# Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S1-intB

**Country: Iran, Islamic Republic of** 

**Year: 2019** 

GPS coordinates, latitude and longitude with Google Maps: 37.73,57.67

# **INPUT DATA**

#### Geometric characteristics of the river basins

 $F = 69.37 \text{ km}^2$  (Surface area of the drainage basin)

O = 57.79 km (Length of the watershed)

 $Fv = 46.42 \text{ km}^2$  (Surface area of greater portion of the drainage basin)

 $Fm = 22.95 \text{ km}^2$  (Surface area of smaller portion of the drainage basin)

Lv = 13.05 km (Natural length of main water course)

Lb = 16.05 km (Length of the drainage basin measured by a series of paraller lines)

#### Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["16.18 ","59.74 ","45.02 ","28.93 ","24.26 ","8.28 ","0.17 "]

The area between the two neighboring contour lines - f [km²]: ["3.54 ","17.82 ","19.89 ","11.24 ","10.91 ","5.38 ","0.57 ","0.02 "]

h0 = 1300 m (Altitude of the initial contour)

**∆**h = 100 m (Equidistance)

**Hmin = 1250 (Lowest altitude in the drainage basin)** 

Hmax = 1910 (Highest altitude in the draigane basin

## Hydrological characteristics of the river basins

 $\Sigma L = 137.92$  km (The total length of the main watercourse with tributaries of  $1^{st}$  and  $2^{nd}$  class)

Lm = 7.09 km (The shortest distance between the fountain (head and mouth))

#### **Water permeability**

fp = 0.17 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.38 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.45 (Part of the surface area of the drainage basin which is composed of the rocks of poor water permeability (heavy clay, compact eruptive))

#### Land use

fs = 0.00 (Part of the surface area of the drainage basin under the forest)

ft = 0.41210 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.58790 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

# Meteorological data

hb = 34.74 mm (Level of torrent rain)

Up (years) = 100

to = 10.9 °C (Average annual air temperature)

**Hgod = 317.7 mm (Average annual quantity of precipitation)** 

## **Erosion coefficients**

**Y = 1.07663 (Types of soil structures and allied types)** 

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

60.84 % (Decomposed limestone and marls)

22.11 % (Serpentines, red sand stones, flishe deposits)

0.26 % (Podzols and parapodzols, decomposed schist)

0 % (Solid and Schist limestone, Terra Rosa and Humic soil)

0 % (Brown forest soils and Mountain soils)

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16.79 % (Epieugleysol and Marshlands)
0 % (Good structured Chernozems and alluvial well-structured deposits)
0 % (Bare, compact igneous)
Xa = 0.77714 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
58.79 % (Plough-lands)
0.77 % (Orchards and vineyards)
40.44 % (Mountain pastures)
0 % (Meadows)
0 % (Degraded forests)
0 % (Well-constituted forests)
\phi = 0.66648 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
0.31 % (Depth erosion)
40.63 % (80% of the river basin under rill and gully erosion)
23.67 % (50% of the river basin under rill and gully erosion)
0 % (100% of the river basin under surface erosion)
0.78 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
0 % (50% of the river basin under surface erosion)
34.45 % (20% of the river basin under surface erosion)
0.16 % (There are smaller slides in the watercourse beds)
0 % (The river basin mostly under plough-land)
0 % (The river basin under forests and perennial vegetation)
INPUT DATA
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A = 0.86352873563218 (Coefficient of the river basin form)

m = 0.44199741806007 (Coefficient of the watershed development)

B = 4.3221183800623 km (Average river basin width)

a = 0.67666138100043 ((A)symmetry of the river basin)

**G** = 1.9881793282399 (Density of the river network of the basin)

K = 1.8406205923836 (Coefficient of the river basin tortuousness)

 $H_{sr} = 1489.7232232954 \text{ m}$  (Average river basin altitude)

D = 239.7232232954 m (Average elevation difference of the river basin)

 $I_{sr} = 26.319734755658 \%$  (Average river basin decline)

 $H_{leb}$  = 660 m (The height of the local erosion base of the river basin)

 $E_r = 72.79493108475$  (Coefficient of the erosion energy of the river basins relief)

 $S_1 = 0.784$  (Coefficient of the regions permeability)

 $S_2 = 0.91758$  (Coefficient of the vegetation cover)

W = 0.45689966318995 m (Analytical presentation of the water retention in inflow)

 $2gDF^{1/2} = 571.20289915234 \text{ m km s}^{-1}$  (Energetic potential of water flow during torrent rains)

 $Q_{max} = 162.12427116266 \text{ m}^3 \text{ s}^{-1}$  (Maximal outflow from the river basin)

T = 1.0908712114636 (Temperature coefficient of the region)

Z = 0.9868848776247 (Coefficient of the river basin erosion)

 $W_{god} = 74047.773412435 \text{ m}^3 \text{ god}^{-1}$  (Production of erosion material in the river basin

 $R_u = 0.32295385090679$  (Coefficient of the deposit retention)

 $G_{god} = 23914.01357462 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$ 

 $G_{god}$  km<sup>-2</sup> = 344.73134747902 m<sup>3</sup> km<sup>-2</sup> god<sup>-1</sup> (Real soil losses per km<sup>2</sup>)

http://www.wintero.me