Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S6-int

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.79,57.33

INPUT DATA

Geometric characteristics of the river basins

F = 47.66 km^2 (Surface area of the drainage basin)

O = 38.9 km (Length of the watershed)

Fv = 35.88 km^2 (Surface area of greater portion of the drainage basin)

Fm = 11.78 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 9.45 km (Natural length of main water course)

Lb = 12.23 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["12.97 ","39.67 ","42.09 ","26.12 ","8.01 ","4.10 ","0.79 "]

The area between the two neighboring contour lines - f [km^2]: ["3.07 ","16.07 ","12.62 ","9.71 ","3.96 ","1.41 ","0.79 ","0.03 "]

h0 = 1000 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 959 (Lowest altitude in the drainage basin)

Hmax = 1615 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 82.88 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 7.62 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.16 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.11 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.73 (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 = 0.00000 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 1.00000 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 32.42 mm (Level of torrent rain)

Up (years) = 100

to = 12.60 °C (Average annual air temperature)

Hgod = 289.8 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.0703 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

50.45 % (Decomposed limestone and marls)

33.52 % (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)

16.03 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.9 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

100 % (Plough-lands)

0 % (Orchards and vineyards)

0 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.49584 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

11.95 % (80% of the river basin under rill and gully erosion)

13.77 % (50% of the river basin under rill and gully erosion)

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

18.43 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

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

55.85 % (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 = 0.80269841269841 (Coefficient of the river basin form)

m = 0.38614450363893 (Coefficient of the watershed development)

B = 3.8969746524939 km (Average river basin width)

a = 1.0113302559799 ((A)symmetry of the river basin)

G = 1.7389844733529 (Density of the river network of the basin)

K = 1.240157480315 (Coefficient of the river basin tortuousness)

H_{sr} = 1158.0841376416 m (Average river basin altitude)

D = 199.0841376416 m (Average elevation difference of the river basin)

I_{sr} = 28.063365505665 % (Average river basin decline)

H_{leb} = 656 m (The height of the local erosion base of the river basin)

E_r = 79.472240547171 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.871 (Coefficient of the regions permeability)

S_2 = 1 (Coefficient of the vegetation cover)

W = 0.43327820625508 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 431.4642824151 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 130.70200613109 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.1661903789691 (Temperature coefficient of the region)

Z = 0.9879187996873 (Coefficient of the river basin erosion)

W_{god} = 49688.240803379 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.28615643708464 (Coefficient of the deposit retention)

G_{god} = 14218.609953299 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 298.33424157152 m^3 km^{-2} god^{-1} (Real soil losses per km^2)