Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S1-2

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.71,57.78

INPUT DATA

Geometric characteristics of the river basins

F = 56.06 km² (Surface area of the drainage basin)

O = 40.28 km (Length of the watershed)

 $Fv = 31.64 \text{ km}^2$ (Surface area of greater portion of the drainage basin)

Fm = 24.42 km² (Surface area of smaller portion of the drainage basin)

Lv = 7.54 km (Natural length of main water course)

Lb = 11.81 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["6.76", "36.28", "45.62", "28.27", "16.62", "10.44", "1.85"]

The area between the two neighboring contour lines - f [km²]: ["1.18 ","11.25 ","20.24 ","11.58 ","6.66 ","3.78 ","1.35 ","0.02 "]

h0 = 1500 m (Altitude of the initial contour)

Ah = 100 m (Equidistance)

Hmin = 1426 (Lowest altitude in the drainage basin)

Hmax = 2189 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

 $\Sigma L = 128.97$ km (The total length of the main watercourse with tributaries of 1^{st} and 2^{nd} class)

Lm = 6.59 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.062 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.406 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.532 (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 = 0.50690 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.49310 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 36.16 mm (Level of torrent rain)

Up (years) = 100

to = 9.80 °C (Average annual air temperature)

Hgod = 335 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.1049 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

64.93 % (Decomposed limestone and marls)

0 % (Serpentines, red sand stones, flishe deposits)

28.83 % (Podzols and parapodzols, decomposed schist)

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

0 % (Brown forest soils and Mountain soils)

```
6.24 % (Epieugleysol and Marshlands)
0 % (Good structured Chernozems and alluvial well-structured deposits)
0 % (Bare, compact igneous)
Xa = 0.75421 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
49.31 % (Plough-lands)
6.28 % (Orchards and vineyards)
44.41 % (Mountain pastures)
0 % (Meadows)
0 % (Degraded forests)
0 % (Well-constituted forests)
\phi = 0.59008 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
0 % (Depth erosion)
46.9 % (80% of the river basin under rill and gully erosion)
1.89 % (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)
50.44 % (20% of the river basin under surface erosion)
0.77 % (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 = 1.041724137931 (Coefficient of the river basin form)
m = 0.28407948184259 (Coefficient of the watershed development)
B = 4.7468247248095 \text{ km} (Average river basin width)
a = 0.2575811630396 ((A)symmetry of the river basin)
G = 2.3005708169818 (Density of the river network of the basin)
```

K = 1.144157814871 (Coefficient of the river basin tortuousness)

 $H_{sr} = 1700.4500535141 \text{ m}$ (Average river basin altitude)

D = 274.4500535141 m (Average elevation difference of the river basin) $I_{sr} = 26.014983945772 \% \text{ (Average river basin decline)}$ $H_{leb} = 763 \text{ m (The height of the local erosion base of the river basin)}$ $E_r = 88.758793842919 \text{ (Coefficient of the erosion energy of the river basins relief)}$ $S_1 = 0.841 \text{ (Coefficient of the regions permeability)}$ $S_2 = 0.89862 \text{ (Coefficient of the vegetation cover)}$ W = 0.48384640803958 m (Analytical presentation of the water retention in inflow) $2gDF^{1/2} = 549.42410340283 \text{ m km s}^{-1} \text{ (Energetic potential of water flow during torrent rains)}$ $Q_{max} = 209.28593022603 \text{ m}^3 \text{ s}^{-1} \text{ (Maximal outflow from the river basin)}$ T = 1.0392304845413 (Temperature coefficient of the region) Z = 0.91676667426356 (Coefficient of the river basin erosion) $W_{qod} = 53820.518508813 \text{ m}^3 \text{ god}^{-1} \text{ (Production of erosion material in the river basin)}$

 $R_u = 0.37912008885213$ (Coefficient of the deposit retention)

 $G_{god} = 20404.439759129 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$

 $G_{god} \text{ km}^{-2} = 363.97502246039 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$

http://www.wintero.me