# Web application for Intensity of Erosion and Outflow

Name of the River Basin: Krivaja

**Country: Montenegro** 

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.824718,19.865157

# **INPUT DATA**

#### Geometric characteristics of the river basins

 $F = 9.06427 \text{ km}^2$  (Surface area of the drainage basin)

O = 18.83541 km (Length of the watershed)

 $Fv = 6.52389 \text{ km}^2$  (Surface area of greater portion of the drainage basin)

Fm = 2.54038 km<sup>2</sup> (Surface area of smaller portion of the drainage basin)

Lv = 7.39243 km (Natural length of main water course)

Lb = 6.30663 km (Length of the drainage basin measured by a series of paraller lines)

# **Topograpfic characteristics of the river basins**

Contour line length - Liz [km]: ["2.98027 ","3.45141 ","3.09451 ","3.40738 ","1.63245 ","1.73714 ","1.68626 ","1.49858 ","1.57264 ","1.62960 "]

The area between the two neighboring contour lines - f [km²]: ["2.47668 ","1.77392 ","1.09381 ","1.02734 ","0.79795 ","0.37830 ","0.30285 ","0.31578 ","0.24904 ","0.30478 ","0.34385 "]

h0 = 700 m (Altitude of the initial contour)

 $\Delta h = 100 \text{ m (Equidistance)}$ 

Hmin = 691 (Lowest altitude in the drainage basin)

Hmax = 1650 (Highest altitude in the draigane basin

# Hydrological characteristics of the river basins

 $\Sigma L = 8.44057$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

Lm = 6.99319 km (The shortest distance between the fountain (head and mouth))

## Water permeability

fp = 0.2659 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.5604 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.1737 (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 = 0.653931210 (Part of the surface area of the drainage basin under the forest)

ft = 0.309242057 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.036826733 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

#### Meteorological data

**hb** = 115 mm (Level of torrent rain)

Up (years) = 100

to = 9.0 °C (Average annual air temperature)

**Hgod = 944.3 mm (Average annual quantity of precipitation)** 

#### **Erosion coefficients**

Y = 1.33134 (Types of soil structures and allied types)

28.6 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

58.37 % (Serpentines, red sand stones, flishe deposits)

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0 % (Podzols and parapodzols, decomposed schist)
13.03 % (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 = 0.43872 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
3.68 % (Plough-lands)
4.2 % (Orchards and vineyards)
10.4 % (Mountain pastures)
16.32 % (Meadows)
39.24 % (Degraded forests)
26.16 % (Well-constituted forests)
\phi = 0.25648 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
2.67 % (Depth erosion)
2.38 % (80% of the river basin under rill and gully erosion)
2.08 % (50% of the river basin under rill and gully erosion)
1.78 % (100% of the river basin under surface erosion)
16.32 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
0.89 % (50% of the river basin under surface erosion)
0.59 % (20% of the river basin under surface erosion)
0 % (There are smaller slides in the watercourse beds)
3.68 % (The river basin mostly under plough-land)
69.6 % (The river basin under forests and perennial vegetation)
INPUT DATA
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A = 0.49684676757169 (Coefficient of the river basin form)

m = 0.69265324320911 (Coefficient of the watershed development)

**B** = 1.4372604703304 km (Average river basin width)

a = 0.87894778068173 ((A)symmetry of the river basin)

 $\overline{G}$  = 0.93119137007172 (Density of the river network of the basin) K = 1.0570898259593 (Coefficient of the river basin tortuousness)  $H_{sr}$  = 929.88334306017 m (Average river basin altitude)

D = 238.88334306017 m (Average elevation difference of the river basin)

 $I_{sr} = 25.032617077823 \%$  (Average river basin decline)

 $H_{leb}$  = 959 m (The height of the local erosion base of the river basin)

 $E_r = 175.92822707776$  (Coefficient of the erosion energy of the river basins relief)

 $S_1 = 0.67234$  (Coefficient of the regions permeability)

 $S_2 = 0.6765791046$  (Coefficient of the vegetation cover)

W = 1.3402478688542 m (Analytical presentation of the water retention in inflow)

 $2gDF^{1/2} = 206.11464580277 \text{ m km s}^{-1}$  (Energetic potential of water flow during torrent rains)

 $Q_{max} = 62.434404984637 \text{ m}^3 \text{ s}^{-1}$  (Maximal outflow from the river basin)

**T = 1 (Temperature coefficient of the region)** 

Z = 0.44203943705981 (Coefficient of the river basin erosion)

 $W_{god} = 7902.8587842721 \text{ m}^3 \text{ god}^{-1}$  (Production of erosion material in the river basin

 $R_u = 0.24392156888443$  (Coefficient of the deposit retention)

 $G_{god} = 1927.6777133318 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$ 

 $G_{god} \text{ km}^{-2} = 212.66772871194 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$ 

http://www.wintero.me