# Web application for Intensity of Erosion and Outflow

# Name of the River Basin: Polimlje

# **Country: Serbia**

## Year: 2018

# GPS coordinates, latitude and longitude with Google Maps: 43.522647,19.576901

### **INPUT DATA**

### Geometric characteristics of the river basins

F = 2900 km<sup>2</sup> (Surface area of the drainage basin)
O = 346 km (Length of the watershed)
Fv = 1563 km<sup>2</sup> (Surface area of greater portion of the drainage basin)
Fm = 1337 km<sup>2</sup> (Surface area of smaller portion of the drainage basin)
Lv = 149 km (Natural length of main water course)
Lb = 160 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 ","107.818 ","380.0972 ","690.2956 ","835.9832 ","947.6948 ","936.9316 ","989.3216 ","778.286 ","695.4044 ","627.1052 ","519.7708 ","417.198 ","364.3988 ","207.4 ","122.39 ","48.68 ","18.9 ","5.66 ","1.16 "]

The area between the two neighboring contour lines - f [km<sup>2</sup>]: ["384.914 ","34.279 ","114.86 ","182.351 ","223.497 ","244.387 ","245.143 ","286.661 ","272.826 ","206.699 ","188.871 ","156.713 ","116.831 ","100.169 ","66.405 ","42.341 ","21.315 ","7.498 ","3.349 ","0.6 ","0.29 "]

h0 = 500 m (Altitude of the initial contour)

Ah = 100 m (Equidistance)

Hmin = 436 (Lowest altitude in the drainage basin)

Hmax = 2461 (Highest altitude in the draigane basin

#### Hydrological characteristics of the river basins

 $\Sigma L = 1150$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class) Lm = 122 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 = 0.14 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.86 (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 = 0.52930 (Part of the surface area of the drainage basin under the forest)

ft = 0.39540 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.07520 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

#### Meteorological data

hb = 62.3 mm (Level of torrent rain)

Up (years) = 100

to = 8.5 °C (Average annual air temperature)

Hgod = 873 mm (Average annual quantity of precipitation)

#### **Erosion coefficients**

Y = 1.02122 (Types of soil structures and allied types)

9.48 % (Sand, gravel and incoherent soils)

1.72 % (Saline soils)

1.03 % (Decomposed limestone and marls)

44.48 % (Serpentines, red sand stones, flishe deposits)

2.59 % (Podzols and parapodzols, decomposed schist)
9.66 % (Solid and Schist limestone, Terra Rosa and Humic soil)
11.72 % (Brown forest soils and Mountain soils)
6.21 % (Epieugleysol and Marshlands)
10.34 % (Good structured Chernozems and alluvial well-structured deposits)
2.76 % (Bare, compact igneous)

Xa = 0.422465 (Planning of the drainage basin, rate of drainage basin regulation)

0.17 % (Bare lands)
7.35 % (Plough-lands)
2.94 % (Orchards and vineyards)
18.93 % (Mountain pastures)
17.67 % (Meadows)
22.42 % (Degraded forests)
30.51 % (Well-constituted forests)

 $\phi$  = 0.323285 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

4.02 % (Depth erosion)

3.97 % (80% of the river basin under rill and gully erosion)

3.55 % (50% of the river basin under rill and gully erosion)

2.97 % (100% of the river basin under surface erosion)

19.97 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.7 % (50% of the river basin under surface erosion)

1.05 % (20% of the river basin under surface erosion)

0.31 % (There are smaller slides in the watercourse beds)

7.23 % (The river basin mostly under plough-land)

55.23 % (The river basin under forests and perennial vegetation)

### **INPUT DATA**

A = 0.45281879194631 (Coefficient of the river basin form)

m = 0.78051694757089 (Coefficient of the watershed development)

- B = 18.125 km (Average river basin width)
- a = 0.15586206896552 ((A)symmetry of the river basin)

G = 0.39655172413793 (Density of the river network of the basin)

K = 1.2213114754098 (Coefficient of the river basin tortuousness)

H<sub>sr</sub> = 1103.2440506897 m (Average river basin altitude)

D = 667.2440506897 m (Average elevation difference of the river basin)

I<sub>sr</sub> = 30.049983448276 % (Average river basin decline)

 $H_{leb}$  = 2025 m (The height of the local erosion base of the river basin)

 $E_r = 87.836628057213$  (Coefficient of the erosion energy of the river basins relief)

S<sub>1</sub> = 0.958 (Coefficient of the regions permeability)

S<sub>2</sub> = 0.7091 (Coefficient of the vegetation cover)

W = 0.62097109554194 m (Analytical presentation of the water retention in inflow)

 $2gDF^{1/2} = 6161.5624638676 \text{ m km s}^{-1}$  (Energetic potential of water flow during torrent rains)

 $Q_{max} = 1176.9545094685 \text{ m}^3 \text{ s}^{-1}$  (Maximal outflow from the river basin)

T = 0.9746794344809 (Temperature coefficient of the region)

Z = 0.37597530829481 (Coefficient of the river basin erosion)

 $W_{god} = 1787157.8090074 \text{ m}^3 \text{ god}^{-1}$  (Production of erosion material in the river basin

R<sub>u</sub> = 0.19112314172951 (Coefficient of the deposit retention)

G<sub>god</sub> = 341567.21522393 m<sup>3</sup> god<sup>-1</sup> (Real soil losses)

 $G_{god}$  km<sup>-2</sup> = 117.78179835308 m<sup>3</sup> km<sup>-2</sup> god<sup>-1</sup> (Real soil losses per km<sup>2</sup>)

http://www.wintero.me