Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S7-3

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.9,57.37

INPUT DATA

Geometric characteristics of the river basins

F = 19.33 km^2 (Surface area of the drainage basin)

O = 24.76 km (Length of the watershed)

Fv = 10.58 km^2 (Surface area of greater portion of the drainage basin)

Fm = 8.75 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 12 km (Natural length of main water course)

Lb = 8.01 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["9.71 ","15.85 ","8.97 ","6.73 ","2.10 ","2.08 "]

The area between the two neighboring contour lines - f [km^2]: ["2.98 ","8.34 ","3.14 ","2.90 ","1.32 ","0.64 ","0.01 "]

h0 = 1200 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1119 (Lowest altitude in the drainage basin)

Hmax = 1758 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 35.67 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 10.96 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.08 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.25 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.67 (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 = 1.00000 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.00000 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 33.53 mm (Level of torrent rain)

Up (years) = 100

to = 11.80 °C (Average annual air temperature)

Hgod = 303.2 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.06035 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

6.7 % (Decomposed limestone and marls)

84.03 % (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)

9.27 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.7 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

0 % (Plough-lands)

100 % (Orchards and vineyards)

0 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.63765 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

0 % (80% of the river basin under rill and gully erosion)

67.53 % (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)

32.47 % (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 = 0.40235 (Coefficient of the river basin form)

m = 0.769946212626 (Coefficient of the watershed development)

B = 2.4132334581773 km (Average river basin width)

a = 0.18934299017072 ((A)symmetry of the river basin)

G = 1.8453181583032 (Density of the river network of the basin)

K = 1.0948905109489 (Coefficient of the river basin tortuousness)

H_{sr} = 1316.2752198655 m (Average river basin altitude)

D = 197.2752198655 m (Average elevation difference of the river basin)

I_{sr} = 23.507501293326 % (Average river basin decline)

H_{leb} = 639 m (The height of the local erosion base of the river basin)

E_r = 97.00475473834 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.877 (Coefficient of the regions permeability)

S_2 = 0.8 (Coefficient of the vegetation cover)

W = 0.44337086205333 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 273.52794116873 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 34.234377150581 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.1313708498985 (Temperature coefficient of the region)

Z = 0.83316656069076 (Coefficient of the river basin erosion)

W_{god} = 15842.133006658 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.20091802620751 (Coefficient of the deposit retention)

G_{god} = 3182.9700946146 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 164.6647746826 m^3 km^{-2} god^{-1} (Real soil losses per km^2)