Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S7-1

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.89,57.6

INPUT DATA

Geometric characteristics of the river basins

F = 45.59 km^2 (Surface area of the drainage basin)

O = 22.25 km (Length of the watershed)

Fv = 23.51 km^2 (Surface area of greater portion of the drainage basin)

Fm = 22.08 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 8.91 km (Natural length of main water course)

Lb = 0.04 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["7.41 ","26.16 ","49.90 ","26.95 ","11.93 ","10.98 ","8.12 ","5.42 ","2.83 "]

The area between the two neighboring contour lines - f [km^2]: ["1.55 ","7.92 ","15.76 ","10.50 ","3.43 ","1.93 ","2.25 ","1.28 ","0.95 ","0.02 "]

h0 = 1600 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 1544 (Lowest altitude in the drainage basin)

Hmax = 2448 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 87.64 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 6.88 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.14 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.73 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.13 (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 = 0.50980 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.49020 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 37 mm (Level of torrent rain)

Up (years) = 100

to = 9.10 °C (Average annual air temperature)

Hgod = 345.1 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.07935 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

55.45 % (Decomposed limestone and marls)

29.33 % (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)

15.22 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.74706 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

49.02 % (Plough-lands)

0 % (Orchards and vineyards)

50.98 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.53246 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

29.46 % (80% of the river basin under rill and gully erosion)

11.14 % (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)

59.4 % (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 = 0.48695286195286 (Coefficient of the river basin form)

m = 0.3722528024215 (Coefficient of the watershed development)

B = 1139.75 km (Average river basin width)

a = 0.062733055494626 ((A)symmetry of the river basin)

G = 1.9223513928493 (Density of the river network of the basin)

K = 1.2950581395349 (Coefficient of the river basin tortuousness)

H_{sr} = 1823.9324413249 m (Average river basin altitude)

D = 279.9324413249 m (Average elevation difference of the river basin)

I_{sr} = 32.836148278131 % (Average river basin decline)

H_{leb} = 904 m (The height of the local erosion base of the river basin)

E_r = 110.73914338419 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.697 (Coefficient of the regions permeability)

S_2 = 0.89804 (Coefficient of the vegetation cover)

W = 0.49174891834435 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 500.39264023369 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 75.001458472365 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.0049875621121 (Temperature coefficient of the region)

Z = 0.89139859889753 (Coefficient of the river basin erosion)

W_{god} = 41805.462433366 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.26395511987568 (Coefficient of the deposit retention)

G_{god} = 11034.765848057 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 242.04355885188 m^3 km^{-2} god^{-1} (Real soil losses per km^2)