# Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S1-6

**Country: Iran, Islamic Republic of** 

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.81,57.74

#### **INPUT DATA**

#### Geometric characteristics of the river basins

 $F = 42 \text{ km}^2$  (Surface area of the drainage basin)

O = 40.35 km (Length of the watershed)

 $Fv = 29.67 \text{ km}^2$  (Surface area of greater portion of the drainage basin)

 $Fm = 12.33 \text{ km}^2$  (Surface area of smaller portion of the drainage basin)

Lv = 16.48 km (Natural length of main water course)

Lb = 15.64 km (Length of the drainage basin measured by a series of paraller lines)

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

Contour line length - Liz [km]: ["4.23 ","28.29 ","28.43 ","23.01 ","12.92 ","8.35 ","6.52 ","4.90 ","5.08 ","3.78 ","2.90 ","0.88 "]

The area between the two neighboring contour lines - f [km²]: ["1.033 ","9.522 ","9.820 ","7.454 ","3.222 ","4.201 ","2.030 ","1.163 ","1.108 ","0.947 ","0.852 ","0.638 ","0.009 "]

h0 = 1400 m (Altitude of the initial contour)

 $\Delta h = 100 \text{ m (Equidistance)}$ 

**Hmin = 1345 (Lowest altitude in the drainage basin)** 

Hmax = 2515 (Highest altitude in the draigane basin

#### **Hydrological characteristics of the river basins**

 $\Sigma L = 74.55$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

Lm = 13.19 km (The shortest distance between the fountain (head and mouth))

#### **Water permeability**

fp = 0.2 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.32 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.48 (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 = 0.05220 (Part of the surface area of the drainage basin under the forest)

ft = 0.78890 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.15890 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

## Meteorological data

hb = 36.03 mm (Level of torrent rain)

Up (years) = 100

to = 9.90 °C (Average annual air temperature)

**Hgod = 334.4 mm (Average annual quantity of precipitation)** 

### **Erosion coefficients**

**Y = 1.03149** (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

30.19 % (Decomposed limestone and marls)

50.07 % (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)

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19.74 % (Epieugleysol and Marshlands)
0 % (Good structured Chernozems and alluvial well-structured deposits)
0 % (Bare, compact igneous)
Xa = 0.66474 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
15.89 % (Plough-lands)
17.07 % (Orchards and vineyards)
61.82 % (Mountain pastures)
0 % (Meadows)
5.22 % (Degraded forests)
0 % (Well-constituted forests)
\phi = 0.54923 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
0 % (Depth erosion)
20.58 % (80% of the river basin under rill and gully erosion)
25.15 % (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)
54.27 % (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 = 0.47744235436893 (Coefficient of the river basin form)
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m = 0.71734426430232 (Coefficient of the watershed development) B = 2.6854219948849 km (Average river basin width) a = 0.82571428571429 ((A)symmetry of the river basin)

**G** = 1.775 (Density of the river network of the basin)

**K** = 1.2494313874147 (Coefficient of the river basin tortuousness)

 $H_{sr} = 1680.9192857143 \text{ m}$  (Average river basin altitude)

http://www.wintero.me

 $G_{god} = 8437.0885490707 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$ 

 $G_{god} \text{ km}^{-2} = 200.88306069216 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$