
Web application for Intensity of Erosion and Outflow

Name of the River Basin: Krastica

Country: Montenegro

Year: 2018

**GPS coordinates, latitude and longitude with Google Maps:
42.74235,19.792534**

INPUT DATA

Geometric characteristics of the river basins

F = 44.05881 km² (Surface area of the drainage basin)

O = 27.36432 km (Length of the watershed)

Fv = 23.82638 km² (Surface area of greater portion of the drainage basin)

Fm = 20.23243 km² (Surface area of smaller portion of the drainage basin)

Lv = 10.24067 km (Natural length of main water course)

Lb = 11.25792 km (Length of the drainage basin measured by a series of parallel lines)

Topographic characteristics of the river basins

Contour line length - Liz [km]: ["6.44885 ", "12.57735 ", "19.76763 ", "23.14434 ", "27.10301 ", "24.37377 ", "20.28158 ", "15.87463 ", "12.09835 ", "3.15286 ", "1.47232 "]

The area between the two neighboring contour lines - f [km²]: ["1.51419 ", "2.60295 ", "4.46934 ", "4.95093 ", "6.51077 ", "6.73748 ", "5.76083 ", "4.53210 ", "3.68423 ", "2.39605 ", "0.69707 ", "0.20287 "]

h0 = 800 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 731 (Lowest altitude in the drainage basin)

Hmax = 1876 (Highest altitude in the drainage basin)

Hydrological characteristics of the river basins

$\Sigma L = 15.98938$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

$L_m = 8.98506$ km (The shortest distance between the fountain (head and mouth))

Water permeability

$f_p = 0$ (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

$f_{pp} = 0.0308$ (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.9692$ (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

$f_s = 0.476828095$ (Part of the surface area of the drainage basin under the forest)

$f_t = 0.498173460$ (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

$f_g = 0.024998445$ (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)

$H_{god} = 1183.7$ mm (Average annual quantity of precipitation)

Erosion coefficients

$Y = 1.12642$ (Types of soil structures and allied types)

3.13 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

96.26 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

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

0.62 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.363695 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.5 % (Plough-lands)

1.11 % (Orchards and vineyards)

32.43 % (Mountain pastures)

16.28 % (Meadows)

9.07 % (Degraded forests)

38.61 % (Well-constituted forests)

$\phi = 0.4106$ (Numerical coefficient of visible and clearly pointed processes of soil erosion)

8.34 % (Depth erosion)

7.41 % (80% of the river basin under rill and gully erosion)

6.49 % (50% of the river basin under rill and gully erosion)

5.56 % (100% of the river basin under surface erosion)

16.28 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.78 % (50% of the river basin under surface erosion)

1.85 % (20% of the river basin under surface erosion)

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

2.5 % (The river basin mostly under plough-land)

48.79 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.52106379758356 (Coefficient of the river basin form)

m = 0.4352182095501 (Coefficient of the watershed development)

B = 3.9135835038799 km (Average river basin width)

a = 0.16314330777431 ((A)symmetry of the river basin)

G = 0.36290993787622 (Density of the river network of the basin)
K = 1.1397441975902 (Coefficient of the river basin tortuousness)
H_{sr} = 1233.1394562177 m (Average river basin altitude)
D = 502.1394562177 m (Average elevation difference of the river basin)
I_{sr} = 37.743799707709 % (Average river basin decline)
H_{leb} = 1145 m (The height of the local erosion base of the river basin)
E_r = 141.46448512192 (Coefficient of the erosion energy of the river basins relief)
S₁ = 0.99076 (Coefficient of the regions permeability)
S₂ = 0.70963407 (Coefficient of the vegetation cover)
W = 1.3236463883403 m (Analytical presentation of the water retention in inflow)
2gDF^{1/2} = 658.83711528714 m km s⁻¹ (Energetic potential of water flow during torrent rains)
Q_{max} = 319.48013469615 m³ s⁻¹ (Maximal outflow from the river basin)
T = 1 (Temperature coefficient of the region)
Z = 0.41989869715635 (Coefficient of the river basin erosion)
W_{god} = 44580.103656996 m³ god⁻¹ (Production of erosion material in the river basin)
R_u = 0.36627697229008 (Coefficient of the deposit retention)
G_{god} = 16328.665391863 m³ god⁻¹ (Real soil losses)
G_{god} km⁻² = 370.61067677185 m³ km⁻² god⁻¹ (Real soil losses per km²)