Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S7-2

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.93,57.4

INPUT DATA

Geometric characteristics of the river basins

F = 24.65 km^2 (Surface area of the drainage basin)

O = 29.95 km (Length of the watershed)

Fv = 14.27 km^2 (Surface area of greater portion of the drainage basin)

Fm = 10.38 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 9.98 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]: ["7.99 ","15.58 ","23.54 ","19.31 ","14.51 ","0.39 "]

The area between the two neighboring contour lines - f [km^2]: ["2.91 ","3.98 ","6.61 ","5.84 ","4.54 ","0.76 ","0.01 "]

h0 = 1300 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1201 (Lowest altitude in the drainage basin)

Hmax = 1825 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 53.69 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 9.48 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.15 (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 = 0.67 (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 = 0.19260 (Part of the surface area of the drainage basin under the forest)

ft = 0.78050 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.02690 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 34.68 mm (Level of torrent rain)

Up (years) = 100

to = 9.10 °C (Average annual air temperature)

Hgod = 317 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.10623 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

46.53 % (Decomposed limestone and marls)

45.41 % (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)

8.06 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.62144 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.69 % (Plough-lands)

13.37 % (Orchards and vineyards)

64.68 % (Mountain pastures)

0 % (Meadows)

19.26 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.4785 (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)

35.7 % (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)

64.3 % (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 = 0.58519539078156 (Coefficient of the river basin form)

m = 0.56704450662493 (Coefficient of the watershed development)

B = 3.0774032459426 km (Average river basin width)

a = 0.31561866125761 ((A)symmetry of the river basin)

G = 2.178093306288 (Density of the river network of the basin)

K = 1.0527426160338 (Coefficient of the river basin tortuousness)

H_{sr} = 1480.2263691684 m (Average river basin altitude)

D = 279.2263691684 m (Average elevation difference of the river basin)

I_{sr} = 32.98985801217 % (Average river basin decline)

H_{leb} = 624 m (The height of the local erosion base of the river basin)

E_r = 89.141612546439 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.856 (Coefficient of the regions permeability)

S_2 = 0.76686 (Coefficient of the vegetation cover)

W = 0.46087312722702 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 367.48209017586 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 65.059138846912 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.0049875621121 (Temperature coefficient of the region)

Z = 0.72379996078683 (Coefficient of the river basin erosion)

W_{god} = 15191.986936494 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.2894750513963 (Coefficient of the deposit retention)

G_{god} = 4397.7011992537 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 178.40572816445 m^3 km^{-2} god^{-1} (Real soil losses per km^2)