Web application for Intensity of Erosion and Outflow

Name of the River Basin: Lukcka rijeka (Crepulja)

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.987693,19.773726

INPUT DATA

Geometric characteristics of the river basins

 $F = 4.65292 \text{ km}^2$ (Surface area of the drainage basin)

O = 11.07977 km (Length of the watershed)

 $Fv = 2.75596 \text{ km}^2$ (Surface area of greater portion of the drainage basin)

Fm = 1.89696 km² (Surface area of smaller portion of the drainage basin)

Lv = 4.76456 km (Natural length of main water course)

Lb = 3.96822 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.79468 ","1.50078 ","3.04743 ","4.27864 ","4.16313 ","2.95749 ","1.17954 ","0.28877 "]

The area between the two neighboring contour lines - f [km²]: ["0.24581 ","0.22639 ","0.46940 ","0.88665 ","1.03811 ","0.98855 ","0.55123 ","0.22046 ","0.02633 "]

h0 = 700 m (Altitude of the initial contour)

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

Hmin = 670 (Lowest altitude in the drainage basin)

Hmax = 1474 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

 $\Sigma L = 4.76456$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 4.19401 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.2051 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1695 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.6254 (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 = 0.508302294 (Part of the surface area of the drainage basin under the forest)

ft = 0.415338468 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.076359238 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 115 mm (Level of torrent rain)

Up (years) = 100

to = 9.0 °C (Average annual air temperature)

Hgod = 944.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.0978 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

98.9 % (Serpentines, red sand stones, flishe deposits)

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0 % (Podzols and parapodzols, decomposed schist)
1.1 % (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 = 0.453565 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
7.64 % (Plough-lands)
0.98 % (Orchards and vineyards)
11.29 % (Mountain pastures)
29.26 % (Meadows)
30.5 % (Degraded forests)
20.33 % (Well-constituted forests)
\phi = 0.32951 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
2.9 % (Depth erosion)
2.58 % (80% of the river basin under rill and gully erosion)
2.26 % (50% of the river basin under rill and gully erosion)
1.94 % (100% of the river basin under surface erosion)
29.26 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
0.97 % (50% of the river basin under surface erosion)
0.65 % (20% of the river basin under surface erosion)
0 % (There are smaller slides in the watercourse beds)
7.64 % (The river basin mostly under plough-land)
51.81 % (The river basin under forests and perennial vegetation)
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INPUT DATA

A = 0.45346373012408 (Coefficient of the river basin form)

m = 0.62309616112878 (Coefficient of the watershed development)

B = **1.1725458769927** km (Average river basin width)

a = 0.36923050471532 ((A)symmetry of the river basin)

G = 1.0239935352424 (Density of the river network of the basin)

K = 1.1360392559865 (Coefficient of the river basin tortuousness)

 $H_{sr} = 1038.2346053661 \text{ m}$ (Average river basin altitude)

D = 368.2346053661 m (Average elevation difference of the river basin)

 $I_{sr} = 39.137702775891 \%$ (Average river basin decline)

 H_{leb} = 804 m (The height of the local erosion base of the river basin)

 $E_r = 174.2507996024$ (Coefficient of the erosion energy of the river basins relief)

 $S_1 = 0.82609$ (Coefficient of the regions permeability)

 $S_2 = 0.7136113888$ (Coefficient of the vegetation cover)

W = 1.3587438412877 m (Analytical presentation of the water retention in inflow)

 $2gDF^{1/2} = 183.34733174824 \text{ m km s}^{-1}$ (Energetic potential of water flow during torrent rains)

 $Q_{max} = 66.595345477816 \text{ m}^3 \text{ s}^{-1}$ (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.47557252773271 (Coefficient of the river basin erosion)

 $W_{god} = 4527.0009568078 \text{ m}^3 \text{ god}^{-1}$ (Production of erosion material in the river basin

 $R_u = 0.273613271579$ (Coefficient of the deposit retention)

 $G_{qod} = 1238.6475422334 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$

 $G_{god} \text{ km}^{-2} = 266.20864795299 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$

http://www.wintero.me