Web application for Intensity of Erosion and Outflow

Name of the River Basin: Biogradska rijeka

Country: Montenegro

Year: 2021

GPS coordinates, latitude and longitude with Google Maps: 42.888683,19.611135

INPUT DATA

Geometric characteristics of the river basins

F = 28.28 km^2 (Surface area of the drainage basin)

O = 15.99 km (Length of the watershed)

Fv = 16.35 km^2 (Surface area of greater portion of the drainage basin)

Fm = 11.93 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 8.23 km (Natural length of main water course)

Lb = 11.02 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.93 ","4.53 ","7.17 ","9.46 ","12.49 ","14.66 ","19.32 ","22.17 ","15.30 ","6.58 ","0.50 "]

The area between the two neighboring contour lines - f [km^2]: ["0.1 ","0.209 ","0.648 ","1.276 ","1.595 ","2.392 ","2.741 ","4.037 ","5.423 ","5.074 ","3.688 ","1.097 "]

h0 = 1100 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 1094 (Lowest altitude in the drainage basin)

Hmax = 2139 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 27.17 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 7.55 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.15 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.01 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.84 (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 = 0.53780 (Part of the surface area of the drainage basin under the forest)

ft = 0.46220 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.00000 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 252 mm (Level of torrent rain)

Up (years) = 100

to = 5.05 °C (Average annual air temperature)

Hgod = 1962 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 0.8 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

0 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

0 % (Solid and Schist limestone, Terra Rosa and Humic soil)

100 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.30421 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

0 % (Plough-lands)

0 % (Orchards and vineyards)

46.22 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

53.78 % (Well-constituted forests)

ϕ = 0.36247 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

1.11 % (Depth erosion)

1.11 % (80% of the river basin under rill and gully erosion)

1.11 % (50% of the river basin under rill and gully erosion)

21.44 % (100% of the river basin under surface erosion)

21.44 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0 % (50% of the river basin under surface erosion)

0 % (20% of the river basin under surface erosion)

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

0 % (The river basin mostly under plough-land)

53.78 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.37886391251519 (Coefficient of the river basin form)

m = 0.43657131874805 (Coefficient of the watershed development)

B = 2.5662431941924 km (Average river basin width)

a = 0.31258840169731 ((A)symmetry of the river basin)

G = 0.96074964639321 (Density of the river network of the basin)

K = 1.0900662251656 (Coefficient of the river basin tortuousness)

H_{sr} = 1778.7390912306 m (Average river basin altitude)

D = 684.7390912306 m (Average elevation difference of the river basin)

I_{sr} = 39.996463932107 % (Average river basin decline)

H_{leb} = 1045 m (The height of the local erosion base of the river basin)

E_r = 144.24360451571 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.907 (Coefficient of the regions permeability)

S_2 = 0.69244 (Coefficient of the vegetation cover)

W = 2.1660308970888 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 616.38457948754 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 317.67942433713 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.7778174593052 (Temperature coefficient of the region)

Z = 0.24212623335983 (Coefficient of the river basin erosion)

W_{god} = 16153.578151372 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.36301963847334 (Coefficient of the deposit retention)

G_{god} = 5864.066100562 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 207.35735857716 m^3 km^{-2} god^{-1} (Real soil losses per km^2)