
Web application for Intensity of Erosion and Outflow

Name of the River Basin: Velicka rijeka

Country: Montenegro

Year: 2018

**GPS coordinates, latitude and longitude with Google Maps:
42.65296,19.92774**

INPUT DATA

Geometric characteristics of the river basins

F = 32.25843 km² (Surface area of the drainage basin)

O = 24.31217 km (Length of the watershed)

Fv = 19.92345 km² (Surface area of greater portion of the drainage basin)

Fm = 12.33498 km² (Surface area of smaller portion of the drainage basin)

Lv = 6.90844 km (Natural length of main water course)

Lb = 8.88564 km (Length of the drainage basin measured by a series of parallel lines)

Topographic characteristics of the river basins

Contour line length - Liz [km]: ["3.38501 ", "8.76982 ", "10.84120 ", "13.73594 ", "14.56722 ", "14.59249 ", "14.88688 ", "14.90037 ", "13.29120 ", "12.03854 ", "8.57967 ", "2.07198 "]

The area between the two neighboring contour lines - f [km²]: ["0.47946 ", "1.80118 ", "2.25785 ", "2.94814 ", "3.19298 ", "3.39597 ", "3.09540 ", "3.54191 ", "3.63426 ", "3.33728 ", "2.75455 ", "1.48562 ", "0.33383 "]

h0 = 900 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 879 (Lowest altitude in the drainage basin)

Hmax = 2077 (Highest altitude in the drainage basin)

Hydrological characteristics of the river basins

$\Sigma L = 10.18487$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

$L_m = 5.4377$ km (The shortest distance between the fountain (head and mouth))

Water permeability

$f_p = 0.1344$ (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

$f_{pp} = 0.0804$ (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.7852$ (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

$f_s = 0.39$ (Part of the surface area of the drainage basin under the forest)

$f_t = 0.59$ (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

$f_g = 0.02$ (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

$h_b = 89.4$ mm (Level of torrent rain)

U_p (years) = 100

$t_o = 8.1$ °C (Average annual air temperature)

$H_{god} = 1182.3$ mm (Average annual quantity of precipitation)

Erosion coefficients

$Y = 1.10835$ (Types of soil structures and allied types)

3.73 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

83.66 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

12.61 % (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 = 0.41508 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

1.99 % (Plough-lands)

1 % (Orchards and vineyards)

44.82 % (Mountain pastures)

12.95 % (Meadows)

9.06 % (Degraded forests)

30.18 % (Well-constituted forests)

$\phi = 0.458$ (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2 % (Depth erosion)

12 % (80% of the river basin under rill and gully erosion)

11 % (50% of the river basin under rill and gully erosion)

10 % (100% of the river basin under surface erosion)

16 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

5 % (50% of the river basin under surface erosion)

3 % (20% of the river basin under surface erosion)

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

2 % (The river basin mostly under plough-land)

39 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.68624365992901 (Coefficient of the river basin form)

m = 0.34312585559727 (Coefficient of the watershed development)

B = 3.6304002863046 km (Average river basin width)

a = 0.47047980946376 ((A)symmetry of the river basin)

G = 0.31572739280864 (Density of the river network of the basin)
K = 1.2704709711827 (Coefficient of the river basin tortuousness)
H_{sr} = 1455.8345562695 m (Average river basin altitude)
D = 576.8345562695 m (Average elevation difference of the river basin)
I_{sr} = 40.814236774697 % (Average river basin decline)
H_{leb} = 1198 m (The height of the local erosion base of the river basin)
E_r = 160.00963652762 (Coefficient of the erosion energy of the river basins relief)
S₁ = 0.89524 (Coefficient of the regions permeability)
S₂ = 0.726 (Coefficient of the vegetation cover)
W = 1.0946746295478 m (Analytical presentation of the water retention in inflow)
2gDF^{1/2} = 604.22229997006 m km s⁻¹ (Energetic potential of water flow during torrent rains)
Q_{max} = 295.00966672736 m³ s⁻¹ (Maximal outflow from the river basin)
T = 0.95393920141695 (Temperature coefficient of the region)
Z = 0.50461483704605 (Coefficient of the river basin erosion)
W_{god} = 40971.466483167 m³ god⁻¹ (Production of erosion material in the river basin)
R_u = 0.44295943001821 (Coefficient of the deposit retention)
G_{god} = 18148.697440394 m³ god⁻¹ (Real soil losses)
G_{god} km⁻² = 562.60324635743 m³ km⁻² god⁻¹ (Real soil losses per km²)