Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S9-2

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.86,57.18

INPUT DATA

Geometric characteristics of the river basins

F = 36.21 km² (Surface area of the drainage basin)

O = 28 km (Length of the watershed)

 $Fv = 21.32 \text{ km}^2$ (Surface area of greater portion of the drainage basin)

Fm = 14.89 km² (Surface area of smaller portion of the drainage basin)

Lv = 10.58 km (Natural length of main water course)

Lb = 10.39 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["3.39 ","13.71 ","23.70 ","24.22 ","24.65 ","16.37 ","0.13 "]

The area between the two neighboring contour lines - f [km²]: ["0.49 ","4.56 ","7.46 ","5.97 ","7.39 ","9.26 ","0.82 ","0.26 "]

h0 = 1100 m (Altitude of the initial contour)

Ah = 100 m (Equidistance)

Hmin = 1065 (Lowest altitude in the drainage basin)

Hmax = 1701 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

 $\Sigma L = 76.54$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 8.95 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.23 (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 = 0.45 (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 = 0.47360 (Part of the surface area of the drainage basin under the forest)

ft = 0.33710 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.18920 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 34 mm (Level of torrent rain)

Up (years) = 100

to = 11.40 °C (Average annual air temperature)

Hgod = 308.8 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.00402 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

20.67 % (Decomposed limestone and marls)

56 % (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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23.33 % (Epieugleysol and Marshlands)
0 % (Good structured Chernozems and alluvial well-structured deposits)
0 % (Bare, compact igneous)
Xa = 0.6567 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
18.92 % (Plough-lands)
0 % (Orchards and vineyards)
33.71 % (Mountain pastures)
0 % (Meadows)
47.36 % (Degraded forests)
0 % (Well-constituted forests)
\phi = 0.62915 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
0 % (Depth erosion)
31.62 % (80% of the river basin under rill and gully erosion)
19.72 % (50% of the river basin under rill and gully erosion)
0 % (100% of the river basin under surface erosion)
13.61 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
0 % (50% of the river basin under surface erosion)
35.05 % (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
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A = 0.51606805293006 (Coefficient of the river basin form)

m = 0.49598263698763 (Coefficient of the watershed development)

B = 3.4850818094321 km (Average river basin width)

a = 0.35515051090859 ((A)symmetry of the river basin)

G = 2.113780723557 (Density of the river network of the basin)

K = 1.1821229050279 (Coefficient of the river basin tortuousness)

 H_{sr} = 1381.4569179785 m (Average river basin altitude)

D = 316.4569179785 m (Average elevation difference of the river basin) $I_{sr} = 29.320629660315 \% \text{ (Average river basin decline)}$ $H_{leb} = 636 \text{ m (The height of the local erosion base of the river basin)}$ $E_r = 82.527770312302 \text{ (Coefficient of the erosion energy of the river basins relief)}$ $S_1 = 0.766 \text{ (Coefficient of the regions permeability)}$ $S_2 = 0.74304 \text{ (Coefficient of the vegetation cover)}$

W = 0.45139054982673 m (Analytical presentation of the water retention in inflow)

 $2gDF^{1/2} = 474.15579306809 \text{ m km s}^{-1}$ (Energetic potential of water flow during torrent rains)

 $Q_{max} = 62.866815511318 \text{ m}^3 \text{ s}^{-1}$ (Maximal outflow from the river basin)

T = 1.113552872566 (Temperature coefficient of the region)

Z = 0.77184658103654 (Coefficient of the river basin erosion)

 $W_{god} = 26525.465178389 \text{ m}^3 \text{ god}^{-1}$ (Production of erosion material in the river basin

 $R_u = 0.28928168466253$ (Coefficient of the deposit retention)

 $G_{god} = 7673.3312532614 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$

 $G_{god} \text{ km}^{-2} = 211.91193740021 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$

http://www.wintero.me