

*

(/ / : / / :)

(Integrated Quality Index) IQI

IQI

(GIS)

MBE

RMSE

MAE

(Nugget/Sill = /)

IQI

/

(Andrews et al.,

2002)

(Qi et al.,

2009)

()

(Indicators)

(Lal et al., 2004)

(Doran and Jones, 1996;

Aparicio and Costa, 2007)

(Brejda et al., 2000)

(Herrick et

(McGrath

al, 2002; Aparicio and Costa, 2007)

and Zhang, 2003)

IQI

Doran

(Integrated Quality Index)

(Ditzler and Tugel, 2002)

(1994) Parkin

(Doran et al., 1994; Doran and Jones,

(Nazzareno

1996)

and Michele, 2004; Diodato, and Ceccarelli, 2004)

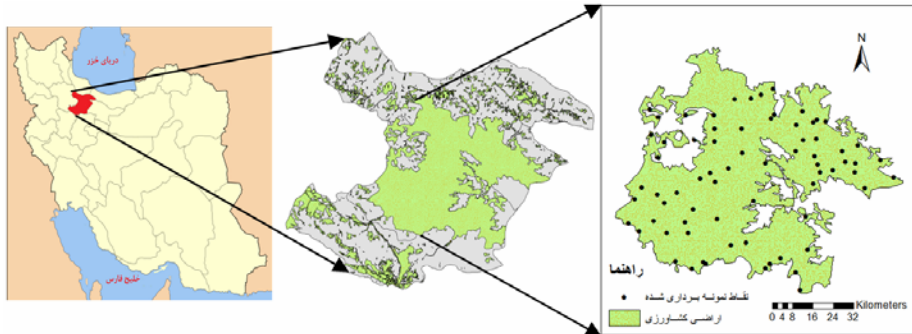
IQI

()

(< %)

Soil)

(Taxonomy U.S.D.A, 10 Edition, 2006



()

IQI

(EC_e)

(pH)

(CEC)

(OM)

(Pb)

(Co)

(Cd)

(TNV)

(Cr)

(K)

()

$$IQI = \sum_{i=1}^n W_i N_i$$

()

CEC

pH

n i

W_i i

N_i:

()

()

(Communality)

IQI

Smoothing

()

Kolmogorov-Smirnov

GS+, 5

(Lag Size)

(Qi et al., 2009)

()

(Cross

Validation)

(Ordinary Kriging)

(Inverse Distance Weighting)

(Radial Base Function)

	/	/	LL	Cd
	/	/	LL	Co
	/	/	LL	Cr
	/	/	LL	Pb
$f(x) = \begin{cases} 1 & x < L \\ 1 - 0.9 \frac{x-L}{U-L} & L \leq x \leq U \\ 0.1 & x > U \end{cases}$	/	/	LL	K
	/	/	LL	pH
	/	/	LL	TNV
	/	/	PL	EC
$f(x) = \begin{cases} 0.1 & x < L \\ 0.9 \frac{x-L}{U-L} + 0.1 & L \leq x \leq U \\ 1 & x > U \end{cases}$	/	/	UL	CEC
	/	/	UL	OM
$f(x)$	X	LL	PL	UL
	U	L	/	

Mean Bias) MBE (Mean Absolute Error) MAE (r)

(Root Mean Absolute Error) RMSE (Error

Arc GIS

()

IQI (Slocum, 1999; de Jenks Paz et al., 2006)

()

Jenks

()

Jenks

OM Cr ()

EC Pb (K)

EC	TNV	K	OM	CEC	pH	Cr	Pb	Co	Cd
/	/	/	/	/	/	/	/	/	/
/	/	/	/	/	/	/	/	/	/

IQI

Nugget/Sill ()

(Range) IQI

(R = /)

()

IQI

/	/	/	/	/	/
(V)	(IV)	(III)	(II)	(I)	
/	<	/	/	/	/
/		/	/	/	>

Box-Cox IQI

Box-Cox

Sig.

IQI

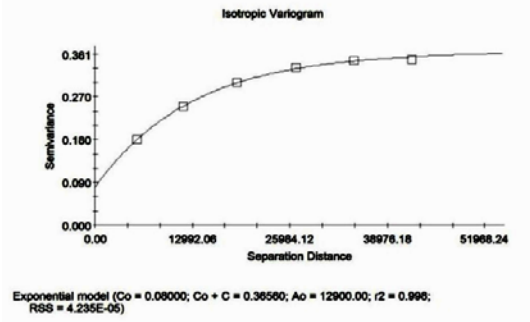
Box- ()

Kolmogorov-Smirnov

MINTAB, 14 Cox

IQI

(Nugget/Sill) ×	Lag (km)	R	RSS	Range (km)
/	/	/	/ ×	/



IQI

MBE MAE RMSE)

(

()

)

(

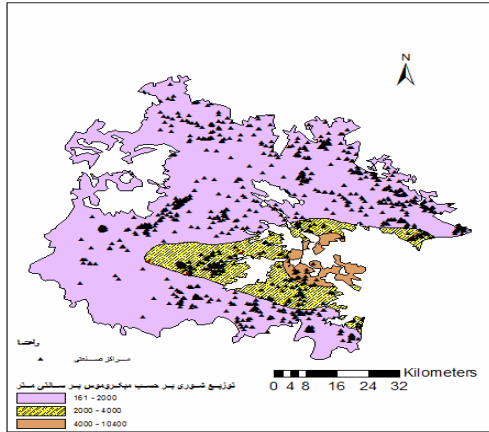
IQI

IQI

()

()

()

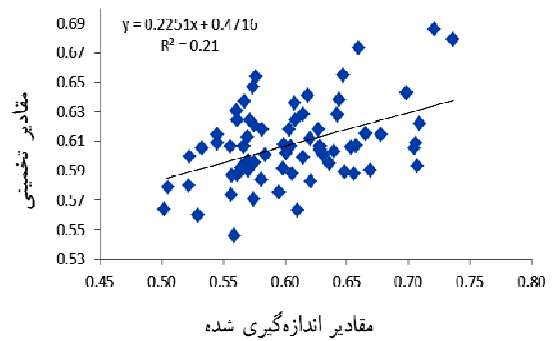


IQI

MBE	MAE	r	RMSE	Lag size (km)	
/	/	/	**	/	OK
/	/	/	**	-	IDW
/	/	/	**	-	RBF-TPS
/	/	/	**	-	RBF-IM
/	/	/	**	-	RBF-M
/	/	/	**	-	RBF-SWT
/	/	/	**	-	RBF-CRS

OK: Ordinary Kriging, IDW: Inverse Distance Weighting, RBF: Radial Basis Function, TPS: Thin Plate Spline, IM: Inverse Multiquadric, M: Multiquadric, SWT: Spline With Tension, CRS: Completely Regularized Spline,

**



IQI

(V)

(I)

()

pH CEC

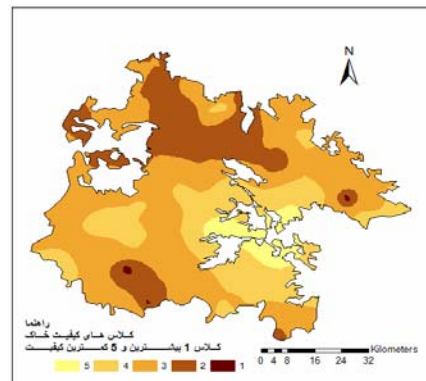
(Qi et al., 2009)

(de Paz et al.,

2006)

CEC

pH



IQI

Jenks

pH

IQI $(R = /)$

IQI

IQI

(Wang and Gong, 1998; Sun et al, 2003)

(Qi et al., 2009)

IQI

(Qi et al., 2009)

IQI

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