Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S6-2

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.82,57.38

INPUT DATA

Geometric characteristics of the river basins

F = 27.53 km^2 (Surface area of the drainage basin)

O = 32.76 km (Length of the watershed)

Fv = 17.73 km^2 (Surface area of greater portion of the drainage basin)

Fm = 9.8 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 14.64 km (Natural length of main water course)

Lb = 13.57 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["10.62 ","15.30 ","21.72 ","13.46 ","7.93 ","1.99 "]

The area between the two neighboring contour lines - f [km^2]: ["4.53 ","4.27 ","7.73 ","6.13 ","3.58 ","1.28 ","0.01 "]

h0 = 1100 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1021 (Lowest altitude in the drainage basin)

Hmax = 1647 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 46.69 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 10.53 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.13 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.79 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.08 (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 = 0.86990 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.13010 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 33.2 mm (Level of torrent rain)

Up (years) = 100

to = 12 °C (Average annual air temperature)

Hgod = 299.2 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.03825 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

87.65 % (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)

12.35 % (Epieugleysol and Marshlands)

0 % (Good structured Chernozems and alluvial well-structured deposits)

0 % (Bare, compact igneous)

Xa = 0.6621 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

13.01 % (Plough-lands)

23.07 % (Orchards and vineyards)

63.92 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.55362 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

4.54 % (80% of the river basin under rill and gully erosion)

39.72 % (50% of the river basin under rill and gully erosion)

0 % (100% of the river basin under surface erosion)

9.26 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0 % (50% of the river basin under surface erosion)

46.48 % (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 = 0.43635245901639 (Coefficient of the river basin form)

m = 0.78710566659336 (Coefficient of the watershed development)

B = 2.0287398673545 km (Average river basin width)

a = 0.57609880130766 ((A)symmetry of the river basin)

G = 1.695968034871 (Density of the river network of the basin)

K = 1.3903133903134 (Coefficient of the river basin tortuousness)

H_{sr} = 1265.6665455866 m (Average river basin altitude)

D = 244.6665455866 m (Average elevation difference of the river basin)

I_{sr} = 25.797312023247 % (Average river basin decline)

H_{leb} = 626 m (The height of the local erosion base of the river basin)

E_r = 86.990716447599 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.685 (Coefficient of the regions permeability)

S_2 = 0.82602 (Coefficient of the vegetation cover)

W = 0.43564151607234 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 363.52970360066 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 39.100987449575 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.1401754250991 (Temperature coefficient of the region)

Z = 0.72972297888593 (Coefficient of the river basin erosion)

W_{god} = 18391.890938273 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.22979921132724 (Coefficient of the deposit retention)

G_{god} = 4226.4420324318 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 153.52132337202 m^3 km^{-2} god^{-1} (Real soil losses per km^2)