# Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S8-intB

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.87,57.29

# **INPUT DATA**

### Geometric characteristics of the river basins

 $F = 23.48 \text{ km}^2$  (Surface area of the drainage basin)

O = 24.55 km (Length of the watershed)

 $Fv = 16.76 \text{ km}^2$  (Surface area of greater portion of the drainage basin)

Fm = 6.71 km<sup>2</sup> (Surface area of smaller portion of the drainage basin)

Lv = 4.39 km (Natural length of main water course)

Lb = 12.51 km (Length of the drainage basin measured by a series of paraller lines)

#### **Topograpfic characteristics of the river basins**

Contour line length - Liz [km]: ["14.18 ","25.53 ","22.13 ","5.68 "]

The area between the two neighboring contour lines - f [km<sup>2</sup>]: ["2.90 ","7.70 ","8.92 ","3.95 ","0.01 "]

h0 = 1100 m (Altitude of the initial contour)

Ah = 100 m (Equidistance)

**Hmin = 1029 (Lowest altitude in the drainage basin)** 

Hmax = 1494 (Highest altitude in the draigane basin

# Hydrological characteristics of the river basins

 $\Sigma L = 42.13$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

Lm = 4.24 km (The shortest distance between the fountain (head and mouth))

# Water permeability

fp = 0.36 (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 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.64 (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 (Part of the surface area of the drainage basin under the forest)

ft = 0.84750 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.15250 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

# Meteorological data

hb = 32.83 mm (Level of torrent rain)

Up (years) = 100

to = 12.30 °C (Average annual air temperature)

**Hgod = 294.7 mm (Average annual quantity of precipitation)** 

# **Erosion coefficients**

**Y** = **1.04975** (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

89.95 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

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

0 % (Brown forest soils and Mountain soils)

```
10.05 % (Epieugleysol and Marshlands)
0 % (Good structured Chernozems and alluvial well-structured deposits)
0 % (Bare, compact igneous)
Xa = 0.64575 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
15.25 % (Plough-lands)
0 % (Orchards and vineyards)
84.75 % (Mountain pastures)
0 % (Meadows)
0 % (Degraded forests)
0 % (Well-constituted forests)
\phi = 0.45258 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
0 % (Depth erosion)
8.48 % (80% of the river basin under rill and gully erosion)
20.34 % (50% of the river basin under rill and gully erosion)
0 % (100% of the river basin under surface erosion)
0 % (100% of the river basin under surface erosion, without visible furrows, ravines and land
slides)
0 % (50% of the river basin under surface erosion)
71.18 % (20% of the river basin under surface erosion)
0 % (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
A = 1.0904897494305 (Coefficient of the river basin form)
```

m = 0.25557039367567 (Coefficient of the watershed development)

**B** = 1.876898481215 km (Average river basin width)

a = 0.85641244141457 ((A)symmetry of the river basin)

**G** = 1.7942930153322 (Density of the river network of the basin)

K = 1.0353773584906 (Coefficient of the river basin tortuousness)

 $H_{sr}$  = 1211.2018739353 m (Average river basin altitude)

 $D=182.2018739353 \ m \ (Average \ elevation \ difference \ of the \ river \ basin)$   $I_{sr}=28.756388415673 \ \% \ (Average \ river \ basin \ decline)$   $H_{leb}=465 \ m \ (The \ height \ of \ the \ local \ erosion \ base \ of \ the \ river \ basin)$   $E_r=67.240131955776 \ (Coefficient \ of \ the \ erosion \ energy \ of \ the \ river \ basins \ relief)$ 

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

 $S_2 = 0.8305$  (Coefficient of the vegetation cover)

W = 0.44810225749552 m (Analytical presentation of the water retention in inflow)

 $2gDF^{1/2} = 289.71765910972 \text{ m km s}^{-1}$  (Energetic potential of water flow during torrent rains)

 $Q_{max} = 92.178446878278 \text{ m}^3 \text{ s}^{-1}$  (Maximal outflow from the river basin)

T = 1.1532562594671 (Temperature coefficient of the region)

Z = 0.67030407415959 (Coefficient of the river basin erosion)

 $W_{god} = 13758.202908598 \text{ m}^3 \text{ god}^{-1}$  (Production of erosion material in the river basin

 $R_u = 0.2939485820865$  (Coefficient of the deposit retention)

 $G_{god} = 4044.2042370407 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$ 

 $G_{god} \text{ km}^{-2} = 172.24038488248 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$ 

http://www.wintero.me