



Expert: Dr. Hussain Z. Ali
Ministry of Science and Technology
Dalal J. Ali
M.Sc. in Survey Engineering

()

9.3 ArcGIS

Basin

Stream order

9.3 ArcGIS

.Arc Hydro

:

ABSTRACT:

Feature extraction from the surface topography is the creation of a bitmap representing the earth's surface elevations based on Digital Elevation Model, which is the base of the analyzing of topographical surfaces. The digital elevation models are mainly derived by stereo pair images (a pair of images) available from the Photogrammetry data and remote sensing, or from topographical maps, and we use a digital elevation model derived from topographical maps, and we derived a number of important properties from digital elevations model such as gradient direction and the Earth's shadow using a ArcGIS ver. 9.3 , which represent the input data to extract the hydrological characteristics such as determining the flow direction , also calculating the flow accumulation , producing the output map Stream to determine the valleys in the region and the production of Basin map to determine the basin of nutrition , the locations of the small dams can be selected using Arc GIS ver. 9.3 and its extension Arc Hydro.

[1] , [5].

(33.25 - 33.45)

(40.00 - 40.50)

(1)

² (2100)

(70×30)

[7].

[3].

)

(.....

[2] [4].

DEM

.1

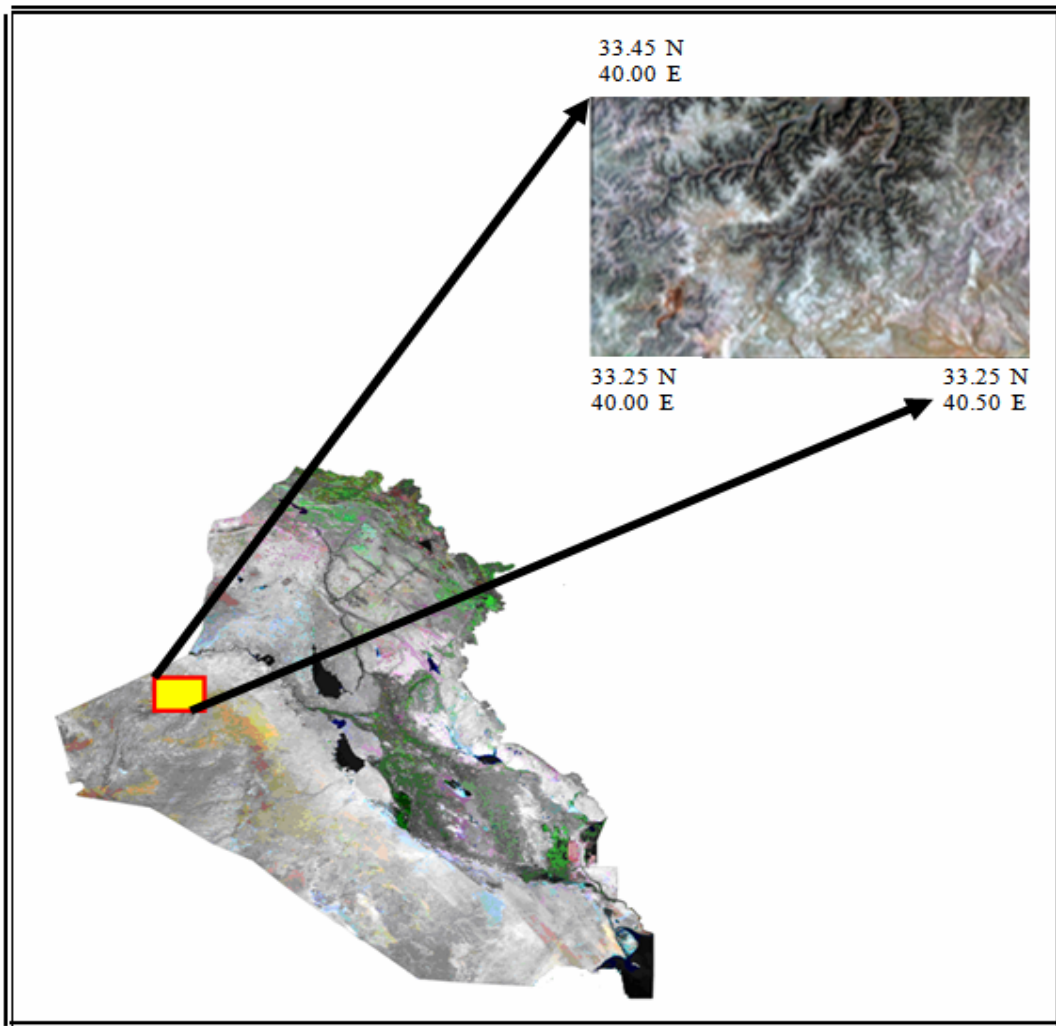
)

Arc Hydro

(25000:1

.2

ArcGIS



(1)

1. (DEM)
2. (25000:1)
3. Georeferencing

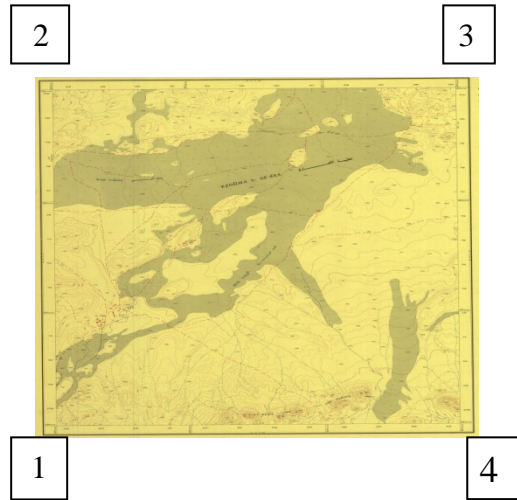
(25000:1) (X, Y) (UTM)
(1) (5) (2)

UTM

:-

(1)

Points	Easting(m)	Northing(m)
1	627725	3707700
2	627725	3721150
3	639200	3721150
4	639200	3707700



(2)

:-

M

(25000:1)

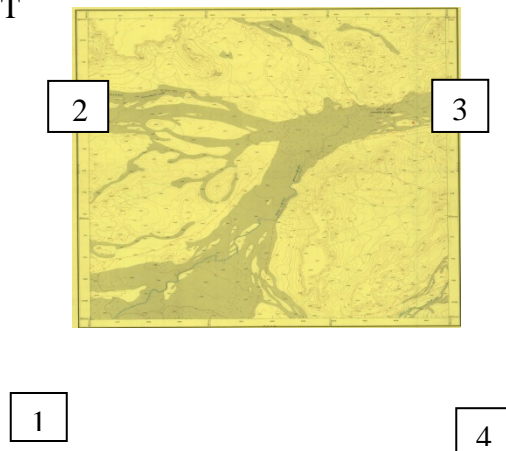
(2) (5)

(3)

UT

(2)

Points	Easting(m)	Northing(m)
1	616125	3707125
2	616125	3721000
3	627725	3721000
4	627725	3707125



:(3)



- (B.M)

-

On -

:

-

Screen Digitizing

Arc GIS

:

-

-

-

-

[6].

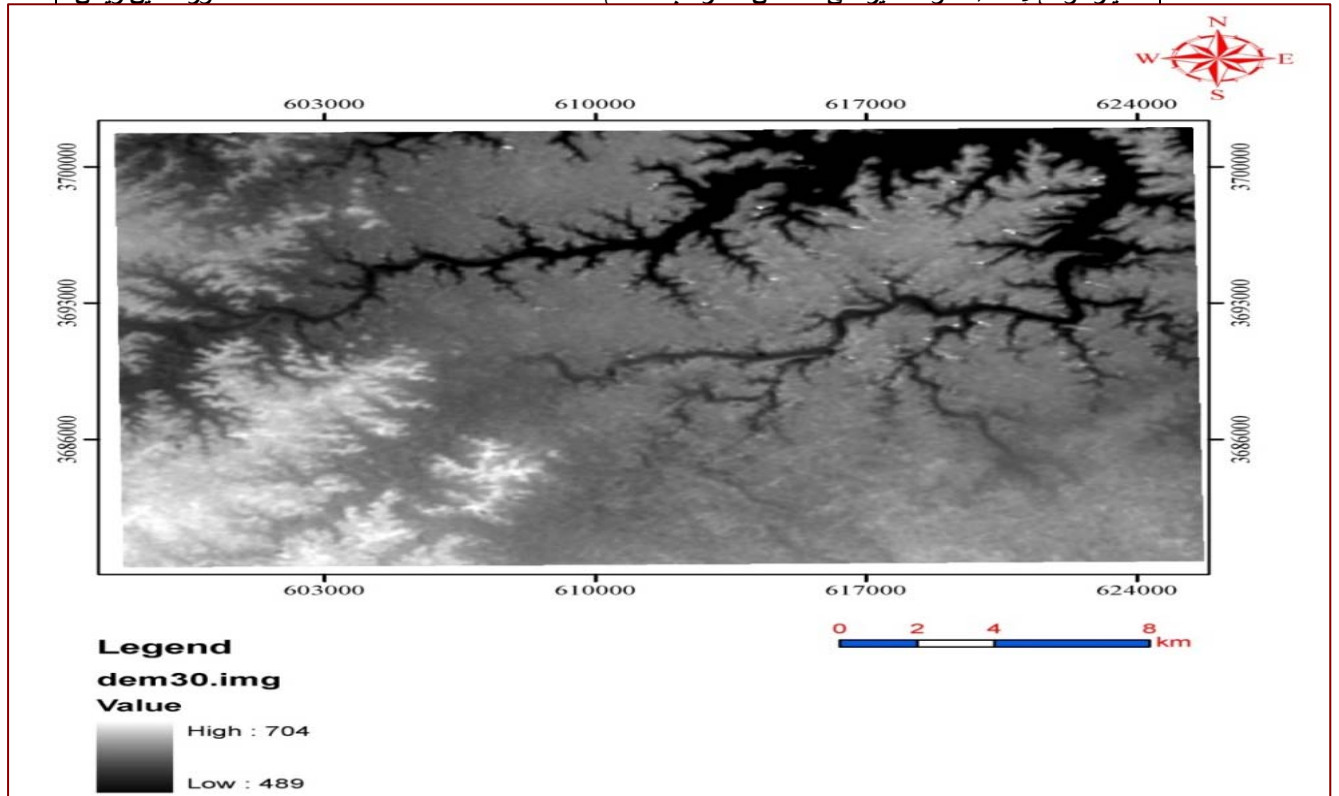
:

-

DEM

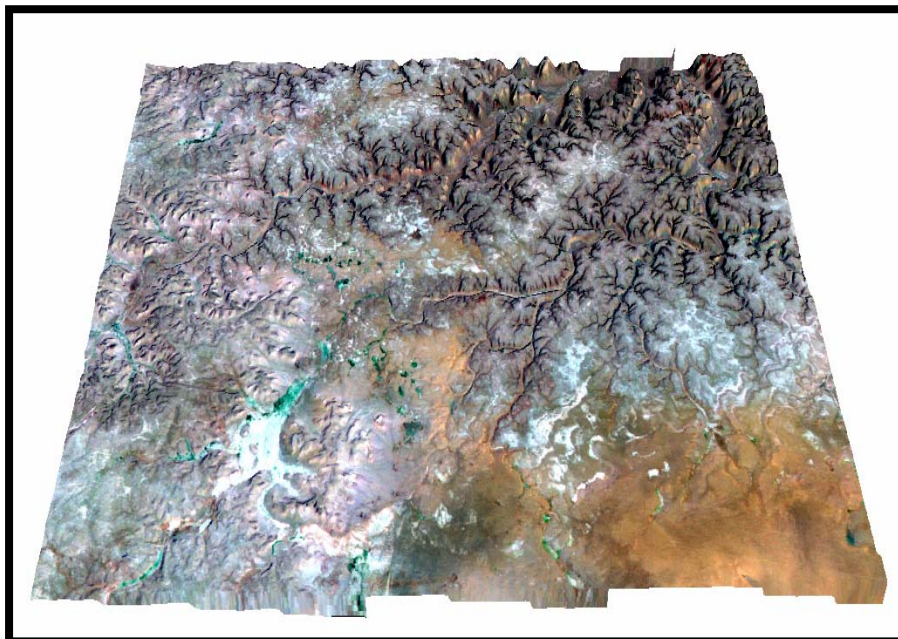
(4)

(5)



30

(4)



(5)

.Slope -

.Aspect -



.Hill Shades -

Slope

360-0

1-
(7)

(6)

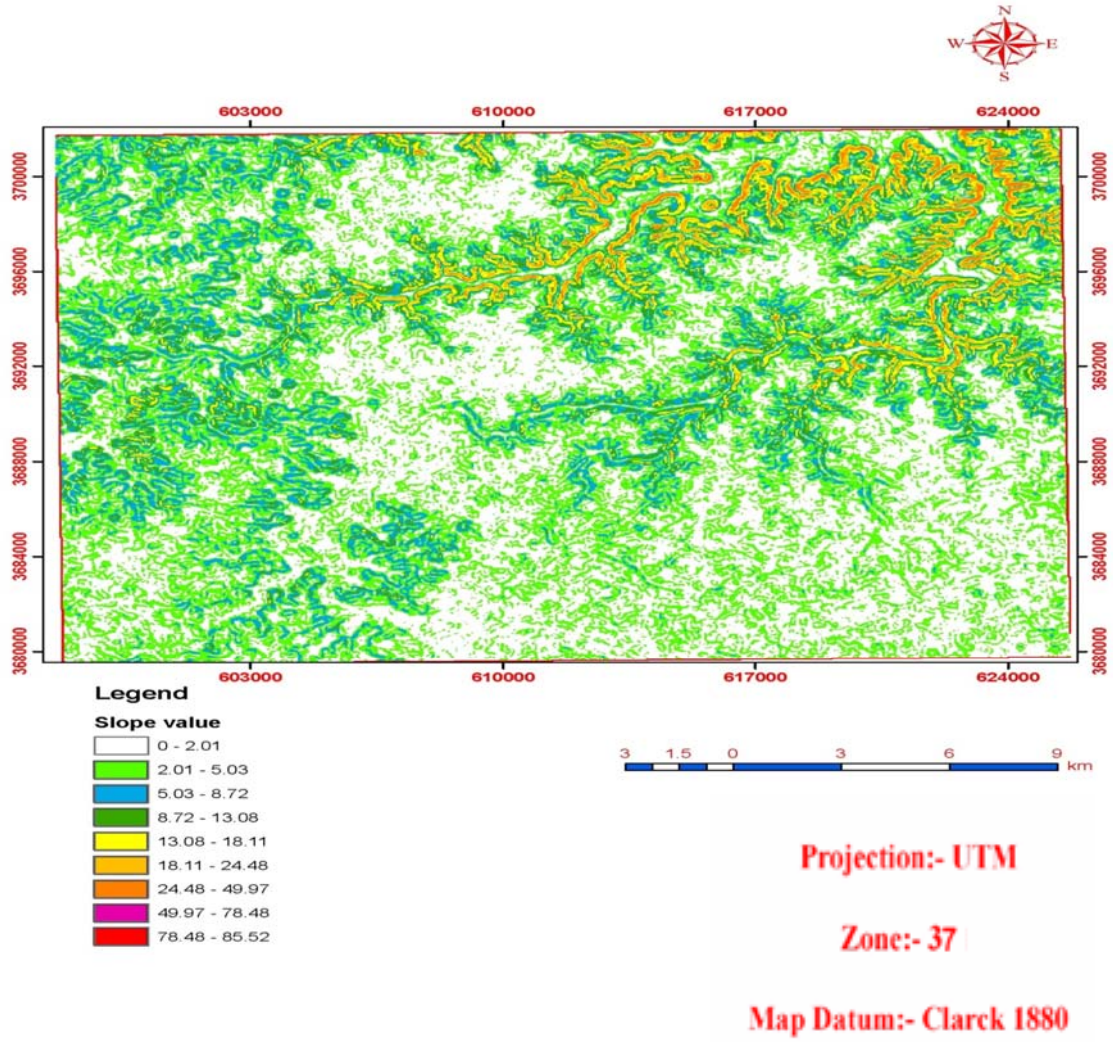
Hill Shades

- 0) 315 45
(255
255

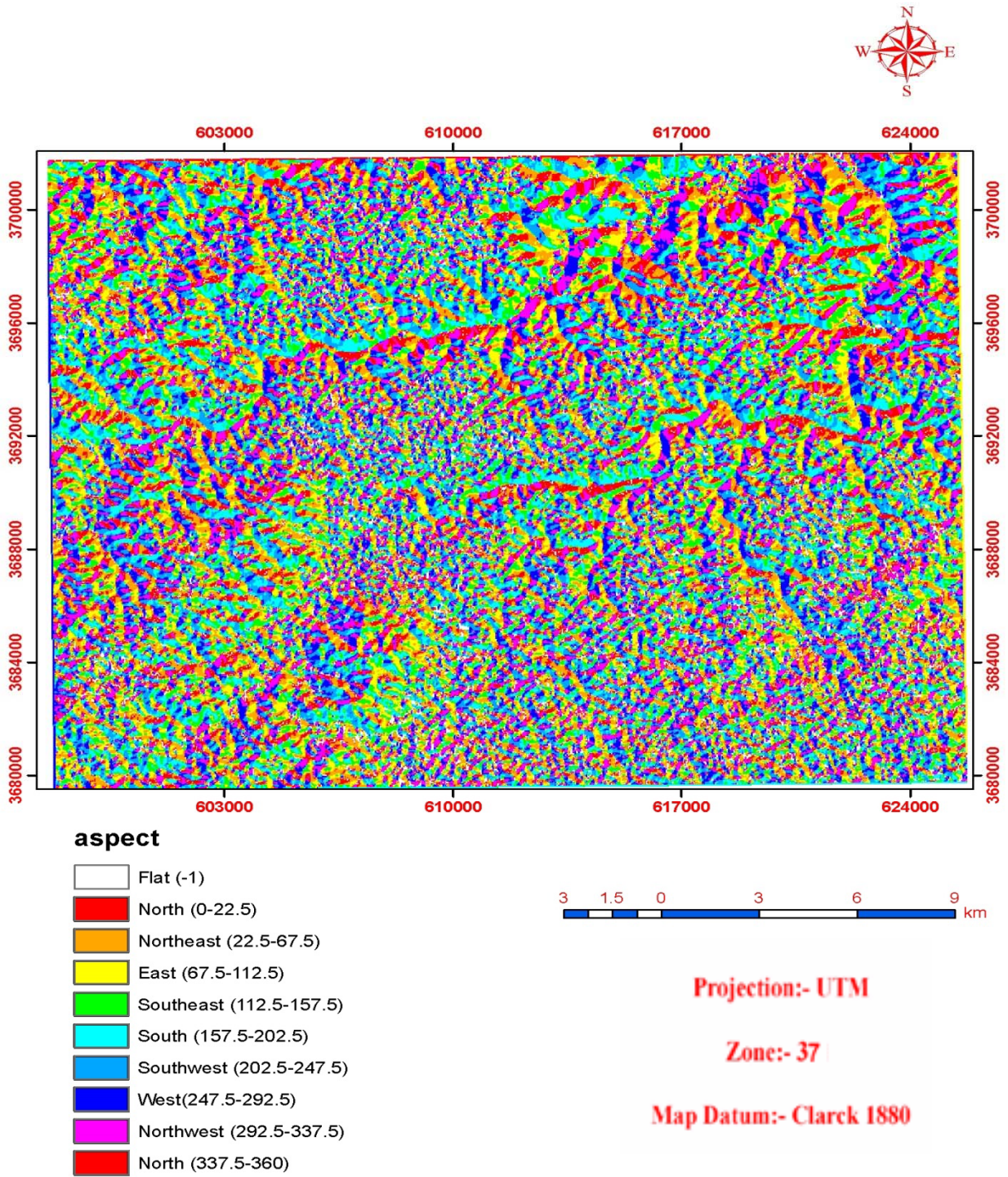
Aspect

(8))
(.....)

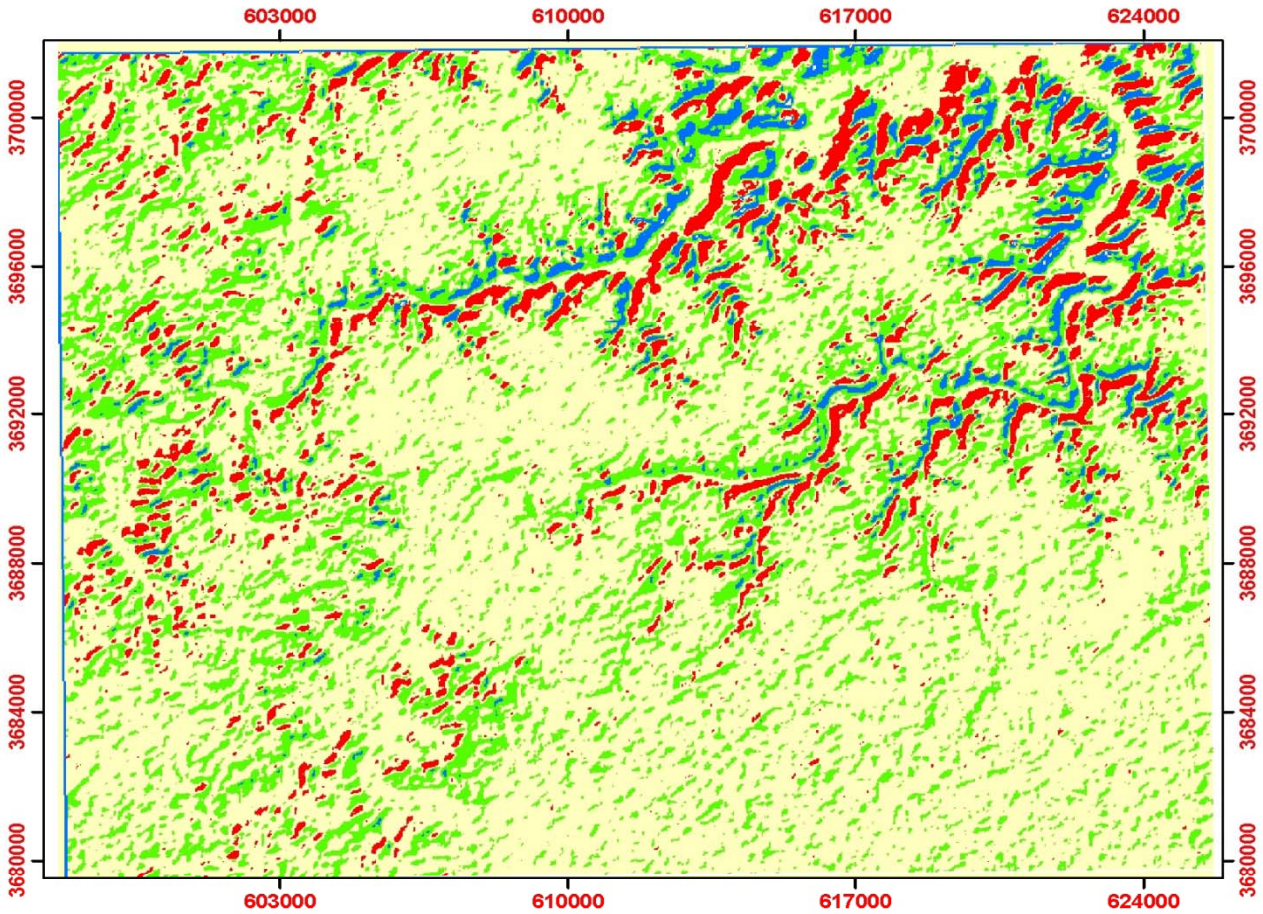
(9)



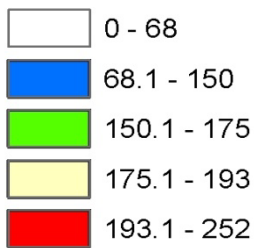
:(6)



:(7)



Hill Shade value

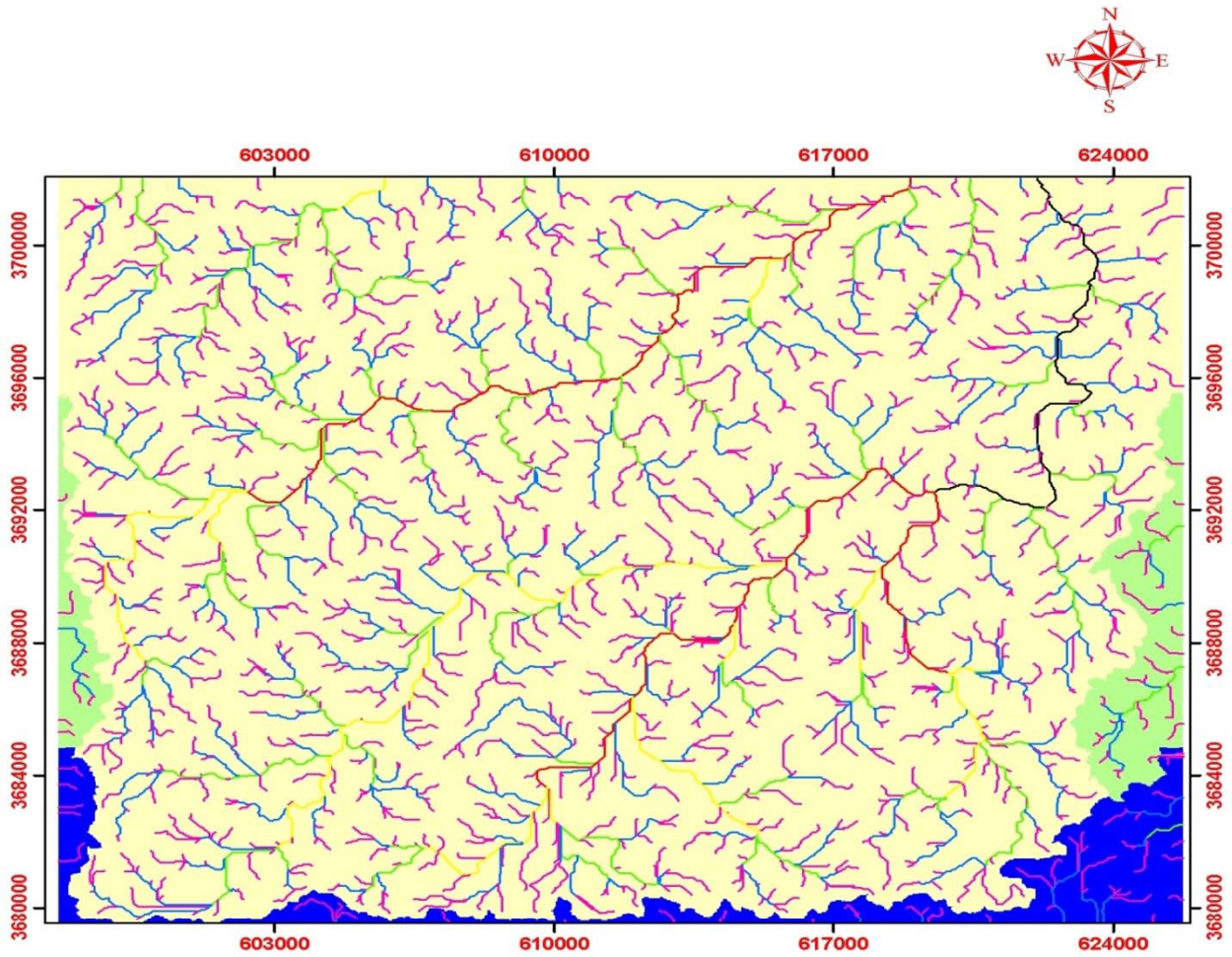


Projection:- UTM

Zone:- 37

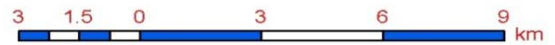
Map Datum:- Clarck 1880

:(8)



Stream Order

- 1
- 2
- 3
- 4
- 5
- 6



basin

- basin 1
- basin 2
- basin 3

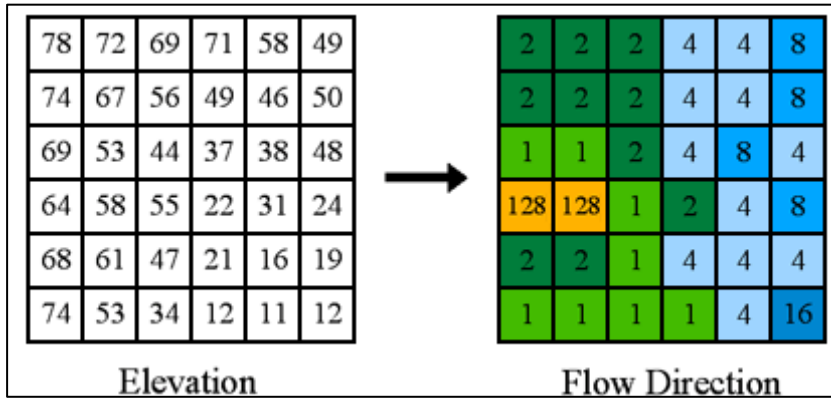
:(9)

_____ :

.Arc Hydro

Flow Direction

.(10)



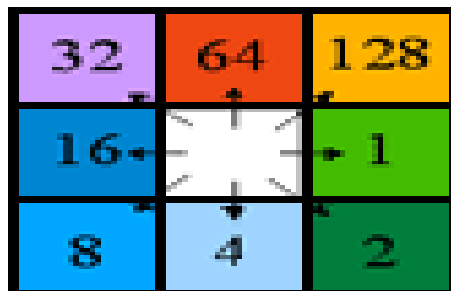
:(10)

8= Southwest, 16= West, 32= Northwest, 64= North, 128= (Northeast

8

(11)

:



1= East, 2= Southeast, 4= South,

.() (11)

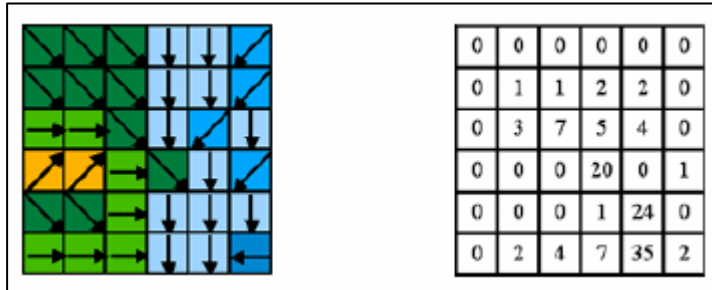
(

)



(12)

64



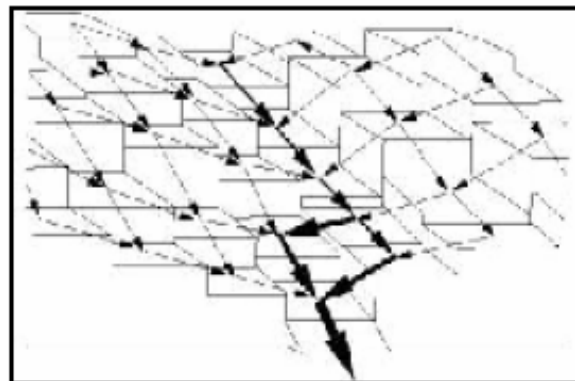
:(12)

Flow ()

(13)

Accumulation

.Flow



:(13)

Accumulation

)

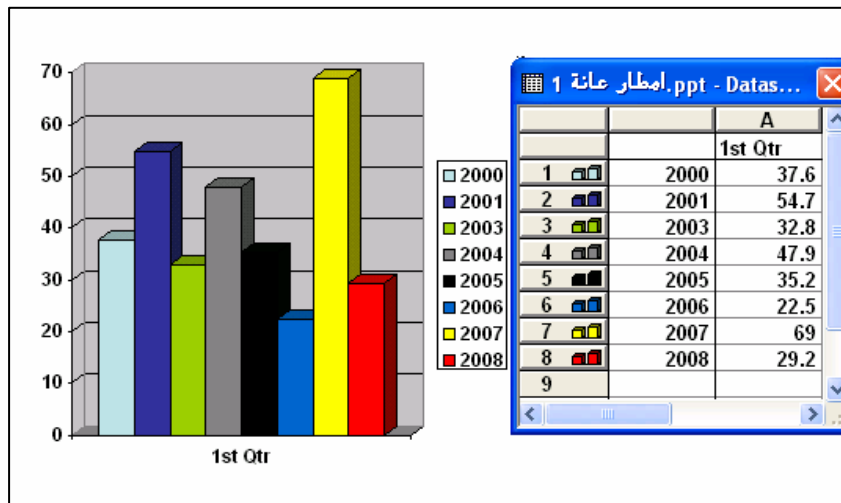
(Basin

.Watershed

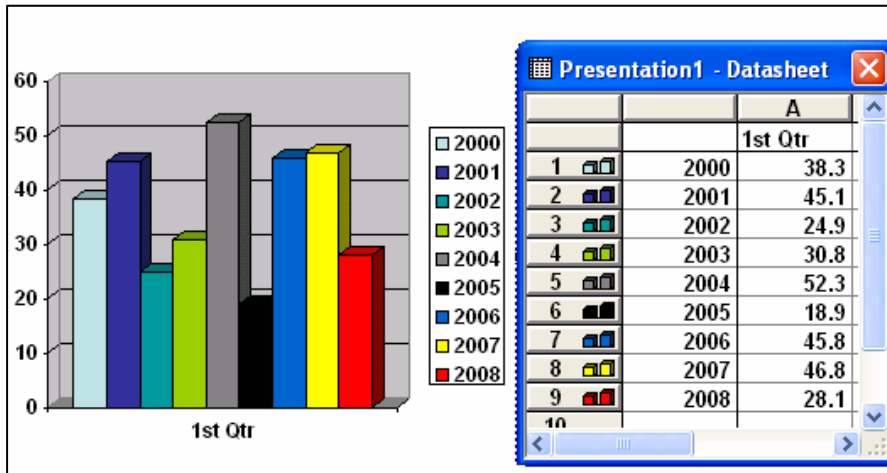
-:

-: -

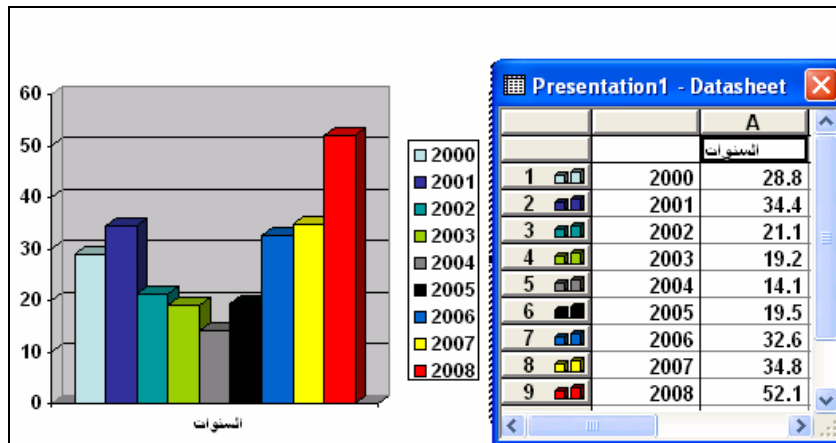
2000 ()
(16) (15) (14) . 2008
(18) (17)



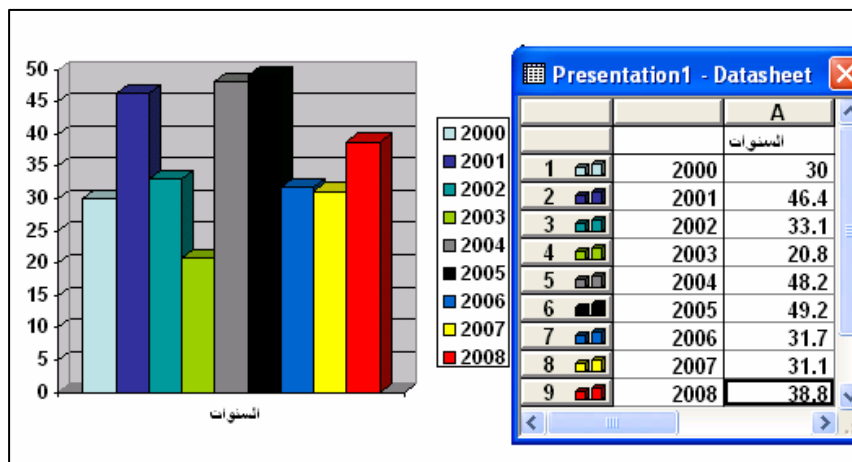
:(14)



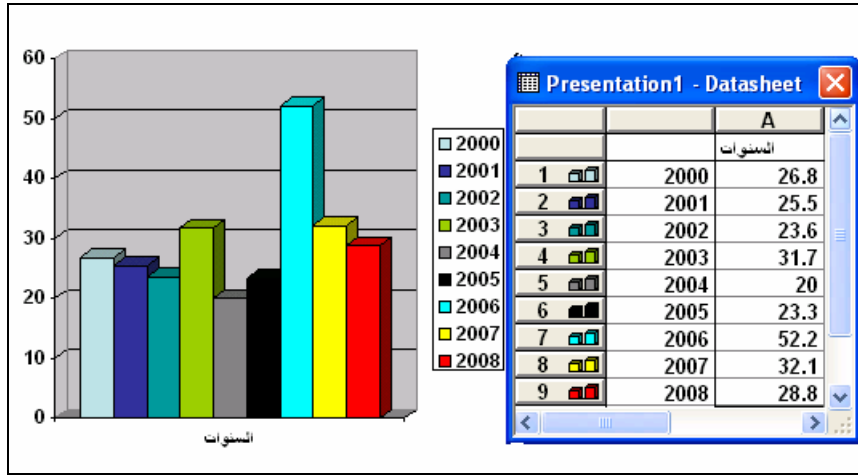
:(15)



:(16)



:(17)



:(18)

(530 520)

-: -

-:

.1

(9)

.(520)

-: -

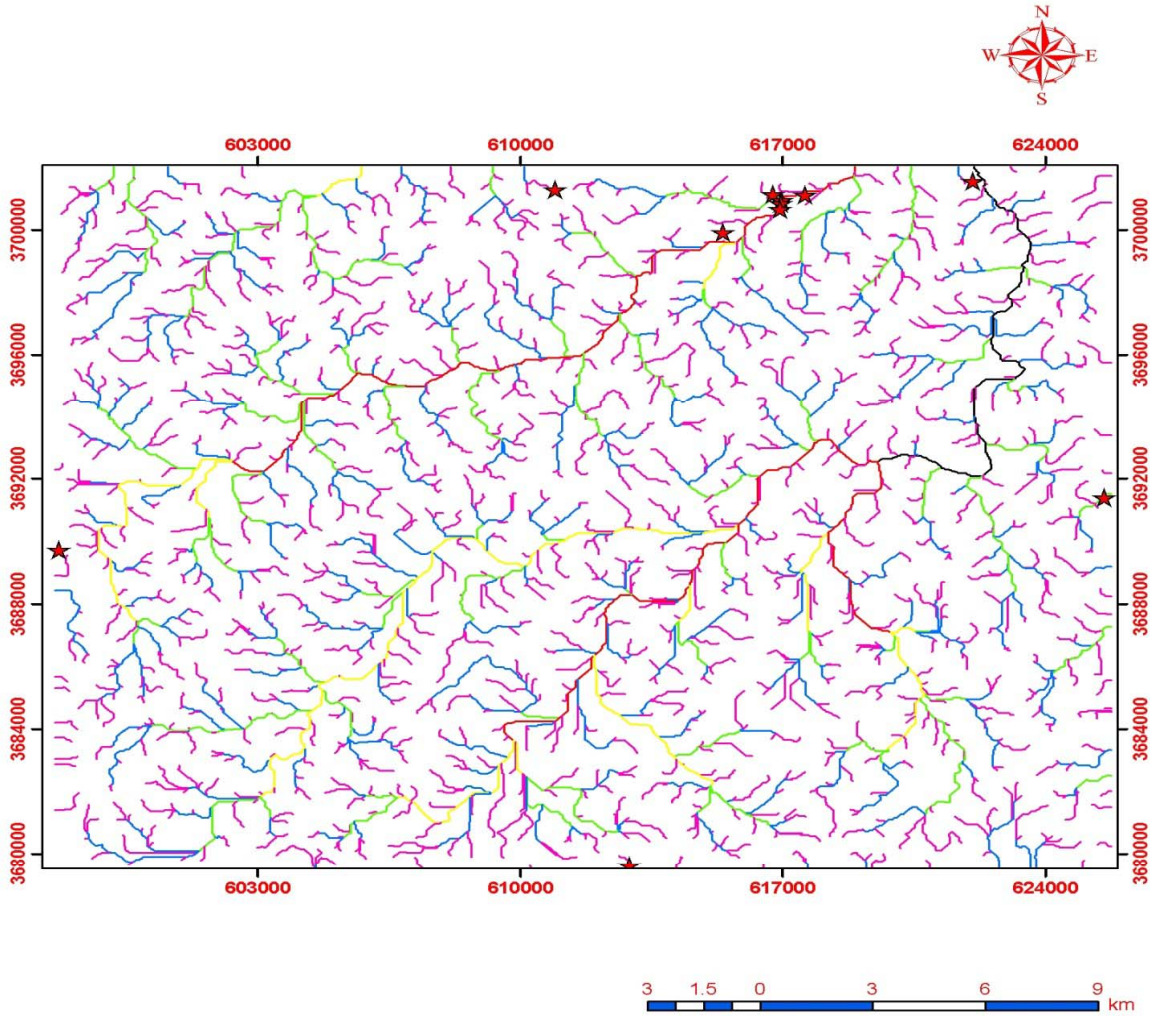
(19)

.2

(Points)

.(530)

. (20)



Legend

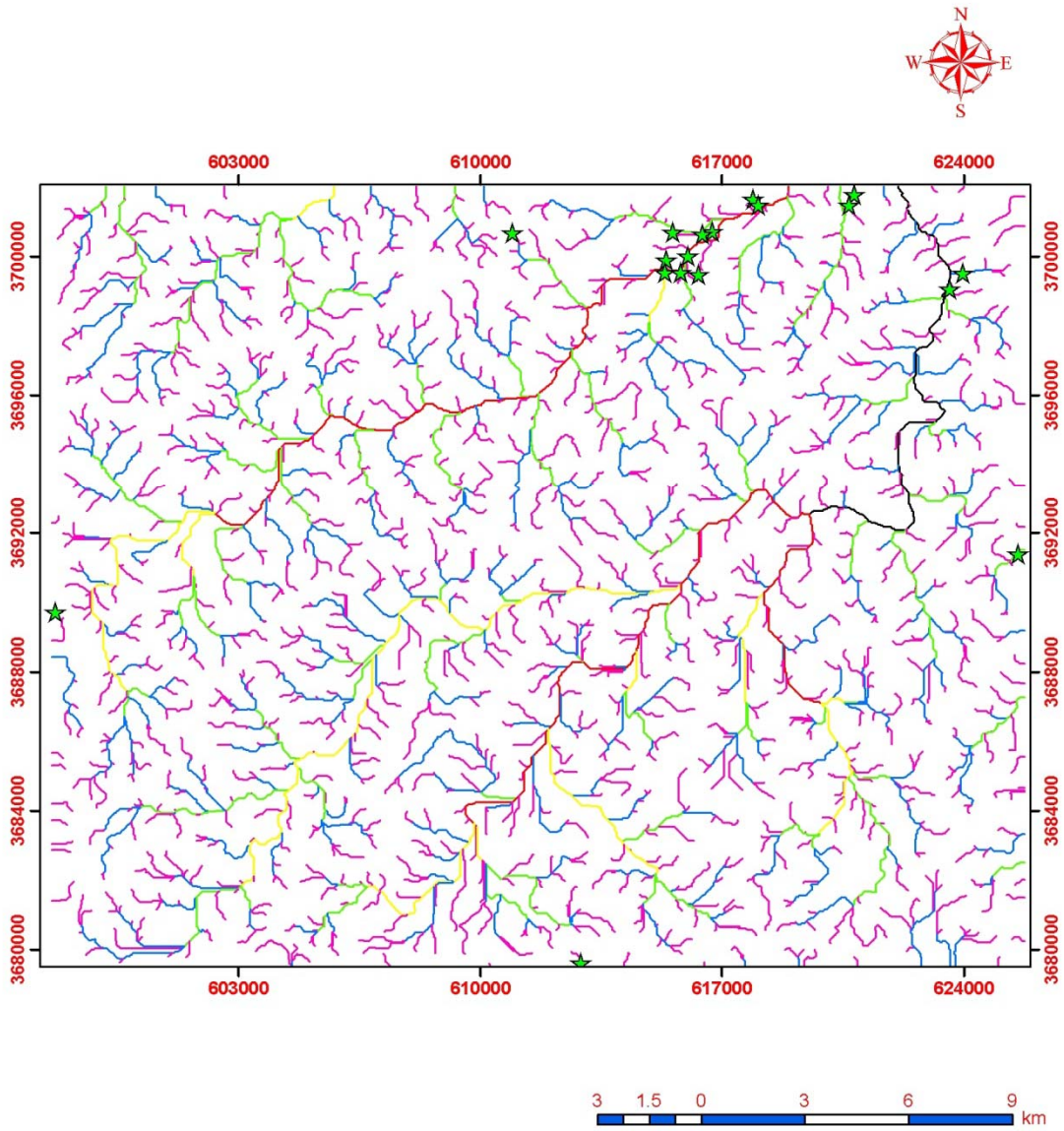
★ Suggested Location

Projection:- UTM

Zone:- 37

Map Datum:- Clarck 1880

:(19)



Legend

★ Suggested Location

Projection:- UTM

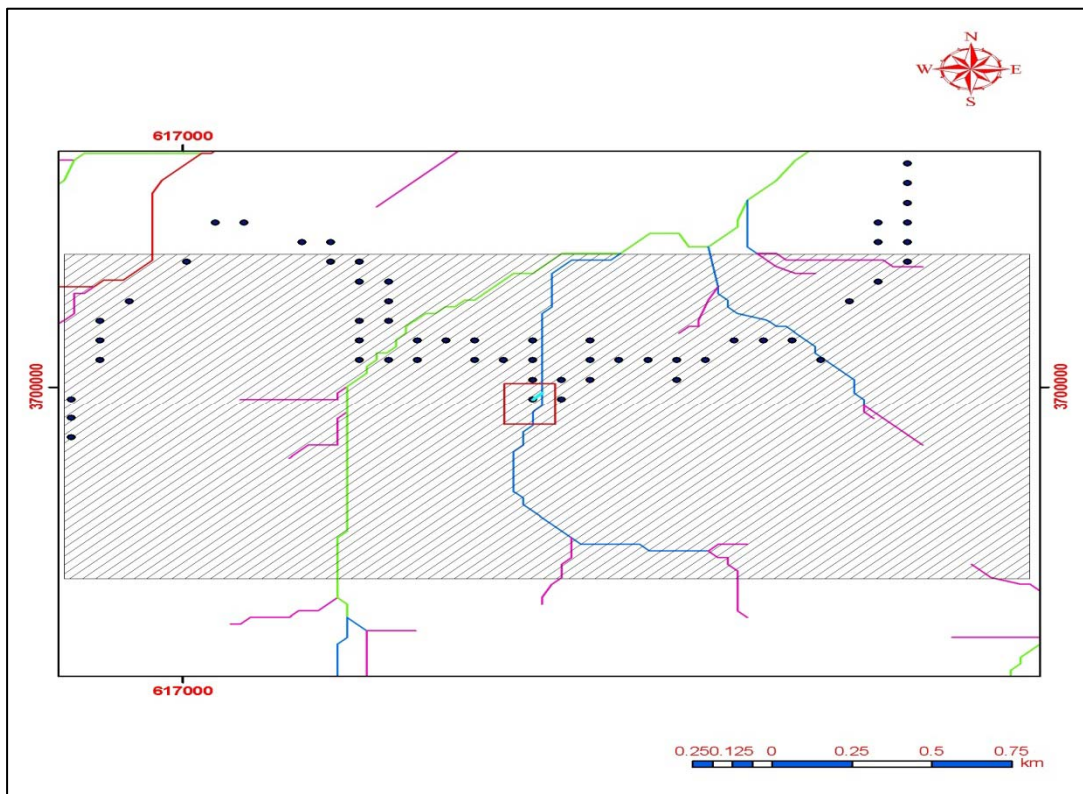
Zone:- 37

Map Datum:- Clark 1880

:(20)



.(21)



Projection:- UTM

Zone:- 37

Map Datum:- Clarck 1880

:(21)

.1

.(SPOT)

.2

.4

.3

(30)

Basin

(1)

" 2009	.6	" 2001	.1
"		"	
" 2003	.7	" 1976	.2
"		"	
		" 1995	.3
		"	
		" 1996	.4
		"	
		2005	.5
		"	
		"	