Web application for Intensity of Erosion and Outflow

Name of the River Basin: Brzava

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.965474,19.803427

INPUT DATA

Geometric characteristics of the river basins

F = 58.97254 km^2 (Surface area of the drainage basin)

O = 37.66755 km (Length of the watershed)

Fv = 33.45457 km^2 (Surface area of greater portion of the drainage basin)

Fm = 25.51797 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 9.41475 km (Natural length of main water course)

Lb = 16.0797 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["1.40702 ","16.45055 ","21.79096 ","22.40950 ","26.94811 ","28.15199 ","23.96819 ","15.93641 ","11.26803 ","6.98885 ","5.34400 ","4.48934 ","3.41206 ","1.31015 ","0.21999 "]

The area between the two neighboring contour lines - f [km^2]: ["0.33128 ","5.37975 ","6.12391 ","6.57640 ","6.53720 ","7.93210 ","8.39302 ","6.34801 ","4.06150 ","2.32883 ","1.54674 ","1.47398 ","1.11295 ","0.58720 ","0.23234 ","0.00731 "]

h0 = 600 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 595 (Lowest altitude in the drainage basin)

Hmax = 2005 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 23.8826 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 8.76356 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.2614 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.0426 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.696 (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 = 0.552755275527553 (Part of the surface area of the drainage basin under the forest)

ft = 0.422842284228423 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.0244024402440244 (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 = 1.11531 (Types of soil structures and allied types)

3.96 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

88.03 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

3.62 % (Solid and Schist limestone, Terra Rosa and Humic soil)

4.4 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

0 % (Good structured Chernozems and alluvial well-structured deposits)

0 % (Bare, compact igneous)

Xa = 0.462155 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.44 % (Plough-lands)

0.24 % (Orchards and vineyards)

30.17 % (Mountain pastures)

11.87 % (Meadows)

33.16 % (Degraded forests)

22.11 % (Well-constituted forests)

ϕ = 0.37263 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

7.76 % (Depth erosion)

6.9 % (80% of the river basin under rill and gully erosion)

6.03 % (50% of the river basin under rill and gully erosion)

5.17 % (100% of the river basin under surface erosion)

11.87 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.59 % (50% of the river basin under surface erosion)

1.72 % (20% of the river basin under surface erosion)

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

2.44 % (The river basin mostly under plough-land)

55.51 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.78017708914204 (Coefficient of the river basin form)

m = 0.3458429630334 (Coefficient of the watershed development)

B = 3.6675149411992 km (Average river basin width)

a = 0.26916256277922 ((A)symmetry of the river basin)

G = 0.40497831702687 (Density of the river network of the basin)

K = 1.0743065603476 (Coefficient of the river basin tortuousness)

H_{sr} = 1071.5954675685 m (Average river basin altitude)

D = 476.5954675685 m (Average elevation difference of the river basin)

I_{sr} = 32.234519659489 % (Average river basin decline)

H_{leb} = 1410 m (The height of the local erosion base of the river basin)

E_r = 161.95963209215 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.83038 (Coefficient of the regions permeability)

S_2 = 0.69432943294329 (Coefficient of the vegetation cover)

W = 1.6724978593604 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 742.59047145485 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 558.66387773268 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.48471752753156 (Coefficient of the river basin erosion)

W_{god} = 61194.594504557 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.43647244733383 (Coefficient of the deposit retention)

G_{god} = 26709.754427005 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 452.91850117029 m^3 km^{-2} god^{-1} (Real soil losses per km^2)