# Web application for Intensity of Erosion and Outflow

Name of the River Basin: Uvezacki potok

**Country: Montenegro** 

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.983814,19.76365

# **INPUT DATA**

#### Geometric characteristics of the river basins

 $F = 8.75632 \text{ km}^2$  (Surface area of the drainage basin)

O = 14.52221 km (Length of the watershed)

 $Fv = 5.55147 \text{ km}^2$  (Surface area of greater portion of the drainage basin)

Fm = 3.20485 km<sup>2</sup> (Surface area of smaller portion of the drainage basin)

Lv = 1.35435 km (Natural length of main water course)

Lb = 6.00371 km (Length of the drainage basin measured by a series of paraller lines)

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

Contour line length - Liz [km]: ["8.13329 ","9.01899 ","9.60111 ","5.81637 ","1.53708 "]

The area between the two neighboring contour lines - f [km²]: ["1.71501 ","1.88908 ","2.36487 ","1.68284 ","0.96118 ","0.14334 "]

h0 = 600 m (Altitude of the initial contour)

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

**Hmin = 586 (Lowest altitude in the drainage basin)** 

Hmax = 1018 (Highest altitude in the draigane basin

# Hydrological characteristics of the river basins

 $\Sigma L = 1.35435$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

Lm = 1.27769 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 = 0.0753 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.9247 (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 = 0.569872890 (Part of the surface area of the drainage basin under the forest)

ft = 0.360011498 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.070115612 (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 = 1.27478 (Types of soil structures and allied types)

19.42 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

80.58 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

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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 = 0.487455 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
7.01 % (Plough-lands)
11.11 % (Orchards and vineyards)
7.43 % (Mountain pastures)
17.45 % (Meadows)
37.04 % (Degraded forests)
19.95 % (Well-constituted forests)
\phi = 0.242995 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
1.91 % (Depth erosion)
1.7 % (80% of the river basin under rill and gully erosion)
1.49 % (50% of the river basin under rill and gully erosion)
1.27 % (100% of the river basin under surface erosion)
17.45 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
0.64 % (50% of the river basin under surface erosion)
0.42 % (20% of the river basin under surface erosion)
0 % (There are smaller slides in the watercourse beds)
7.01 % (The river basin mostly under plough-land)
68.11 % (The river basin under forests and perennial vegetation)
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### **INPUT DATA**

A = 2.090915162255 (Coefficient of the river basin form)

m = 0.12911157167461 (Coefficient of the watershed development)

**B** = 1.4584848368759 km (Average river basin width)

a = 0.53598315273996 ((A)symmetry of the river basin)

G = 0.15467114038774 (Density of the river network of the basin)

K = 1.0599989042726 (Coefficient of the river basin tortuousness)

H<sub>sr</sub> = 743.088476666 m (Average river basin altitude)

D = 157.088476666 m (Average elevation difference of the river basin)

I<sub>sr</sub> = 38.951111882617 % (Average river basin decline)

H<sub>leb</sub> = 432 m (The height of the local erosion base of the river basin)

E<sub>r</sub> = 79.938034920789 (Coefficient of the erosion energy of the river basins relief)

S<sub>1</sub> = 0.97741 (Coefficient of the regions permeability)

S<sub>2</sub> = 0.7000485444 (Coefficient of the vegetation cover)

W = 1.7625464499834 m (Analytical presentation of the water retention in inflow)

2gDF<sup>1/2</sup> = 164.27916164688 m km s<sup>-1</sup> (Energetic potential of water flow during torrent rains)

Q<sub>max</sub> = 414.25179211989 m<sup>3</sup> s<sup>-1</sup> (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.53881613106985 (Coefficient of the river basin erosion)

W<sub>god</sub> = 9670.4639924939 m<sup>3</sup> god<sup>-1</sup> (Production of erosion material in the river basin

R<sub>u</sub> = 0.26604569682508 (Coefficient of the deposit retention)

 $G_{god} = 2572.7853315048 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$ 

 $G_{god} \text{ km}^{-2} = 293.82038704671 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2)$ 

http://www.wintero.me