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ArcGIS(9)

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ArcGIS

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ArcGIS 9

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(ETM<sup>+</sup>, 2002)

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$$I_x = [(L_1) \times (L_2) \times (L_3) \times \dots \times (L_n)]^{1/n}$$

$I_x$   
 $L_{1, 2, \dots, n}$   
 $n$

: $GW_I$

: $M_I$

( )

$$D_s = (C_I \times S_I \times E_I \times V_I \times GW_I \times M_I)^{1/6}$$

: $D_s$

: $C_I$

: $S_I$

: $E_I$

: $V_I$

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(P) (ET) (AI = P/ET <sub>p</sub> )			
(Cl) (EC) (Water table) (SAR)			

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<b>(EC)</b>			
	<b>(mmhos/cm)</b>		
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	< /	(High quality )	
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	> /	(Low quality )	

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> /	(Low quality )	

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/ /		(Moderate)	
> /		(High)	

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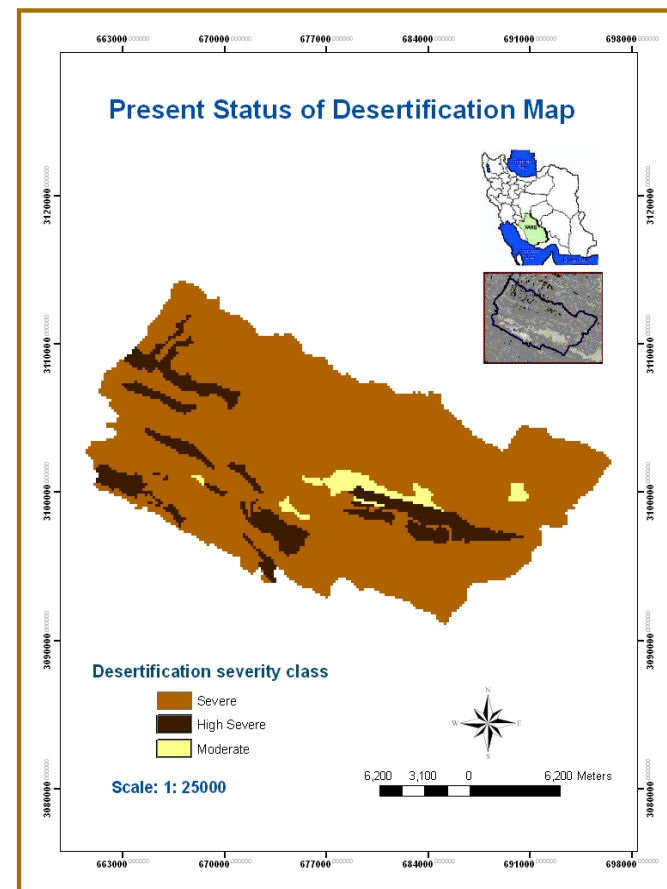
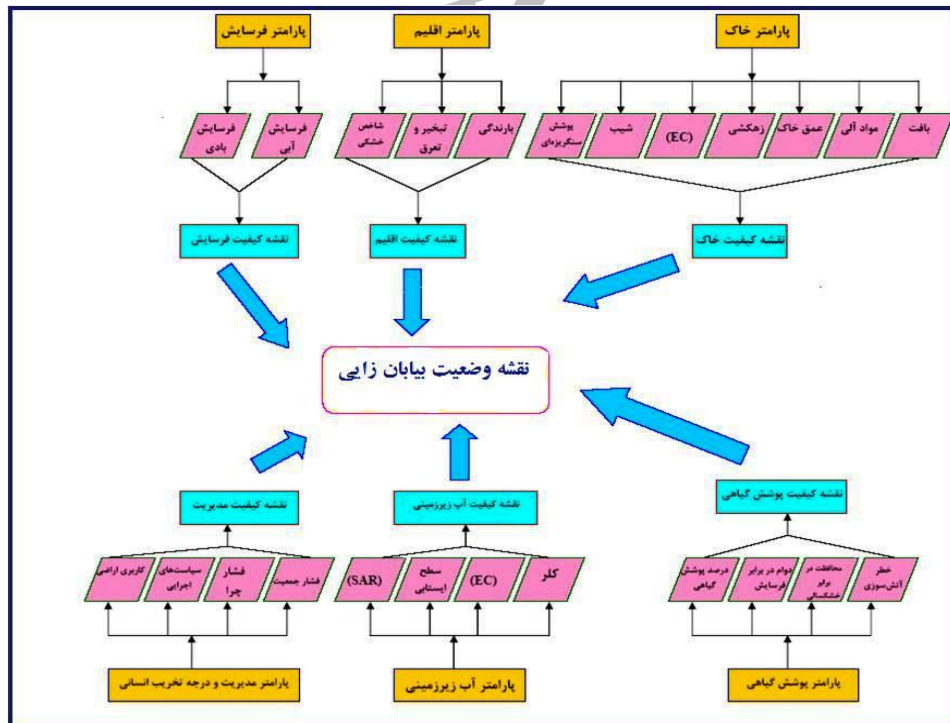
( Animal Unit Month)

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## Application of MEDALUS method to develop a regional model for desertification assessment and mapping

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### Abstract

The present study attempts to assess quantitatively the desertification process to develop a regional model in Fidoyeh- Garmosht plain in Fars province with area of 43000 ha as a case study. In this study, based on the MEDALUS method and according to the characteristics of study area a regional model was developed using GIS. In the first step, all major factors affecting desertification were determined. These main six indicators (layers) included: soil, climate, erosion, plant cover, groundwater and management (for human activities). Then a number of sub-layers for each main layer affecting the quality of main layers were identified. To each sub-layer a number between "1 to 2" according to the MEDALUS method was denoted. These denoted numbers were considered as a weight for each sub-layer. GIS (ArcGIS 9) then was used to analyze data to prepare the main layer status maps using geometric mean for the sub-layers and the main layers. Ultimately, the maps were combined and based on the geometric mean of the main layers, a desertification potential status map was developed. The results indicated that 12% of total study area classified as a very severe class, 81% is classified as a severe class and 7% of area classified as a moderate class of desertification. The results showed that plant cover and groundwater quality are the most important parameters that affecting desertification process in the Fidoyeh – Garmosht plain.

**Keywords:** Desertification, MEDALUS, GIS, Fidoyeh-Garmosht

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