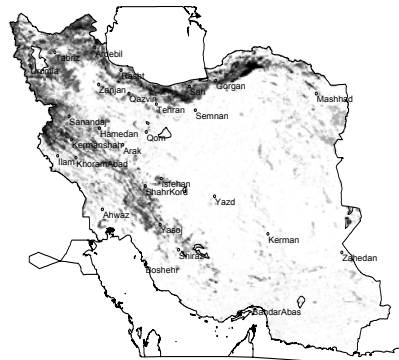
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(M)	X- SD X- SD	
(NO)	X- SD X+ SD	
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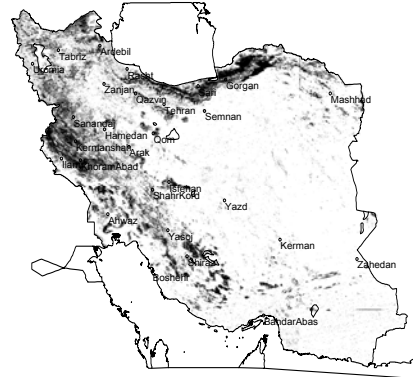
(ب)



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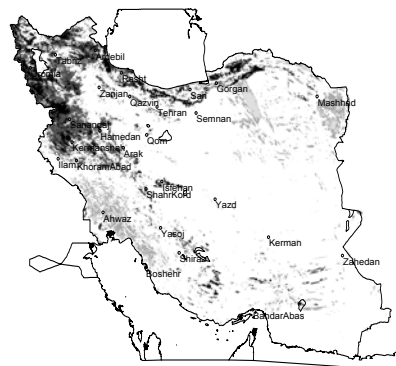
(ج)



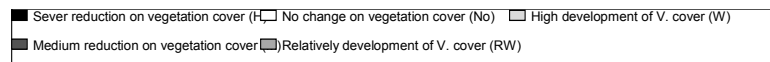
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$A_c = (A_1/A_2)^{1/2}$

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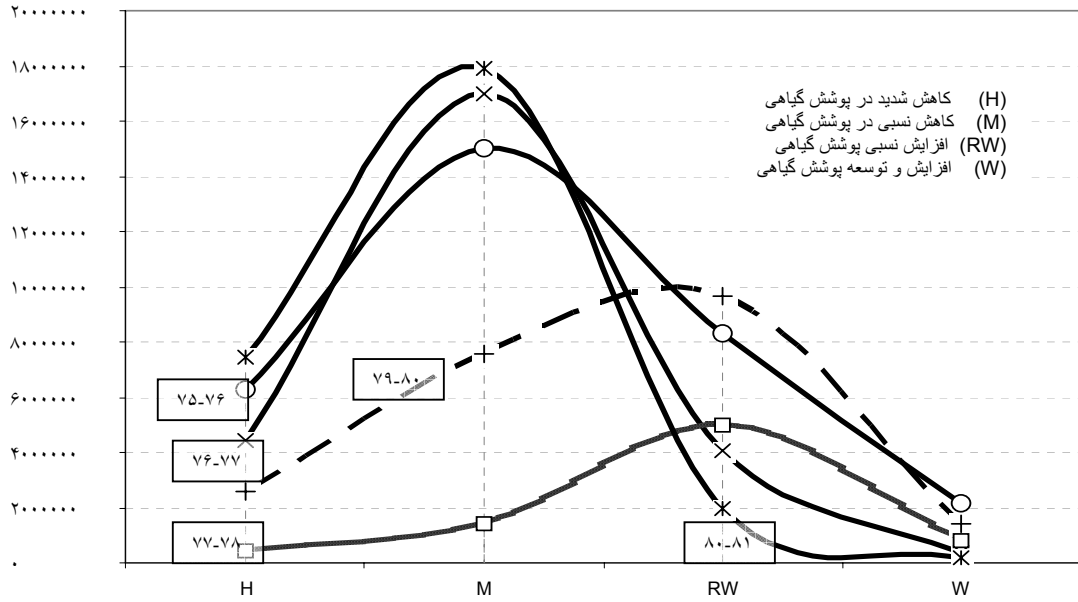
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NOAA-AVHRR.

SPI

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Identification of spatial extent of extreme droughts and their impact on forests and rangelands in Iran during 1995-2001 using rainfall data and satellite images

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Abstract

The current research has been carried out with the aim to integrate vegetation index and rainfall data in a Geographic Information System (GIS) for identification of extremely vulnerable areas to drought in Iran. Limited amount of rainfall and climatic changes are caused occurrence of drought in the period ending 2003. Since the vegetation cover is directly linked with water availability. So, any decrease in vegetation cover can be alarmed as an indicator. Monthly rainfall data of about 719 rainfall stations were compared with the long term mean monthly rainfall data, within the five years (1996-2001), in order to find out the deviations from normal condition. The result of this division then converted to drought duration map by summing up the relevant ratios for each station. On the other hand NDVI images of each year were prepared, using NOAA-AVHRR images. Then maximum NDVI values were obtained among of these images as well. The maximum NDVI values of each year then compared with the maximum NDVI values of the reference year. Beginning year of the period of study (1996-1997) is taken as reference year. Result of this comparison led to production of vegetation cover changes map. This map is classified by making use of criteria stated by Jensen, 1987. Areas faced to simultaneous decrease on vegetation cover and persistence of severe drought for more than 6 month per a year, were mapped as extremely drought zones. By cross operation applied on extreme drought zones map and land-cover map, land covers that are fallen in those zones were determined. Among of vegetation covers, sparse forests and rangelands are highly affected by extreme droughts and in the contrary damage to dense forests and irrigated lands were not severe.

Keywords: Rainfall, NOAA-AVHRR images, Vegetation index, Drought, Land cover, Iran

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