
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 km² (Surface area of the drainage basin)

O = 12.37191 km (Length of the watershed)

Fv = 3.58294 km² (Surface area of greater portion of the drainage basin)

Fm = 2.93687 km² (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 parallel lines)

Topographic 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 [km²]: ["0.84180 ", "1.01714 ", "1.06968 ", "1.11110 ", "1.03604 ", "0.88126 ", "0.40085 ", "0.16194 "]

h0 = 700 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 655 (Lowest altitude in the drainage basin)

Hmax = 1318 (Highest altitude in the drainage basin)

Hydrological characteristics of the river basins

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

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

Water permeability

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

$f_{pp} = 0.091$ (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.7784$ (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

$f_s = 0.598511436$ (Part of the surface area of the drainage basin under the forest)

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

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

Meteorological data

$h_b = 115$ mm (Level of torrent rain)

U_p (years) = 100

$t_o = 9.0$ °C (Average annual air temperature)

$H_{god} = 944.3$ 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)

$\phi = 0.27342$ (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)
S₁ = 0.89434 (Coefficient of the regions permeability)
S₂ = 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 m³ 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 m³ god⁻¹ (Production of erosion material in the river basin)
R_u = 0.29188040581136 (Coefficient of the deposit retention)
G_{god} = 1290.8477821541 m³ god⁻¹ (Real soil losses)
G_{god} km⁻² = 197.98855827916 m³ km⁻² god⁻¹ (Real soil losses per km²)

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