Web application for Intensity of Erosion and Outflow

Name of the River Basin: Potok Bosnjak

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.973668,19.805638

INPUT DATA

Geometric characteristics of the river basins

F = 6.51981 km^2 (Surface area of the drainage basin)

O = 12.37191 km (Length of the watershed)

Fv = 3.58294 km^2 (Surface area of greater portion of the drainage basin)

Fm = 2.93687 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 2.80996 km (Natural length of main water course)

Lb = 5.67931 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["3.71228 ","5.08220 ","2.25554 ","4.73317 ","2.81659 ","1.91657 ","1.11909 "]

The area between the two neighboring contour lines - f [km^2]: ["0.84180 ","1.01714 ","1.06968 ","1.11110 ","1.03604 ","0.88126 ","0.40085 ","0.16194 "]

h0 = 700 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 655 (Lowest altitude in the drainage basin)

Hmax = 1318 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 2.80996 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 2.4833 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.1306 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.091 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7784 (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 = 0.598511436 (Part of the surface area of the drainage basin under the forest)

ft = 0.308099763 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.093388801 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 115 mm (Level of torrent rain)

Up (years) = 100

to = 9.0 °C (Average annual air temperature)

Hgod = 944.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.0866 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

93.3 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

6.7 % (Solid and Schist limestone, Terra Rosa and Humic soil)

0 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.4051 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

9.34 % (Plough-lands)

1.37 % (Orchards and vineyards)

10.63 % (Mountain pastures)

18.81 % (Meadows)

25.91 % (Degraded forests)

33.94 % (Well-constituted forests)

ϕ = 0.27342 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.73 % (Depth erosion)

2.43 % (80% of the river basin under rill and gully erosion)

2.13 % (50% of the river basin under rill and gully erosion)

1.82 % (100% of the river basin under surface erosion)

18.81 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.91 % (50% of the river basin under surface erosion)

0.61 % (20% of the river basin under surface erosion)

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

9.34 % (The river basin mostly under plough-land)

61.22 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.85856113610158 (Coefficient of the river basin form)

m = 0.31044004367134 (Coefficient of the watershed development)

B = 1.1479933301757 km (Average river basin width)

a = 0.19818675697605 ((A)symmetry of the river basin)

G = 0.43098801958953 (Density of the river network of the basin)

K = 1.1315427052712 (Coefficient of the river basin tortuousness)

H_{sr} = 937.49364782103 m (Average river basin altitude)

D = 282.49364782103 m (Average elevation difference of the river basin)

I_{sr} = 33.184157207035 % (Average river basin decline)

H_{leb} = 663 m (The height of the local erosion base of the river basin)

E_r = 132.07022592948 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.89434 (Coefficient of the regions permeability)

S_2 = 0.698975473 (Coefficient of the vegetation cover)

W = 1.3762178732018 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 190.09527173026 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 140.40879951715 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.37392415962745 (Coefficient of the river basin erosion)

W_{god} = 4422.5229116213 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.29188040581136 (Coefficient of the deposit retention)

G_{god} = 1290.8477821541 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 197.98855827916 m^3 km^{-2} god^{-1} (Real soil losses per km^2)