Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S1-intB

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.73,57.67

INPUT DATA

Geometric characteristics of the river basins

F = 69.37 km^2 (Surface area of the drainage basin)

O = 57.79 km (Length of the watershed)

Fv = 46.42 km^2 (Surface area of greater portion of the drainage basin)

Fm = 22.95 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 13.05 km (Natural length of main water course)

Lb = 16.05 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["16.18 ","59.74 ","45.02 ","28.93 ","24.26 ","8.28 ","0.17 "]

The area between the two neighboring contour lines - f [km^2]: ["3.54 ","17.82 ","19.89 ","11.24 ","10.91 ","5.38 ","0.57 ","0.02 "]

h0 = 1300 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1250 (Lowest altitude in the drainage basin)

Hmax = 1910 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 137.92 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 7.09 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.17 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.38 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.45 (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 = 0.00 (Part of the surface area of the drainage basin under the forest)

ft = 0.41210 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.58790 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 34.74 mm (Level of torrent rain)

Up (years) = 100

to = 10.9 °C (Average annual air temperature)

Hgod = 317.7 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.07663 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

60.84 % (Decomposed limestone and marls)

22.11 % (Serpentines, red sand stones, flishe deposits)

0.26 % (Podzols and parapodzols, decomposed schist)

0 % (Solid and Schist limestone, Terra Rosa and Humic soil)

0 % (Brown forest soils and Mountain soils)

16.79 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.77714 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

58.79 % (Plough-lands)

0.77 % (Orchards and vineyards)

40.44 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.66648 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0.31 % (Depth erosion)

40.63 % (80% of the river basin under rill and gully erosion)

23.67 % (50% of the river basin under rill and gully erosion)

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

0.78 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

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

34.45 % (20% of the river basin under surface erosion)

0.16 % (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 = 0.86352873563218 (Coefficient of the river basin form)

m = 0.44199741806007 (Coefficient of the watershed development)

B = 4.3221183800623 km (Average river basin width)

a = 0.67666138100043 ((A)symmetry of the river basin)

G = 1.9881793282399 (Density of the river network of the basin)

K = 1.8406205923836 (Coefficient of the river basin tortuousness)

H_{sr} = 1489.7232232954 m (Average river basin altitude)

D = 239.7232232954 m (Average elevation difference of the river basin)

I_{sr} = 26.319734755658 % (Average river basin decline)

H_{leb} = 660 m (The height of the local erosion base of the river basin)

E_r = 72.79493108475 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.784 (Coefficient of the regions permeability)

S_2 = 0.91758 (Coefficient of the vegetation cover)

W = 0.45689966318995 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 571.20289915234 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 162.12427116266 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.0908712114636 (Temperature coefficient of the region)

Z = 0.9868848776247 (Coefficient of the river basin erosion)

W_{god} = 74047.773412435 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.32295385090679 (Coefficient of the deposit retention)

G_{god} = 23914.01357462 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 344.73134747902 m^3 km^{-2} god^{-1} (Real soil losses per km^2)