Web application for Intensity of Erosion and Outflow

Name of the River Basin: Boljanska rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 43.070876,19.789726

INPUT DATA

Geometric characteristics of the river basins

F = 27.41804 km^2 (Surface area of the drainage basin)

O = 30.97936 km (Length of the watershed)

Fv = 18.45877 km^2 (Surface area of greater portion of the drainage basin)

Fm = 8.95927 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 6.39141 km (Natural length of main water course)

Lb = 12.95975 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.49506

The area between the two neighboring contour lines - f [km^2]: ["5.12456 ","6.41788 ","7.99236 ","5.26434 ","1.74621 ","0.66440 ","0.14745 ","0.05252 ","0.00833 "]

h0 = 600 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 550 (Lowest altitude in the drainage basin)

Hmax = 1314 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 8.66268 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 6.05424 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.0281 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.0747 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.8972 (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 = 0.625657604 (Part of the surface area of the drainage basin under the forest)

ft = 0.233619677 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.140722719 (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 = 873.7 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.24112 (Types of soil structures and allied types)

15.68 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

84.32 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

0 % (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 = 0.50131 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

14.07 % (Plough-lands)

4.25 % (Orchards and vineyards)

6.76 % (Mountain pastures)

12.35 % (Meadows)

40.67 % (Degraded forests)

21.9 % (Well-constituted forests)

ϕ = 0.216265 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

1.74 % (Depth erosion)

1.54 % (80% of the river basin under rill and gully erosion)

1.35 % (50% of the river basin under rill and gully erosion)

1.16 % (100% of the river basin under surface erosion)

12.35 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.58 % (50% of the river basin under surface erosion)

0.39 % (20% of the river basin under surface erosion)

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

14.07 % (The river basin mostly under plough-land)

66.81 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.94517097166353 (Coefficient of the river basin form)

m = 0.34432895375695 (Coefficient of the watershed development)

B = 2.1156303169428 km (Average river basin width)

a = 0.69293793429436 ((A)symmetry of the river basin)

G = 0.31594818593889 (Density of the river network of the basin)

K = 1.0556915484024 (Coefficient of the river basin tortuousness)

H_{sr} = 736.37018948109 m (Average river basin altitude)

D = 186.37018948109 m (Average elevation difference of the river basin)

I_{sr} = 41.882745812611 % (Average river basin decline)

H_{leb} = 764 m (The height of the local erosion base of the river basin)

E_r = 106.27580039673 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.96073 (Coefficient of the regions permeability)

S_2 = 0.703013023 (Coefficient of the vegetation cover)

W = 1.6980395862509 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 316.63281918052 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 343.22493855429 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.53721630879217 (Coefficient of the river basin erosion)

W_{god} = 29484.243832512 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.29318255569147 (Coefficient of the deposit retention)

G_{god} = 8644.2659594463 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 315.27658284277 m^3 km^{-2} god^{-1} (Real soil losses per km^2)