Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S8-1

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.94,57.35

INPUT DATA

Geometric characteristics of the river basins

F = 35.46 km^2 (Surface area of the drainage basin)

O = 28.64 km (Length of the watershed)

Fv = 18.5 km^2 (Surface area of greater portion of the drainage basin)

Fm = 16.96 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 11.14 km (Natural length of main water course)

Lb = 3.95 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["3.56 ","11.85 ","26.37 ","19.28 ","22.56 ","23.11 "]

The area between the two neighboring contour lines - f [km^2]: ["0.81 ","6.35 ","7.47 ","6.06 ","5.91 ","8.79 ","0.07 "]

h0 = 1200 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1156 (Lowest altitude in the drainage basin)

Hmax = 1767 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 72.53 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 10.16 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.12 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.58 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.3 (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 = 0.31820 (Part of the surface area of the drainage basin under the forest)

ft = 0.65340 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.02840 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 34.52 mm (Level of torrent rain)

Up (years) = 100

to = 11 °C (Average annual air temperature)

Hgod = 315.2 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.03915 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

38.5 % (Decomposed limestone and marls)

41.63 % (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)

19.87 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.60984 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.84 % (Plough-lands)

1.32 % (Orchards and vineyards)

64.02 % (Mountain pastures)

0 % (Meadows)

31.82 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.56284 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

13.29 % (80% of the river basin under rill and gully erosion)

36.62 % (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)

50.09 % (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 = 0.50132854578097 (Coefficient of the river basin form)

m = 0.52772891836289 (Coefficient of the watershed development)

B = 8.9772151898734 km (Average river basin width)

a = 0.086858432036097 ((A)symmetry of the river basin)

G = 2.0454032712916 (Density of the river network of the basin)

K = 1.0964566929134 (Coefficient of the river basin tortuousness)

H_{sr} = 1453.709108855 m (Average river basin altitude)

D = 297.709108855 m (Average elevation difference of the river basin)

I_{sr} = 30.098702763677 % (Average river basin decline)

H_{leb} = 611 m (The height of the local erosion base of the river basin)

E_r = 79.699694141038 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.754 (Coefficient of the regions permeability)

S_2 = 0.74204 (Coefficient of the vegetation cover)

W = 0.45701928433154 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 455.10848080427 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 58.340554315277 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.0954451150103 (Temperature coefficient of the region)

Z = 0.70435094003744 (Coefficient of the river basin erosion)

W_{god} = 22737.833585677 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.27625336759509 (Coefficient of the deposit retention)

G_{god} = 6281.4030998599 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 177.14052735081 m^3 km^{-2} god^{-1} (Real soil losses per km^2)