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# Web application for Intensity of Erosion and Outflow

**Name of the River Basin: Pisevska rijeka**

**Country: Montenegro**

**Year: 2018**

**GPS coordinates, latitude and longitude with Google Maps:  
42.713853,19.841359**

## INPUT DATA

### Geometric characteristics of the river basins

**F = 13.1774 km<sup>2</sup> (Surface area of the drainage basin)**

**O = 17.67563 km (Length of the watershed)**

**Fv = 8.13781 km<sup>2</sup> (Surface area of greater portion of the drainage basin)**

**Fm = 5.03959 km<sup>2</sup> (Surface area of smaller portion of the drainage basin)**

**Lv = 4.29066 km (Natural length of main water course)**

**Lb = 7.73623 km (Length of the drainage basin measured by a series of parallel lines)**

### Topographic characteristics of the river basins

**Contour line length - Liz [km]: ["2.74605 ", "4.20528 ", "5.27618 ", "5.71525 ", "6.62818 ", "7.15637 ", "7.99406 ", "8.38899 ", "5.47760 ", "3.73894 ", "2.56524 ", "1.73568 "]**

**The area between the two neighboring contour lines - f [km<sup>2</sup>]: ["0.34733 ", "0.85915 ", "0.85252 ", "1.06944 ", "1.28883 ", "1.26091 ", "1.48741 ", "1.50505 ", "1.80966 ", "1.01645 ", "0.81578 ", "0.45640 ", "0.40846 "]**

**h0 = 800 m (Altitude of the initial contour)**

**Δh = 100 m (Equidistance)**

**Hmin = 775 (Lowest altitude in the drainage basin)**

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

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## Hydrological characteristics of the river basins

$\Sigma L = 4.29066$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

$L_m = 3.86715$  km (The shortest distance between the fountain (head and mouth))

### Water permeability

$f_p = 0.1694$  (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

$f_{pp} = 0.0949$  (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.7357$  (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

$f_s = 0.554404007$  (Part of the surface area of the drainage basin under the forest)

$f_t = 0.419556599$  (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

$f_g = 0.026039393$  (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

$Y = 1.14458$  (Types of soil structures and allied types)

7.82 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

79.28 % (Serpentines, red sand stones, flishe deposits)

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

**12.9 % (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 = 0.34176 (Planning of the drainage basin, rate of drainage basin regulation)**

**0 % (Bare lands)**

**2.6 % (Plough-lands)**

**1.69 % (Orchards and vineyards)**

**25.37 % (Mountain pastures)**

**14.9 % (Meadows)**

**12.18 % (Degraded forests)**

**43.26 % (Well-constituted forests)**

**$\phi = 0.35404$  (Numerical coefficient of visible and clearly pointed processes of soil erosion)**

**6.52 % (Depth erosion)**

**5.8 % (80% of the river basin under rill and gully erosion)**

**5.07 % (50% of the river basin under rill and gully erosion)**

**4.35 % (100% of the river basin under surface erosion)**

**14.9 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)**

**2.17 % (50% of the river basin under surface erosion)**

**1.45 % (20% of the river basin under surface erosion)**

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

**2.6 % (The river basin mostly under plough-land)**

**57.13 % (The river basin under forests and perennial vegetation)**

## **INPUT DATA**

**A = 0.80331414048188 (Coefficient of the river basin form)**

**m = 0.33342971790941 (Coefficient of the watershed development)**

**B = 1.7033361210822 km (Average river basin width)**

**a = 0.47023236753836 ((A)symmetry of the river basin)**

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**G = 0.32560747947243 (Density of the river network of the basin)**  
**K = 1.109514758931 (Coefficient of the river basin tortuousness)**  
**H<sub>sr</sub> = 1345.7389633008 m (Average river basin altitude)**  
**D = 570.7389633008 m (Average elevation difference of the river basin)**  
**I<sub>sr</sub> = 46.767814591649 % (Average river basin decline)**  
**H<sub>leb</sub> = 1213 m (The height of the local erosion base of the river basin)**  
**E<sub>r</sub> = 202.65321400665 (Coefficient of the erosion energy of the river basins relief)**  
**S<sub>1</sub> = 0.86989 (Coefficient of the regions permeability)**  
**S<sub>2</sub> = 0.6943270764 (Coefficient of the vegetation cover)**  
**W = 1.3625870161202 m (Analytical presentation of the water retention in inflow)**  
**2gDF<sup>1/2</sup> = 384.13433479227 m km s<sup>-1</sup> (Energetic potential of water flow during torrent rains)**  
**Q<sub>max</sub> = 253.95760641893 m<sup>3</sup> s<sup>-1</sup> (Maximal outflow from the river basin)**  
**T = 1 (Temperature coefficient of the region)**  
**Z = 0.40600096959969 (Coefficient of the river basin erosion)**  
**W<sub>god</sub> = 12676.864712869 m<sup>3</sup> god<sup>-1</sup> (Production of erosion material in the river basin)**  
**R<sub>u</sub> = 0.44451244148543 (Coefficient of the deposit retention)**  
**G<sub>god</sub> = 5635.0240838979 m<sup>3</sup> god<sup>-1</sup> (Real soil losses)**  
**G<sub>god</sub> km<sup>-2</sup> = 427.62791475541 m<sup>3</sup> km<sup>-2</sup> god<sup>-1</sup> (Real soil losses per km<sup>2</sup>)**

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<http://www.wintero.me>