# Web application for Intensity of Erosion and Outflow

Name of the River Basin: Sliv Seockog potoka

**Country: Montenegro** 

**Year: 2018** 

GPS coordinates, latitude and longitude with Google Maps: 42.931179,19.853992

# **INPUT DATA**

#### Geometric characteristics of the river basins

 $F = 6.84925 \text{ km}^2$  (Surface area of the drainage basin)

O = 11.19337 km (Length of the watershed)

 $Fv = 4.85049 \text{ km}^2$  (Surface area of greater portion of the drainage basin)

Fm = 1.99876 km<sup>2</sup> (Surface area of smaller portion of the drainage basin)

Lv = 1.63664 km (Natural length of main water course)

Lb = 4.36078 km (Length of the drainage basin measured by a series of paraller lines)

# **Topograpfic characteristics of the river basins**

Contour line length - Liz [km]: ["3.97953 ","3.98426 ","3.79276 ","3.54904 ","2.24257 ","2.09055 ","0.20457 "]

The area between the two neighboring contour lines - f [km²]: ["1.39718 ","0.95068 ","1.26481 ","1.04352 ","0.86878 ","0.72280 ","0.59109 ","0.01039 "]

h0 = 700 m (Altitude of the initial contour)

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

Hmin = 649 (Lowest altitude in the drainage basin)

Hmax = 1318 (Highest altitude in the draigane basin

# Hydrological characteristics of the river basins

 $\Sigma L = 2.33664$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

Lm = 1.39107 km (The shortest distance between the fountain (head and mouth))

# Water permeability

fp = 0.3868 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1983 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.4149 (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 = 0.598511436 (Part of the surface area of the drainage basin under the forest)

ft = 0.308099763 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.093388801 (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 = 1.15738 (Types of soil structures and allied types)** 

9.72 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

75.23 % (Serpentines, red sand stones, flishe deposits)

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0 % (Podzols and parapodzols, decomposed schist)
15.05 % (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 = 0.4601 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
9.34 % (Plough-lands)
1.37 % (Orchards and vineyards)
10.63 % (Mountain pastures)
18.81 % (Meadows)
35.91 % (Degraded forests)
23.94 % (Well-constituted forests)
\phi = 0.27342 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
2.73 % (Depth erosion)
2.43 % (80% of the river basin under rill and gully erosion)
2.13 % (50% of the river basin under rill and gully erosion)
1.82 % (100% of the river basin under surface erosion)
18.81 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
0.91 % (50% of the river basin under surface erosion)
0.61 % (20% of the river basin under surface erosion)
0 % (There are smaller slides in the watercourse beds)
9.34 % (The river basin mostly under plough-land)
61.22 % (The river basin under forests and perennial vegetation)
INPUT DATA
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A = 1.3336513527715 (Coefficient of the river basin form)

m = 0.17641142986201 (Coefficient of the watershed development)

**B** = 1.5706479116121 km (Average river basin width)

a = 0.83271307077417 ((A)symmetry of the river basin)

G = 0.34115268095047 (Density of the river network of the basin) K = 1.1765331723062 (Coefficient of the river basin tortuousness)  $H_{sr} = 907.79901741067 \text{ m (Average river basin altitude)}$  D = 258.79901741067 m (Average elevation difference of the river basin)  $I_{sr} = 28.971464028908 \text{ % (Average river basin decline)}$   $H_{leb} = 669 \text{ m (The height of the local erosion base of the river basin)}$   $E_r = 131.63321556725 \text{ (Coefficient of the erosion energy of the river basins relief)}$   $S_1 = 0.70843 \text{ (Coefficient of the regions permeability)}$   $S_2 = 0.698975473 \text{ (Coefficient of the vegetation cover)}$  W = 1.7570833937341 m (Analytical presentation of the water retention in inflow)  $2gDF^{1/2} = 186.48861443906 \text{ m km s}^{-1} \text{ (Energetic potential of water flow during torrent rains)}$   $Q_{max} = 216.39433493065 \text{ m}^3 \text{ s}^{-1} \text{ (Maximal outflow from the river basin)}$ 

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.43222360885981 (Coefficient of the river basin erosion)

 $W_{god} = 5984.610463091 \text{ m}^3 \text{ god}^{-1}$  (Production of erosion material in the river basin

 $R_u = 0.29252577473233$  (Coefficient of the deposit retention)

 $G_{qod} = 1750.6528121869 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$ 

 $G_{god}$  km<sup>-2</sup> = 255.59773875781 m<sup>3</sup> km<sup>-2</sup> god<sup>-1</sup> (Real soil losses per km<sup>2</sup>)

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