# Web application for Intensity of Erosion and Outflow

Name of the River Basin: Pepicka rijeka

**Country: Montenegro** 

**Year: 2018** 

GPS coordinates, latitude and longitude with Google Maps: 42.655985,19.90641

### **INPUT DATA**

### Geometric characteristics of the river basins

 $F = 8.37729 \text{ km}^2$  (Surface area of the drainage basin)

O = 14.87242 km (Length of the watershed)

Fv = 5.16713 km<sup>2</sup> (Surface area of greater portion of the drainage basin)

Fm = 3.21016 km<sup>2</sup> (Surface area of smaller portion of the drainage basin)

Lv = 5.49795 km (Natural length of main water course)

Lb = 6.40713 km (Length of the drainage basin measured by a series of paraller lines)

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

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Contour line length - Liz [km]: ["2.63084 ","3.34422 ","3.84844 ","4.23396 ","3.89224 ","2.95327 ","2.6569 ","2.9065 ","3.0454 ","3.16974 ","1.95251 ","1.25336 ","0.25212 ","0.10000 "]
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The area between the two neighboring contour lines - f [km²]: ["1.36782 ","0.66695 ","0.77565 ","0.8747 ","0.9344 ","0.78505 ","0.55176 ","0.58917 ","0.46316 ","0.49859 ","0.45822 ","0.29376 ","0.09634 ","0.02062 ","0.10000 "]

h0 = 900 m (Altitude of the initial contour)

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

**Hmin = 845 (Lowest altitude in the drainage basin)** 

Hmax = 2211 (Highest altitude in the draigane basin

# Hydrological characteristics of the river basins

 $\Sigma L = 5.49795$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> class)

Lm = 4.35858 km (The shortest distance between the fountain (head and mouth))

## Water permeability

fp = 0.1357 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1629 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7014 (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 = 0.583741637 (Part of the surface area of the drainage basin under the forest)

ft = 0.408709233 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.007549130 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

### Meteorological data

hb = 89.4 mm (Level of torrent rain)

Up (years) = 100

to = 8.1 °C (Average annual air temperature)

**Hgod = 1182.3 mm (Average annual quantity of precipitation)** 

### **Erosion coefficients**

**Y = 1.19581 (Types of soil structures and allied types)** 

15.55 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

62.38 % (Serpentines, red sand stones, flishe deposits)

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0 % (Podzols and parapodzols, decomposed schist)
22.07 % (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 = 0.34533 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
0.74 % (Plough-lands)
0.61 % (Orchards and vineyards)
24.01 % (Mountain pastures)
15.45 % (Meadows)
17.99 % (Degraded forests)
41.2 % (Well-constituted forests)
\phi = 0.351375 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
6.3 % (Depth erosion)
5.6 % (80% of the river basin under rill and gully erosion)
4.9 % (50% of the river basin under rill and gully erosion)
4.2 % (100% of the river basin under surface erosion)
15.76 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
2.1 % (50% of the river basin under surface erosion)
1.4 % (20% of the river basin under surface erosion)
0 % (There are smaller slides in the watercourse beds)
0.75 % (The river basin mostly under plough-land)
58.99 % (The river basin under forests and perennial vegetation)
INPUT DATA
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A = 0.52749150137779 (Coefficient of the river basin form)

m = 0.53585104128542 (Coefficient of the watershed development)

**B** = 1.307494931428 km (Average river basin width)

a = 0.46720836929365 ((A)symmetry of the river basin)

**G** = 0.65629218995642 (Density of the river network of the basin) K = 1.2614085321366 (Coefficient of the river basin tortuousness)  $H_{sr} = 1325.9790994462 \text{ m}$  (Average river basin altitude) D = 480.9790994462 m (Average elevation difference of the river basin)  $I_{sr} = 43.259216285935 \%$  (Average river basin decline)  $H_{leb}$  = 1366 m (The height of the local erosion base of the river basin)  $E_r = 255.57886620057$  (Coefficient of the erosion energy of the river basins relief)  $S_1 = 0.86971$  (Coefficient of the regions permeability)  $S_2 = 0.6847614986$  (Coefficient of the vegetation cover) W = 1.1022813277418 m (Analytical presentation of the water retention in inflow)  $2gDF^{1/2} = 281.16702059095 \text{ m km s}^{-1}$  (Energetic potential of water flow during torrent rains)  $Q_{max} = 97.361239418983 \text{ m}^3 \text{ s}^{-1}$  (Maximal outflow from the river basin) T = 0.95393920141695 (Temperature coefficient of the region)

Z = 0.41670376056399 (Coefficient of the river basin erosion)

 $W_{god} = 7984.411986772 \text{ m}^3 \text{ god}^{-1}$  (Production of erosion material in the river basin

 $R_u = 0.34515141916523$  (Coefficient of the deposit retention)

 $G_{god} = 2755.8311284342 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$ 

 $G_{god}$  km<sup>-2</sup> = 328.96451339684 m<sup>3</sup> km<sup>-2</sup> god<sup>-1</sup> (Real soil losses per km<sup>2</sup>)

http://www.wintero.me