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# Web application for Intensity of Erosion and Outflow

**Name of the River Basin: Krivacki potok**

**Country: Montenegro**

**Year: 2018**

**GPS coordinates, latitude and longitude with Google Maps:  
42.663653,19.902088**

## INPUT DATA

### Geometric characteristics of the river basins

**F = 3.07806 km<sup>2</sup> (Surface area of the drainage basin)**

**O = 9.1759 km (Length of the watershed)**

**Fv = 1.74879 km<sup>2</sup> (Surface area of greater portion of the drainage basin)**

**Fm = 1.32927 km<sup>2</sup> (Surface area of smaller portion of the drainage basin)**

**Lv = 2.78414 km (Natural length of main water course)**

**Lb = 4.32931 km (Length of the drainage basin measured by a series of parallel lines)**

### Topographic characteristics of the river basins

**Contour line length - Liz [km]: ["1.45953 ", "1.55601 ", "1.48878 ", "1.33318 ", "1.3085 ", "1.23931 ", "1.1613 ", "1.2656 ", "0.5191 ", "0.30147 ", "0.12045 "]**

**The area between the two neighboring contour lines - f [km<sup>2</sup>]: ["0.27895 ", "0.26845 ", "0.36231 ", "0.34325 ", "0.3416 ", "0.41414 ", "0.31605 ", "0.35195 ", "0.26197 ", "0.08884 ", "0.04375 ", "0.00952 "]**

**h0 = 900 m (Altitude of the initial contour)**

**Δh = 100 m (Equidistance)**

**Hmin = 842 (Lowest altitude in the drainage basin)**

**Hmax = 1988 (Highest altitude in the drainage basin)**

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## Hydrological characteristics of the river basins

$\Sigma L = 2.78414$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

$L_m = 2.60557$  km (The shortest distance between the fountain (head and mouth))

### Water permeability

$f_p = 0.0605$  (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

$f_{pp} = 0.1562$  (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.7833$  (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

$f_s = 0.653552485$  (Part of the surface area of the drainage basin under the forest)

$f_t = 0.296261262$  (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

$f_g = 0.050186253$  (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

$Y = 1.1602$  (Types of soil structures and allied types)

7.06 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

91.27 % (Serpentines, red sand stones, flishe deposits)

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

**1.67 % (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 = 0.307615 (Planning of the drainage basin, rate of drainage basin regulation)**

**0 % (Bare lands)**

**5.02 % (Plough-lands)**

**7.49 % (Orchards and vineyards)**

**0 % (Mountain pastures)**

**22.14 % (Meadows)**

**16.14 % (Degraded forests)**

**49.21 % (Well-constituted forests)**

**$\phi = 0.21321$  (Numerical coefficient of visible and clearly pointed processes of soil erosion)**

**0 % (Depth erosion)**

**0 % (80% of the river basin under rill and gully erosion)**

**0 % (50% of the river basin under rill and gully erosion)**

**0 % (100% of the river basin under surface erosion)**

**22.14 % (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)**

**5.02 % (The river basin mostly under plough-land)**

**72.84 % (The river basin under forests and perennial vegetation)**

## **INPUT DATA**

**A = 0.64267619444424 (Coefficient of the river basin form)**

**m = 0.44765928560151 (Coefficient of the watershed development)**

**B = 0.71098165758516 km (Average river basin width)**

**a = 0.27258727900041 ((A)symmetry of the river basin)**

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**G = 0.9045112830809 (Density of the river network of the basin)**  
**K = 1.0685339484259 (Coefficient of the river basin tortuousness)**  
**H<sub>sr</sub> = 1283.3423747425 m (Average river basin altitude)**  
**D = 441.3423747425 m (Average elevation difference of the river basin)**  
**I<sub>sr</sub> = 38.18388855318 % (Average river basin decline)**  
**H<sub>leb</sub> = 1146 m (The height of the local erosion base of the river basin)**  
**E<sub>r</sub> = 275.40097575211 (Coefficient of the erosion energy of the river basins relief)**  
**S<sub>1</sub> = 0.91684 (Coefficient of the regions permeability)**  
**S<sub>2</sub> = 0.6793267536 (Coefficient of the vegetation cover)**  
**W = 1.1204169188381 m (Analytical presentation of the water retention in inflow)**  
**2gDF<sup>1/2</sup> = 163.25852027443 m km s<sup>-1</sup> (Energetic potential of water flow during torrent rains)**  
**Q<sub>max</sub> = 73.218360258248 m<sup>3</sup> s<sup>-1</sup> (Maximal outflow from the river basin)**  
**T = 0.95393920141695 (Temperature coefficient of the region)**  
**Z = 0.29663005078001 (Coefficient of the river basin erosion)**  
**W<sub>god</sub> = 1761.9681707672 m<sup>3</sup> god<sup>-1</sup> (Production of erosion material in the river basin)**  
**R<sub>u</sub> = 0.31482602601334 (Coefficient of the deposit retention)**  
**G<sub>god</sub> = 554.71343716462 m<sup>3</sup> god<sup>-1</sup> (Real soil losses)**  
**G<sub>god</sub> km<sup>-2</sup> = 180.21527753345 m<sup>3</sup> km<sup>-2</sup> god<sup>-1</sup> (Real soil losses per km<sup>2</sup>)**