Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S8-2

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.94,57.3

INPUT DATA

Geometric characteristics of the river basins

F = 37.87 km^2 (Surface area of the drainage basin)

O = 31.39 km (Length of the watershed)

Fv = 26.59 km^2 (Surface area of greater portion of the drainage basin)

Fm = 11.28 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 10.77 km (Natural length of main water course)

Lb = 7.93 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["3.10 ","13.71 ","28.16 ","24.10 ","25.28 ","2.33 "]

The area between the two neighboring contour lines - f [km^2]: ["1.14 ","4.66 ","10.02 ","8.17 ","8.24 ","3.21 ","2.43 "]

h0 = 1200 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1156 (Lowest altitude in the drainage basin)

Hmax = 1724 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 68.67 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 9.61 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 = 0.18 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.62 (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 = 0.22280 (Part of the surface area of the drainage basin under the forest)

ft = 0.75350 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.02370 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 34.37 mm (Level of torrent rain)

Up (years) = 100

to = 11.10 °C (Average annual air temperature)

Hgod = 313.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.02761 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

34.26 % (Decomposed limestone and marls)

44.41 % (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)

21.33 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.60881 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.37 % (Plough-lands)

1.7 % (Orchards and vineyards)

73.65 % (Mountain pastures)

0 % (Meadows)

22.28 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.57521 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

9.61 % (80% of the river basin under rill and gully erosion)

43.51 % (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)

46.88 % (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 = 0.5683426183844 (Coefficient of the river basin form)

m = 0.49369999034526 (Coefficient of the watershed development)

B = 4.7755359394704 km (Average river basin width)

a = 0.8085555848957 ((A)symmetry of the river basin)

G = 1.8133086876155 (Density of the river network of the basin)

K = 1.1207075962539 (Coefficient of the river basin tortuousness)

H_{sr} = 1446.2656456298 m (Average river basin altitude)

D = 290.2656456298 m (Average elevation difference of the river basin)

I_{sr} = 25.529442830737 % (Average river basin decline)

H_{leb} = 568 m (The height of the local erosion base of the river basin)

E_r = 72.882730824066 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.826 (Coefficient of the regions permeability)

S_2 = 0.76018 (Coefficient of the vegetation cover)

W = 0.45572316024629 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 464.40295347899 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 75.52709553953 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.1 (Temperature coefficient of the region)

Z = 0.67596701024118 (Coefficient of the river basin erosion)

W_{god} = 22786.96628235 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.29066114227972 (Coefficient of the deposit retention)

G_{god} = 6623.2856487172 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 174.89531683964 m^3 km^{-2} god^{-1} (Real soil losses per km^2)