# Web application for Intensity of Erosion and Outflow

Name of the River Basin: Radulicka rijeka

**Country: Montenegro** 

**Year: 2018** 

GPS coordinates, latitude and longitude with Google Maps: 42.965364,19.822026

## **INPUT DATA**

#### Geometric characteristics of the river basins

 $F = 40.23096 \text{ km}^2$  (Surface area of the drainage basin)

O = 29.8793 km (Length of the watershed)

 $Fv = 27.78336 \text{ km}^2$  (Surface area of greater portion of the drainage basin)

 $Fm = 12.4476 \text{ km}^2$  (Surface area of smaller portion of the drainage basin)

Lv = 8.46906 km (Natural length of main water course)

Lb = 12.16551 km (Length of the drainage basin measured by a series of paraller lines)

### **Topograpfic characteristics of the river basins**

Contour line length - Liz [km]: ["20.14833 ","33.17354 ","30.38447 ","14.58891 ","9.80364 ","7.63453 ","2.80515 "]

The area between the two neighboring contour lines - f [km²]: ["4.88120 ","9.81131 ","9.50161 ","7.45868 ","3.61518 ","2.96913 ","1.60158 ","0.39228 "]

h0 = 700 m (Altitude of the initial contour)

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

Hmin = 619 (Lowest altitude in the drainage basin)

Hmax = 1356 (Highest altitude in the draigane basin

## Hydrological characteristics of the river basins

 $\Sigma L = 12.37249$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

Lm = 7.0783 km (The shortest distance between the fountain (head and mouth))

#### Water permeability

fp = 0.1025 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1193 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7782 (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 = 0.498684400 (Part of the surface area of the drainage basin under the forest)

ft = 0.352763084 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.148552517 (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 = 983.7 mm (Average annual quantity of precipitation)

#### **Erosion coefficients**

Y = 1.14102 (Types of soil structures and allied types)

5.1 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

92.46 % (Serpentines, red sand stones, flishe deposits)

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0 % (Podzols and parapodzols, decomposed schist)
2.44 % (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 = 0.508745 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
14.86 % (Plough-lands)
1.89 % (Orchards and vineyards)
19.36 % (Mountain pastures)
14.03 % (Meadows)
29.92 % (Degraded forests)
19.95 % (Well-constituted forests)
\phi = 0.31364 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
4.98 % (Depth erosion)
4.42 % (80% of the river basin under rill and gully erosion)
3.87 % (50% of the river basin under rill and gully erosion)
3.32 % (100% of the river basin under surface erosion)
14.03 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
1.66 % (50% of the river basin under surface erosion)
1.11 % (20% of the river basin under surface erosion)
0 % (There are smaller slides in the watercourse beds)
14.86 % (The river basin mostly under plough-land)
51.76 % (The river basin under forests and perennial vegetation)
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#### **INPUT DATA**

A = 0.68797050676226 (Coefficient of the river basin form)

m = 0.376660500986 (Coefficient of the watershed development)

**B** = 3.3069686351004 km (Average river basin width)

a = 0.76238598333224 ((A)symmetry of the river basin)

G = 0.30753653405238 (Density of the river network of the basin)

**K = 1.1964822061795 (Coefficient of the river basin tortuousness)** 

 $H_{sr}$  = 881.73659639243 m (Average river basin altitude)

D = 262.73659639243 m (Average elevation difference of the river basin)

 $I_{sr} = 29.46451439389 \%$  (Average river basin decline)

 $H_{leb}$  = 737 m (The height of the local erosion base of the river basin)

 $E_r = 93.14885399898$  (Coefficient of the erosion energy of the river basins relief)

 $S_1 = 0.90271$  (Coefficient of the regions permeability)

 $S_2 = 0.7299736242$  (Coefficient of the vegetation cover)

W = 1.6799766814581 m (Analytical presentation of the water retention in inflow)

 $2gDF^{1/2} = 455.39681016669 \text{ m km s}^{-1}$  (Energetic potential of water flow during torrent rains)

 $Q_{max} = 346.83145682303 \text{ m}^3 \text{ s}^{-1}$  (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.49716044480634 (Coefficient of the river basin erosion)

 $W_{god} = 43364.604433765 \text{ m}^3 \text{ god}^{-1}$  (Production of erosion material in the river basin

 $R_u = 0.3034105639269$  (Coefficient of the deposit retention)

 $G_{god} = 13157.279085716 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$ 

 $G_{god} \text{ km}^{-2} = 327.04362723922 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$ 

http://www.wintero.me