

العنوان:	توظيف وسائل الاستشعار عن بعد في دراسة طبوغرافية بحيرة سد الموصل
المصدر:	مجلة التربية والعلم
الناشر:	جامعة الموصل - كلية التربية
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Abstract:

Topography, Watershed, drainage and catchments delineation in earlier years conducted manually, but recently this has changed after the huge utilization of Remote Sensing and GIS tools in hydrologic Modeling Analysis.

The appearance of the Shuttle's Radar Topography Mission data (SRTM) that named Digital Elevation Model (DEM) gave GIS and RS reasonable progress.

Morphometric analysis results depend on the analysis of field data and manual delineation of watershed. In GIS and RS results depend on accuracy of DEM data being used.

It is found that SRTM-DEM with a reasonable resolution of 90 meters per grid cell provided reliable delineation for the topographic surrounding area of Mosul Dam Lake in Morphometric analysis, after removing all no-data voids and filling the sink holes in the raw DEM data for the study area.

Also, using the 3D modeling view of lake surrounding area provided a look for water levels in the reservoir above ground or sea level.

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Digital Elevation

SRTM –DEM

Model

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Sink holes

null data voids

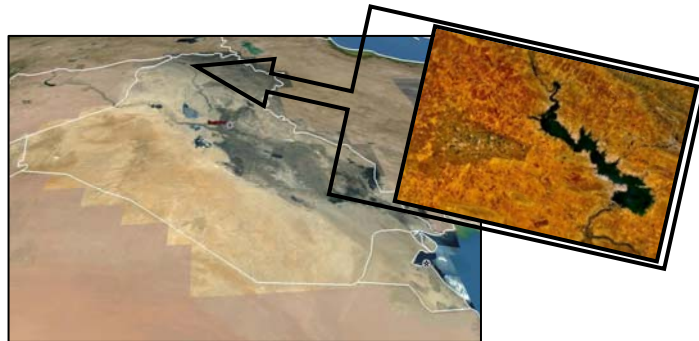
Real time viewing

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خط طول 42° 25' 10.0707" E وخط طول 42° 59' 48.5323" E
خط عرض 36° 58' 1.8215" N وخط عرض 36° 32' 9.9783" N
UTM Zone 38 DATUM=WGS84



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SRTM – Digital Elevation Model

3D nature () SRTM-fill

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ESRI

ArcView 3.3

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(Hydrologic Modeling)

Global Mapper v.10.2

. Real Time Modeling

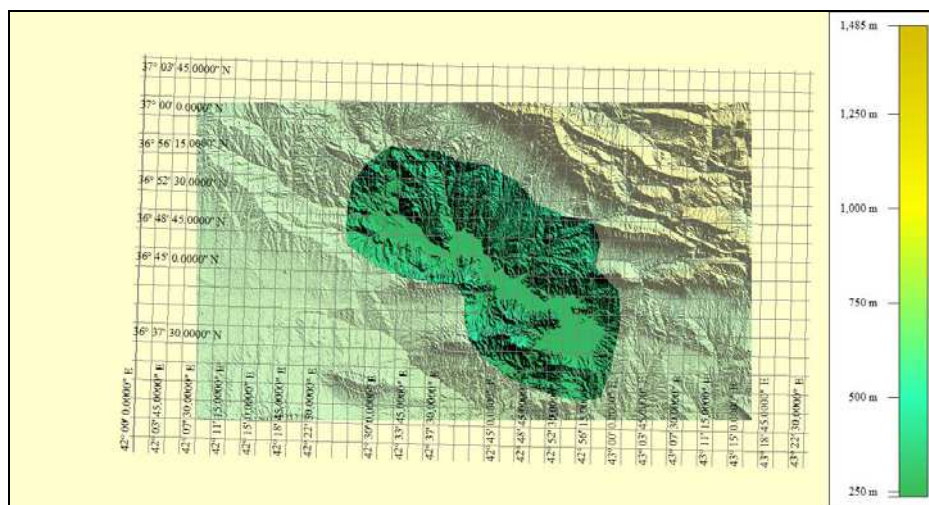
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Remote sensing :

(Ritchie and Rango, 1996)

. (Lillesand and Kieffer, 2000)

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:Geographic information system ()

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Digital simulation for :

: DEM

simulation

(Z)

(Y X)

Topography

Simulation

(Alhamamy,2006)

. (2000 Olivera et al)

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SRTM-DEM

(-)

Resolution

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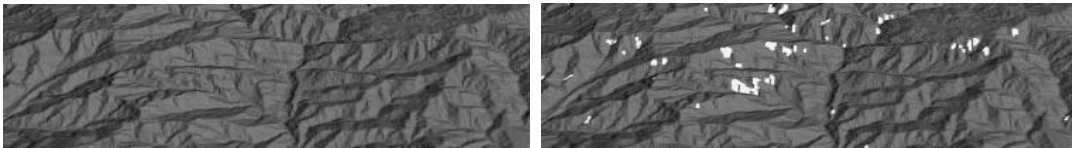
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(No-Data Voids)

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(3Dnature)

SRTMfill



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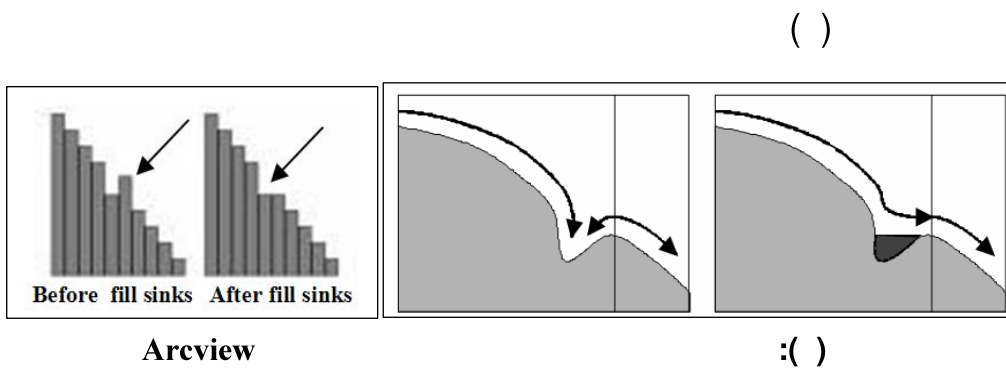
fill sinks

.Arcview

Hydrologic Modeling : Arcview

extension for ArcView

(fill sinks)

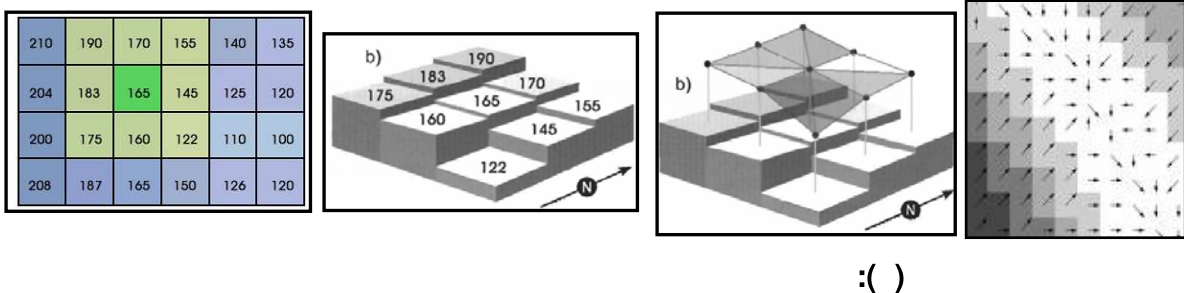


Flow

Direction

Flow Direction

layer



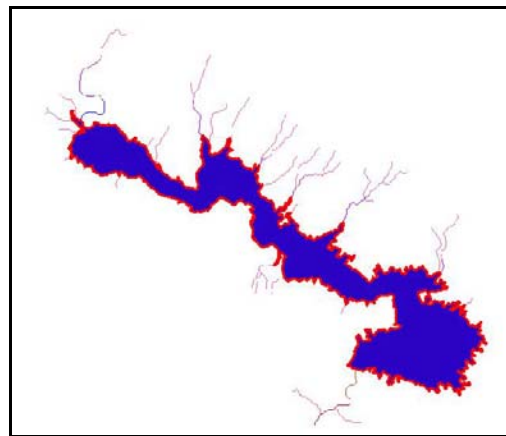


flow direction : ()

Arcview

(Flow Accumulation)

cell



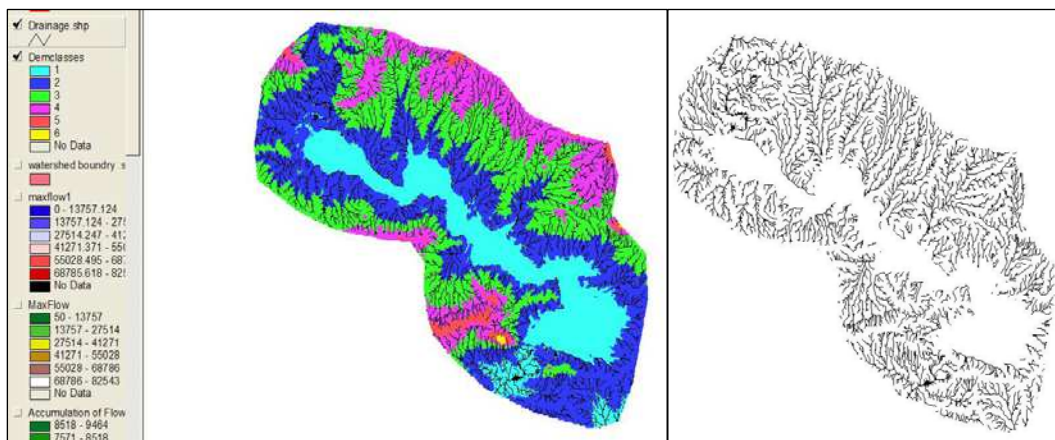
Flow Accumulation : ()

Vector layer

Drainage layer

Arcview

(Aspects)



Drainage pattern

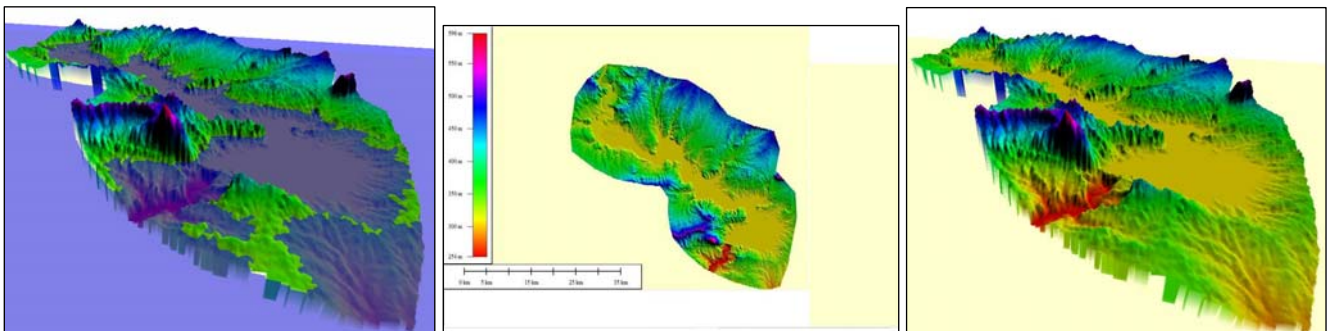
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(3DAnalyst)

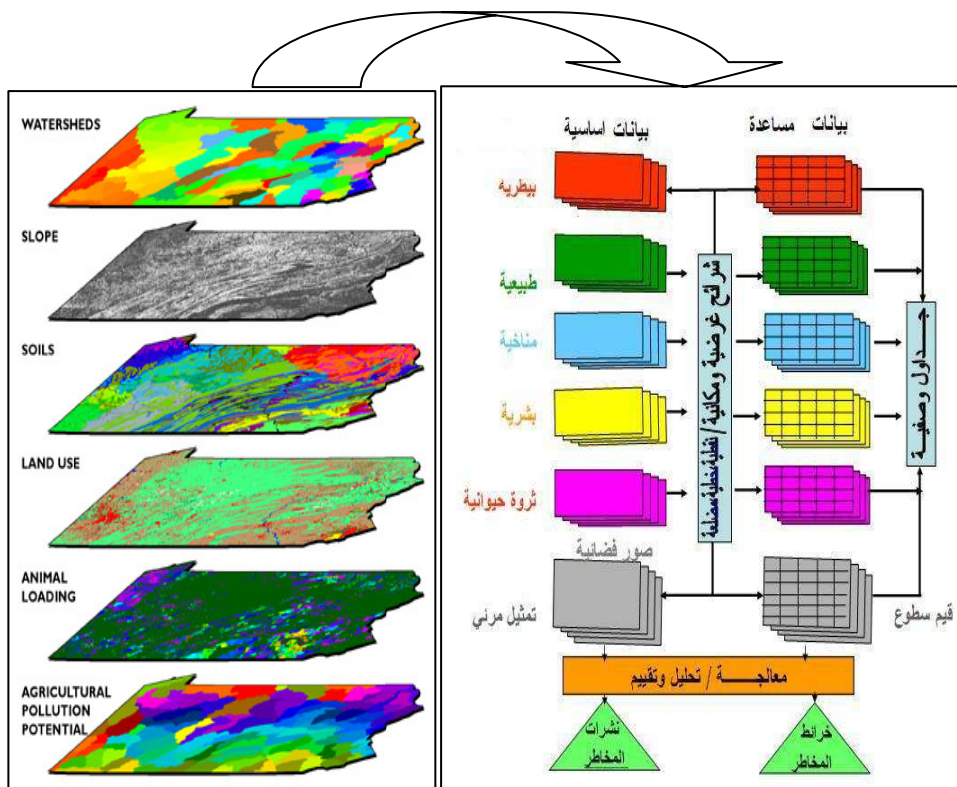
Arcview

Global mapper

.Real time modeling



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DEM		
223	()	
1365	()	
34.7	()	
62	()	
0.56		
1.78		
0.54		
0.84		
1.36		
1.35		
4		
10.9		
3.63		
2672	()	
0.011	()	
1.1	\	
11.01	()	
515	()	
283	()	
515	()	
283	()	
232		
6.9 %		
1.34	()	
0.037		
6.9		
0.8		

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Circulatory ratio

Elongation ratio

$$\begin{aligned} & \left(\frac{L}{W} \right) \\ & \left(\frac{L}{W} \right) \quad \text{(chow,1964)} \\ & \left(\frac{L}{W} \right) \\ & \left(\frac{L}{W} \right) \left(\frac{L}{W} \right) \end{aligned}$$

surface water divider

DEM

GPS

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- 3) Lillesand, T. M., Kiefer, R. W., (2000). "Remote Sensing and Digital Image Interpretation". Wiley, New York, 724 pp.
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