Web application for Intensity of Erosion and Outflow

Name of the River Basin: Krivaja

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.824718,19.865157

INPUT DATA

Geometric characteristics of the river basins

F = 9.06427 km^2 (Surface area of the drainage basin)

O = 18.83541 km (Length of the watershed)

Fv = 6.52389 km^2 (Surface area of greater portion of the drainage basin)

Fm = 2.54038 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 7.39243 km (Natural length of main water course)

Lb = 6.30663 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.98027 ","3.45141 ","3.09451 ","3.40738 ","1.63245 ","1.73714 ","1.68626 ","1.49858 ","1.57264 ","1.62960 "]

The area between the two neighboring contour lines - f [km^2]: ["2.47668 ","1.77392 ","1.09381 ","1.02734 ","0.79795 ","0.37830 ","0.30285 ","0.31578 ","0.24904 ","0.30478 ","0.34385 "]

h0 = 700 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 691 (Lowest altitude in the drainage basin)

Hmax = 1650 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 8.44057 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 6.99319 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.2659 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.5604 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.1737 (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 = 0.653931210 (Part of the surface area of the drainage basin under the forest)

ft = 0.309242057 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.036826733 (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 = 1.33134 (Types of soil structures and allied types)

28.6 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

58.37 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

13.03 % (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 = 0.43872 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

3.68 % (Plough-lands)

4.2 % (Orchards and vineyards)

10.4 % (Mountain pastures)

16.32 % (Meadows)

39.24 % (Degraded forests)

26.16 % (Well-constituted forests)

ϕ = 0.25648 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.67 % (Depth erosion)

2.38 % (80% of the river basin under rill and gully erosion)

2.08 % (50% of the river basin under rill and gully erosion)

1.78 % (100% of the river basin under surface erosion)

16.32 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.89 % (50% of the river basin under surface erosion)

0.59 % (20% of the river basin under surface erosion)

0 % (There are smaller slides in the watercourse beds)

3.68 % (The river basin mostly under plough-land)

69.6 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.49684676757169 (Coefficient of the river basin form)

m = 0.69265324320911 (Coefficient of the watershed development)

B = 1.4372604703304 km (Average river basin width)

a = 0.87894778068173 ((A)symmetry of the river basin)

G = 0.93119137007172 (Density of the river network of the basin)

K = 1.0570898259593 (Coefficient of the river basin tortuousness)

H_{sr} = 929.88334306017 m (Average river basin altitude)

D = 238.88334306017 m (Average elevation difference of the river basin)

I_{sr} = 25.032617077823 % (Average river basin decline)

H_{leb} = 959 m (The height of the local erosion base of the river basin)

E_r = 175.92822707776 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.67234 (Coefficient of the regions permeability)

S_2 = 0.6765791046 (Coefficient of the vegetation cover)

W = 1.3402478688542 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 206.11464580277 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 62.434404984637 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.44203943705981 (Coefficient of the river basin erosion)

W_{god} = 7902.8587842721 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.24392156888443 (Coefficient of the deposit retention)

G_{god} = 1927.6777133318 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 212.66772871194 m^3 km^{-2} god^{-1} (Real soil losses per km^2)