
Web application for Intensity of Erosion and Outflow

Name of the River Basin: Biogradska rijeka

Country: Montenegro

Year: 2021

**GPS coordinates, latitude and longitude with Google Maps:
42.888683,19.611135**

INPUT DATA

Geometric characteristics of the river basins

F = 28.28 km² (Surface area of the drainage basin)

O = 15.99 km (Length of the watershed)

Fv = 16.35 km² (Surface area of greater portion of the drainage basin)

Fm = 11.93 km² (Surface area of smaller portion of the drainage basin)

Lv = 8.23 km (Natural length of main water course)

Lb = 11.02 km (Length of the drainage basin measured by a series of parallel lines)

Topographic characteristics of the river basins

Contour line length - Liz [km]: ["0.93 ", "4.53 ", "7.17 ", "9.46 ", "12.49 ", "14.66 ", "19.32 ", "22.17 ", "15.30 ", "6.58 ", "0.50 "]

The area between the two neighboring contour lines - f [km²]: ["0.1 ", "0.209 ", "0.648 ", "1.276 ", "1.595 ", "2.392 ", "2.741 ", "4.037 ", "5.423 ", "5.074 ", "3.688 ", "1.097 "]

h0 = 1100 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1094 (Lowest altitude in the drainage basin)

Hmax = 2139 (Highest altitude in the drainage basin)

Hydrological characteristics of the river basins

$\Sigma L = 27.17$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

$L_m = 7.55$ km (The shortest distance between the fountain (head and mouth))

Water permeability

$f_p = 0.15$ (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

$f_{pp} = 0.01$ (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.84$ (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

$f_s = 0.53780$ (Part of the surface area of the drainage basin under the forest)

$f_t = 0.46220$ (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

$f_g = 0.00000$ (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

$h_b = 252$ mm (Level of torrent rain)

U_p (years) = 100

$t_o = 5.05$ °C (Average annual air temperature)

$H_{god} = 1962$ mm (Average annual quantity of precipitation)

Erosion coefficients

$Y = 0.8$ (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

0 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

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

100 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.30421 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

0 % (Plough-lands)

0 % (Orchards and vineyards)

46.22 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

53.78 % (Well-constituted forests)

$\phi = 0.36247$ (Numerical coefficient of visible and clearly pointed processes of soil erosion)

1.11 % (Depth erosion)

1.11 % (80% of the river basin under rill and gully erosion)

1.11 % (50% of the river basin under rill and gully erosion)

21.44 % (100% of the river basin under surface erosion)

21.44 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0 % (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)

0 % (The river basin mostly under plough-land)

53.78 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.37886391251519 (Coefficient of the river basin form)

m = 0.43657131874805 (Coefficient of the watershed development)

B = 2.5662431941924 km (Average river basin width)

a = 0.31258840169731 ((A)symmetry of the river basin)

G = 0.96074964639321 (Density of the river network of the basin)

K = 1.0900662251656 (Coefficient of the river basin tortuousness)

H_{sr} = 1778.7390912306 m (Average river basin altitude)

D = 684.7390912306 m (Average elevation difference of the river basin)

I_{sr} = 39.996463932107 % (Average river basin decline)

H_{leb} = 1045 m (The height of the local erosion base of the river basin)

E_r = 144.24360451571 (Coefficient of the erosion energy of the river basins relief)

S₁ = 0.907 (Coefficient of the regions permeability)

S₂ = 0.69244 (Coefficient of the vegetation cover)

W = 2.1660308970888 m (Analytical presentation of the water retention in inflow)

2gDF^{1/2} = 616.38457948754 m km s⁻¹ (Energetic potential of water flow during torrent rains)

Q_{max} = 317.67942433713 m³ s⁻¹ (Maximal outflow from the river basin)

T = 0.7778174593052 (Temperature coefficient of the region)

Z = 0.24212623335983 (Coefficient of the river basin erosion)

W_{god} = 16153.578151372 m³ god⁻¹ (Production of erosion material in the river basin)

R_u = 0.36301963847334 (Coefficient of the deposit retention)

G_{god} = 5864.066100562 m³ god⁻¹ (Real soil losses)

G_{god} km⁻² = 207.35735857716 m³ km⁻² god⁻¹ (Real soil losses per km²)