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HEC-RAS
Autocad

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-Plate

-Hyalmarson

-Liang & Mohanty

-Correia

-Islam & Sado

Lin

- Hydrologic Engineering Center – River Analysis

System

-James

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Arcview-GIS HEC-RAS

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-Best Management Practices

-Yang & Tsai

-Stephen

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(RME)

$$RE_i = \left| \frac{ho - hc}{ho} \right| \times 100 \quad ()$$

$$RME = \frac{\sum_{i=1}^n RE_i}{n} \quad ()$$

:RE_i :RME
:hc :ho :n

(RMSE)

$$RMSE = \sqrt{\frac{\sum_{i=1}^n SE_i}{n}} \quad ()$$

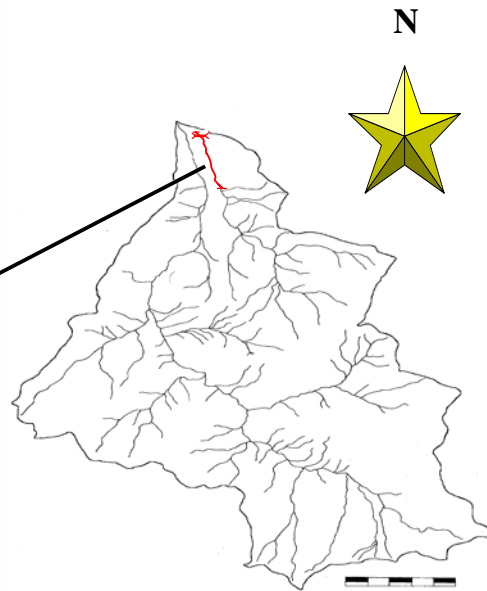
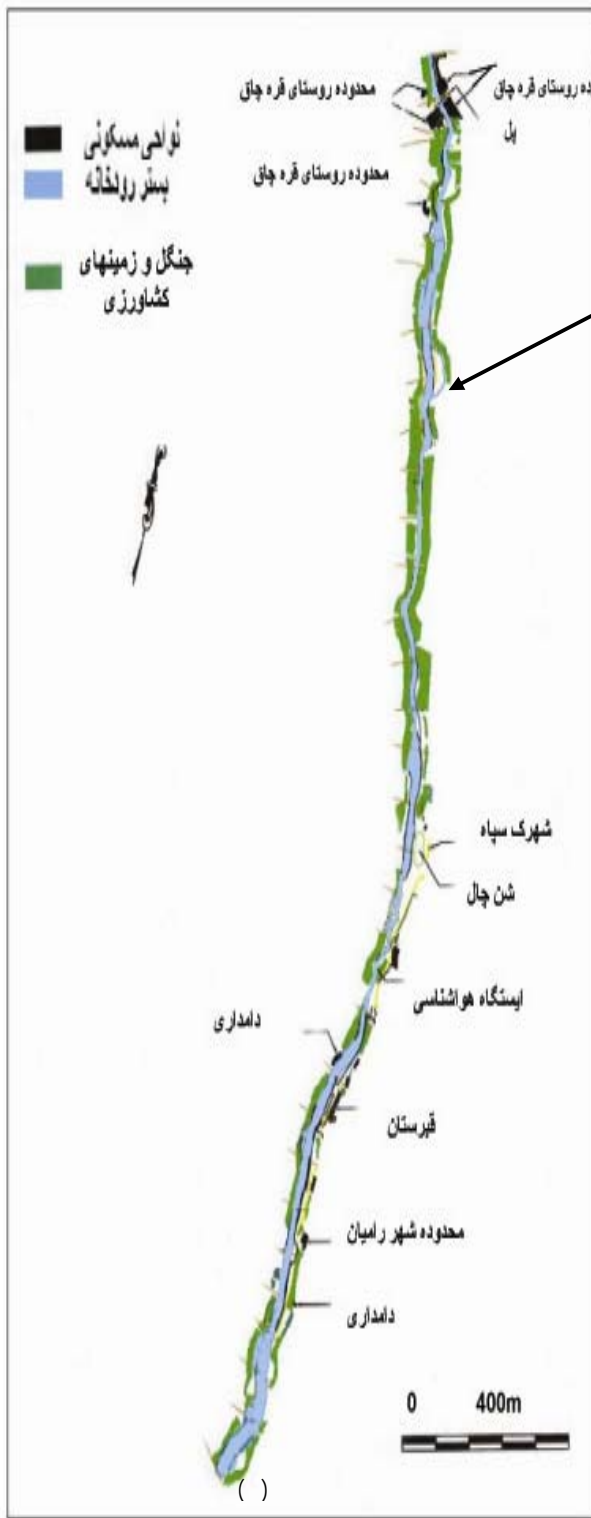
$$SE_i = (ho - hc)^2 \quad ()$$

:SE_i :RMSE

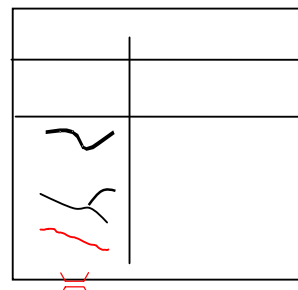
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0 1 2 3 4 5 Km



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$$d = 1.58h^3 - 16.87h^2 + 44.74h + 0.95$$

for $h \leq 2m$: ($r = 0.7796$)

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$$d = 1.58h^3 - 16.87h^2 + 44.74h + 0.95$$

for $h \leq 2m$: ($r = 0.7796$)

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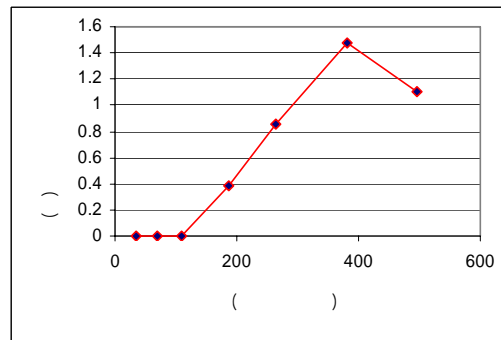
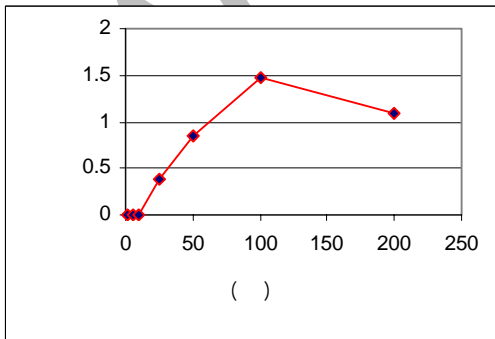
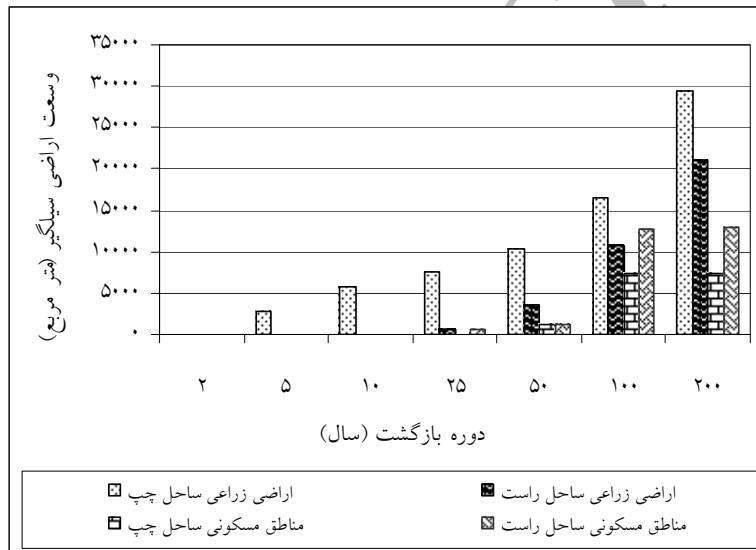
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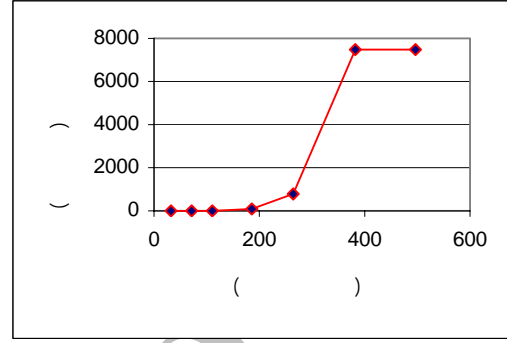
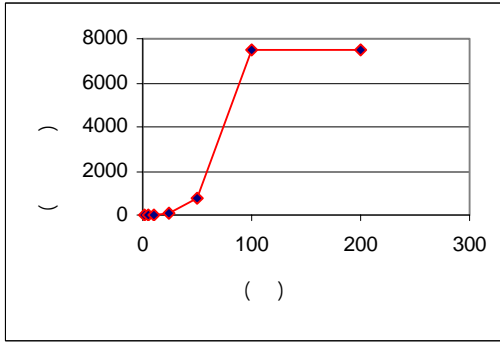
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Flood Hazard Zonation and Assessment (case study- Ramian suburbs-Iran)

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Abstract

Flood is a natural phenomenon that inflicts damages and casualties throughout the world every year. For flood hazard zonation and determining the lands on the bank of the Gharachay River, located in the Ramian watershed, that may face flooding, a section of the river with a length of 8.5 km was selected. This length was divided into subsections with respect to morphological and hydrological characteristics, and 41 cross sections were chosen. Then, the Cowen method was adopted as the best method to determine the Manning's coefficient. In the next step, flow characteristics and geometrical specifications and the Manning coefficient for each cross section were inputted into the HEC-RAS software program and the water level profile for each return period was computed. Then, the AutoCad software program was employed to draw the flooding hazard zones and determine the flooding area and average depth of floods for all cross sections in various return periods. After determining the average area and depth of flood for hazardous areas, and by using flood damages functions, the amounts of damages in urban and agricultural regions were determined separately. Results of the research show that the amount of damages up to the 50-year return has a mild increasing trend, but after that the rate of damage increases sharply. Therefore, the 50-year return period has been interpreted to be the critical return period for this area.

Key words: Flood Zonation, HEC-RAS, Manning's Coefficient, Flood Damages, Ramian