Web application for Intensity of Erosion and Outflow

Name of the River Basin: Bijeli Potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.608963,19.927246

INPUT DATA

Geometric characteristics of the river basins

F = 2.93072 km^2 (Surface area of the drainage basin)

O = 8.8377 km (Length of the watershed)

Fv = 1.66941 km^2 (Surface area of greater portion of the drainage basin)

Fm = 1.26131 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 2.6891 km (Natural length of main water course)

Lb = 3.73001 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.259726 ","0.7709245 ","0.7897265 ","0.7963905 ","0.8544795 ","0.953394 ","1.075335 ","1.129429 ","1.2246205 ","1.302132 ","1.5839155 ","1.560719 ","1.4873385 ","1.46047 ","1.3958955 ","1.351942 ","1.3419545 ","1.2875715 ","1.209958

The area between the two neighboring contour lines - f [km^2]: ["0.019194 ","0.0530775 ","0.0605325 ","0.046683 ","0.056154 ","0.071862 ","0.107583 ","0.074088 ","0.0976395 ","0.0867615 ","0.1995735 ","0.11592 ","0.1190385 ","0.213948 ","0.14385 ","0.134085 ","0.194523 ","0.1463595 ","0.1594845 ","

h0 = 900 m (Altitude of the initial contour)

Δh = 50 m (Equidistance)

Hmin = 890 (Lowest altitude in the drainage basin)

Hmax = 2211 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 7.9001 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 2.30494 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.045477513895907 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.42678120262759 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.527741283476503 (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 = 0.5026 (Part of the surface area of the drainage basin under the forest)

ft = 0.422 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.0754 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 89.4 mm (Level of torrent rain)

Up (years) = 100

to = 8.1 °C (Average annual air temperature)

Hgod = 1182.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 0.418595 (Types of soil structures and allied types)

0.68 % (Sand, gravel and incoherent soils)

0.68 % (Saline soils)

1.38 % (Decomposed limestone and marls)

1.38 % (Serpentines, red sand stones, flishe deposits)

6.88 % (Podzols and parapodzols, decomposed schist)

3.44 % (Solid and Schist limestone, Terra Rosa and Humic soil)

6.88 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

4.35 % (Good structured Chernozems and alluvial well-structured deposits)

74.33 % (Bare, compact igneous)

Xa = 0.39804 (Planning of the drainage basin, rate of drainage basin regulation)

7.04 % (Bare lands)

0.5 % (Plough-lands)

2.01 % (Orchards and vineyards)

20.1 % (Mountain pastures)

20.1 % (Meadows)

15.08 % (Degraded forests)

35.18 % (Well-constituted forests)

ϕ = 0.38333 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

8.16 % (Depth erosion)

0 % (80% of the river basin under rill and gully erosion)

0 % (50% of the river basin under rill and gully erosion)

29.63 % (100% of the river basin under surface erosion)

0 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

7.55 % (50% of the river basin under surface erosion)

0 % (20% of the river basin under surface erosion)

0 % (There are smaller slides in the watercourse beds)

3.82 % (The river basin mostly under plough-land)

50.84 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.64086553121862 (Coefficient of the river basin form)

m = 0.44311337256912 (Coefficient of the watershed development)

B = 0.78571371122329 km (Average river basin width)

a = 0.27849811650379 ((A)symmetry of the river basin)

G = 2.6956174591909 (Density of the river network of the basin)

K = 1.1666681128359 (Coefficient of the river basin tortuousness)

H_{sr} = 1583.2574787083 m (Average river basin altitude)

D = 693.2574787083 m (Average elevation difference of the river basin)

I_{sr} = 47.388430999891 % (Average river basin decline)

H_{leb} = 1321 m (The height of the local erosion base of the river basin)

E_r = 321.37298223072 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.84467913087418 (Coefficient of the regions permeability)

S_2 = 0.71456 (Coefficient of the vegetation cover)

W = 1.1211873686047 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 199.6567269289 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 86.588361799373 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.95393920141695 (Temperature coefficient of the region)

Z = 0.17856779049295 (Coefficient of the river basin erosion)

W_{god} = 783.56905057397 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.39013605212536 (Coefficient of the deposit retention)

G_{god} = 305.69853595854 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 104.30833923355 m^3 km^{-2} god^{-1} (Real soil losses per km^2)