Web application for Intensity of Erosion and Outflow

Name of the River Basin: Bioricki potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.955118,19.852719

INPUT DATA

Geometric characteristics of the river basins

 $F = 6.11104 \text{ km}^2$ (Surface area of the drainage basin)

O = 10.73429 km (Length of the watershed)

 $Fv = 3.93309 \text{ km}^2$ (Surface area of greater portion of the drainage basin)

Fm = 2.17795 km² (Surface area of smaller portion of the drainage basin)

Lv = 2.09035 km (Natural length of main water course)

Lb = 4.39401 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.88744 ","3.43353 ","3.45258 ","3.81288 ","1.84804 ","0.37191 "]

The area between the two neighboring contour lines - f [km 2]: ["1.06843 ","1.12483 ","1.07040 ","1.17339 ","1.22806 ","0.41565 ","0.03029 "]

h0 = 700 m (Altitude of the initial contour)

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

Hmin = 622 (Lowest altitude in the drainage basin)

Hmax = 1218 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

 $\Sigma L = 2.09035$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 1.98406 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.0708 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1563 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7729 (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 = 0.474517649 (Part of the surface area of the drainage basin under the forest)

ft = 0.355936095 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.169546257 (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 = 1.14373 (Types of soil structures and allied types)

6.01 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

88.81 % (Serpentines, red sand stones, flishe deposits)

```
0 % (Podzols and parapodzols, decomposed schist)
5.18 % (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 = 0.50327 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
16.95 % (Plough-lands)
2.95 % (Orchards and vineyards)
9.6 % (Mountain pastures)
23.04 % (Meadows)
28.47 % (Degraded forests)
18.98 % (Well-constituted forests)
\phi = 0.291135 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
2.47 % (Depth erosion)
2.19 % (80% of the river basin under rill and gully erosion)
1.92 % (50% of the river basin under rill and gully erosion)
1.65 % (100% of the river basin under surface erosion)
23.04 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
0.82 % (50% of the river basin under surface erosion)
0.55 % (20% of the river basin under surface erosion)
0 % (There are smaller slides in the watercourse beds)
16.95 % (The river basin mostly under plough-land)
50.4 % (The river basin under forests and perennial vegetation)
INPUT DATA
```

A = 1.0013569737125 (Coefficient of the river basin form)

m = 0.23853741774346 (Coefficient of the watershed development)

B = 1.3907660656212 km (Average river basin width)

a = 0.57441613866052 ((A)symmetry of the river basin)

G = 0.3420612530764 (Density of the river network of the basin)
K = 1.0535719685897 (Coefficient of the river basin tortuousness)

 H_{sr} = 880.1278243965 m (Average river basin altitude)

D = 258.1278243965 m (Average elevation difference of the river basin)

 $I_{sr} = 25.865286432424 \%$ (Average river basin decline)

 H_{leb} = 596 m (The height of the local erosion base of the river basin)

 $E_r = 120.66119035745$ (Coefficient of the erosion energy of the river basins relief)

 $S_1 = 0.91063$ (Coefficient of the regions permeability)

 $S_2 = 0.7390057224$ (Coefficient of the vegetation cover)

W = 1.7492116539043 m (Analytical presentation of the water retention in inflow)

 $2gDF^{1/2} = 175.92375054324 \text{ m km s}^{-1}$ (Energetic potential of water flow during torrent rains)

 $Q_{max} = 207.36980490112 \text{ m}^3 \text{ s}^{-1}$ (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.46031952466017 (Coefficient of the river basin erosion)

 $W_{god} = 5868.5980086022 \text{ m}^3 \text{ god}^{-1}$ (Production of erosion material in the river basin

 $R_u = 0.27535641258408$ (Coefficient of the deposit retention)

 $G_{god} = 1615.9560945468 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$

 $G_{god} \text{ km}^{-2} = 264.43225613754 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$

http://www.wintero.me