Web application for Intensity of Erosion and Outflow

Name of the River Basin: Velicka rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.65296,19.92774

INPUT DATA

Geometric characteristics of the river basins

F = 32.25843 km^2 (Surface area of the drainage basin)

O = 24.31217 km (Length of the watershed)

Fv = 19.92345 km^2 (Surface area of greater portion of the drainage basin)

Fm = 12.33498 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 6.90844 km (Natural length of main water course)

Lb = 8.88564 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["3.38501 ","8.76982 ","10.84120 ","13.73594 ","14.56722 ","14.59249 ","14.88688 ","14.90037 ","13.29120 ","12.03854 ","8.57967 ","2.07198 "]

The area between the two neighboring contour lines - f [km^2]: ["0.47946 ","1.80118 ","2.25785 ","2.94814 ","3.19298 ","3.39597 ","3.09540 ","3.54191 ","3.63426 ","3.33728 ","2.75455 ","1.48562 ","0.33383 "]

h0 = 900 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 879 (Lowest altitude in the drainage basin)

Hmax = 2077 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 10.18487 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 5.4377 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.1344 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.0804 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7852 (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 = 0.39 (Part of the surface area of the drainage basin under the forest)

ft = 0.59 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.02 (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 = 1.10835 (Types of soil structures and allied types)

3.73 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

83.66 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

12.61 % (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 = 0.41508 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

1.99 % (Plough-lands)

1 % (Orchards and vineyards)

44.82 % (Mountain pastures)

12.95 % (Meadows)

9.06 % (Degraded forests)

30.18 % (Well-constituted forests)

ϕ = 0.458 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2 % (Depth erosion)

12 % (80% of the river basin under rill and gully erosion)

11 % (50% of the river basin under rill and gully erosion)

10 % (100% of the river basin under surface erosion)

16 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

5 % (50% of the river basin under surface erosion)

3 % (20% of the river basin under surface erosion)

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

2 % (The river basin mostly under plough-land)

39 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.68624365992901 (Coefficient of the river basin form)

m = 0.34312585559727 (Coefficient of the watershed development)

B = 3.6304002863046 km (Average river basin width)

a = 0.47047980946376 ((A)symmetry of the river basin)

G = 0.31572739280864 (Density of the river network of the basin)

K = 1.2704709711827 (Coefficient of the river basin tortuousness)

H_{sr} = 1455.8345562695 m (Average river basin altitude)

D = 576.8345562695 m (Average elevation difference of the river basin)

I_{sr} = 40.814236774697 % (Average river basin decline)

H_{leb} = 1198 m (The height of the local erosion base of the river basin)

E_r = 160.00963652762 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.89524 (Coefficient of the regions permeability)

S_2 = 0.726 (Coefficient of the vegetation cover)

W = 1.0946746295478 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 604.22229997006 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 295.00966672736 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.95393920141695 (Temperature coefficient of the region)

Z = 0.50461483704605 (Coefficient of the river basin erosion)

W_{god} = 40971.466483167 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.44295943001821 (Coefficient of the deposit retention)

G_{god} = 18148.697440394 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 562.60324635743 m^3 km^{-2} god^{-1} (Real soil losses per km^2)