# Web application for Intensity of Erosion and Outflow

## Name of the River Basin: Rastocki potok

## Country: Montenegro

## Year: 2018

## GPS coordinates, latitude and longitude with Google Maps: 43.014343,19.730621

## INPUT DATA

### Geometric characteristics of the river basins

**F = 3.11484 km$^2$ (Surface area of the drainage basin)**

**O = 9.04999 km (Length of the watershed)**

**Fv = 2.01053 km$^2$ (Surface area of greater portion of the drainage basin)**

**Fm = 1.10431 km$^2$ (Surface area of smaller portion of the drainage basin)**

**Lv = 3.05494 km (Natural length of main water course)**

**Lb = 3.79687 km (Length of the drainage basin measured by a series of paraller lines)**

### Topograpfic characteristics of the river basins

**Contour line length - Liz [km]: ["0.96111 ","2.67691 ","3.95387 ","4.51106 ","3.04726 ","2.8391 ","1.99244 ","1.14 "]**

**The area between the two neighboring contour lines - f [km$^2$]: ["2.80222 ","0.24287 ","0.46999 ","0.5509 ","0.42817 ","0.38134 ","0.36028 ","0.23723 ","0.90068 "]**

**h0 = 600 m (Altitude of the initial contour)**

**▲h = 50 m (Equidistance)**

**Hmin = 552 (Lowest altitude in the drainage basin)**

**Hmax = 983 (Highest altitude in the draigane basin**

## Hydrological characteristics of the river basins

**ΣL = 4.6904 km (The total length of the main watercourse with tributaries of 1st and 2nd class)**

**Lm = 2.80611 km (The shortest distance between the fountain (head and mouth))**

## Water permeability

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

**fpp = 0.0855 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))**

**fo = 0.9145 (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 = 0.449512057 (Part of the surface area of the drainage basin under the forest)**

**ft = 0.409614519 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)**

**fg = 0.140873424 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)**

## Meteorological data

**hb = 157.6 mm (Level of torrent rain)**

**Up (years) = 100**

**to = 8.9 °C (Average annual air temperature)**

**Hgod = 893.3 mm (Average annual quantity of precipitation)**

## Erosion coefficients

**Y = 1.26695 (Types of soil structures and allied types)**

**18.55 % (Sand, gravel and incoherent soils)**

**0 % (Saline soils)**

**0 % (Decomposed limestone and marls)**

**81.45 % (Serpentines, red sand stones, flishe deposits)**

**0 % (Podzols and parapodzols, decomposed schist)**

0 % (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 = 0.519875 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

14.09 % (Plough-lands)

11 % (Orchards and vineyards)

6.52 % (Mountain pastures)

23.44 % (Meadows)

29.22 % (Degraded forests)

15.73 % (Well-constituted forests)

ϕ = 0.270085 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

1.68 % (Depth erosion)

1.49 % (80% of the river basin under rill and gully erosion)

1.3 % (50% of the river basin under rill and gully erosion)

1.12 % (100% of the river basin under surface erosion)

23.44 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.56 % (50% of the river basin under surface erosion)

0.37 % (20% of the river basin under surface erosion)

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

14.09 % (The river basin mostly under plough-land)

55.95 % (The river basin under forests and perennial vegetation)

## INPUT DATA

A = 0.57767028157672 (Coefficient of the river basin form)

m = 0.48829230623438 (Coefficient of the watershed development)

B = 0.82037046303929 km (Average river basin width)

a = 0.58187258414557 ((A)symmetry of the river basin)

G = 1.5058237341244 (Density of the river network of the basin)

**K = 1.0886743570281 (Coefficient of the river basin tortuousness)**

**$H_{sr}$ = 1455.6591799258 m (Average river basin altitude)**

**D = 903.6591799258 m (Average elevation difference of the river basin)**

**$I_{sr}$ = 33.905032040169 % (Average river basin decline)**

**$H_{leb}$ = 431 m (The height of the local erosion base of the river basin)**

**$E_r$ = 103.26864096877 (Coefficient of the erosion energy of the river basins relief)**

**$S_1$ = 0.97435 (Coefficient of the regions permeability)**

**$S_2$ = 0.7382722734 (Coefficient of the vegetation cover)**

**W = 1.7349314679035 m (Analytical presentation of the water retention in inflow)**

**$2gDF^{1/2}$ = 235.00099738342 m km $s^{-1}$ (Energetic potential of water flow during torrent rains)**

**$Q_{max}$ = 169.4195809817 $m^3$ $s^{-1}$ (Maximal outflow from the river basin)**

**T = 0.99498743710662 (Temperature coefficient of the region)**

**Z = 0.56141518924913 (Coefficient of the river basin erosion)**

**$W_{god}$ = 3658.6998684316 $m^3$ $god^{-1}$ (Production of erosion material in the river basin**

**$R_u$ = 0.4381083166953 (Coefficient of the deposit retention)**

**$G_{god}$ = 1602.9068406519 $m^3$ $god^{-1}$ (Real soil losses)**

**$G_{god}$ $km^{-2}$ = 514.60326715077 $m^3$ $km^{-2}$ $god^{-1}$ (Real soil losses per $km^2$)**