Web application for Intensity of Erosion and Outflow

Name of the River Basin: Sliv Ljubovidje

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.988939,19.740218

INPUT DATA

Geometric characteristics of the river basins

F = 338.02139 km^2 (Surface area of the drainage basin)

O = 115.22935 km (Length of the watershed)

Fv = 236.70073 km^2 (Surface area of greater portion of the drainage basin)

Fm = 101.32066 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 38.06 km (Natural length of main water course)

Lb = 43.63296 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["7.68341 ","52.58047 ","123.96470 ","156.13392 ","167.79263 ","134.77490 ","135.96709 ","102.39714 ","62.15008 ","36.73031 ","18.97600 ","16.66124 ","15.58636 ","9.72932 ","2.40631 ","1.01376 "]

The area between the two neighboring contour lines - f [km^2]: ["1.39950 ","9.32213 ","27.18840 ","42.65117 ","48.24101 ","43.97285 ","39.96105 ","48.25320 ","33.74471 ","20.34548 ","8.17500 ","3.80532 ","4.40457 ","3.94465 ","2.10919 ","0.37630 ","0.12687 "]

h0 = 600 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 584 (Lowest altitude in the drainage basin)

Hmax = 2122 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 133.55828 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 25.58502 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.225479369541211 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.132014857945989 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.6425057725128 (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 = 0.5387 (Part of the surface area of the drainage basin under the forest)

ft = 0.4410 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.0228 (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 = 893.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.07114 (Types of soil structures and allied types)

1.48 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

11.87 % (Decomposed limestone and marls)

64.22 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

13.32 % (Solid and Schist limestone, Terra Rosa and Humic soil)

9.1 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.378835 (Planning of the drainage basin, rate of drainage basin regulation)

0.01 % (Bare lands)

2.27 % (Plough-lands)

1.51 % (Orchards and vineyards)

14.23 % (Mountain pastures)

28.11 % (Meadows)

22.36 % (Degraded forests)

31.51 % (Well-constituted forests)

ϕ = 0.45036 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

13.22 % (Depth erosion)

9.69 % (80% of the river basin under rill and gully erosion)

2.4 % (50% of the river basin under rill and gully erosion)

2.05 % (100% of the river basin under surface erosion)

23.66 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.03 % (50% of the river basin under surface erosion)

0.69 % (20% of the river basin under surface erosion)

0.01 % (There are smaller slides in the watercourse beds)

1.9 % (The river basin mostly under plough-land)

45.35 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.59037633342091 (Coefficient of the river basin form)

m = 0.58397164502688 (Coefficient of the watershed development)

B = 7.7469277812003 km (Average river basin width)

a = 0.80101481151829 ((A)symmetry of the river basin)

G = 0.39511783559023 (Density of the river network of the basin)

K = 1.4875892221308 (Coefficient of the river basin tortuousness)

H_{sr} = 1112.2637329845 m (Average river basin altitude)

D = 528.2637329845 m (Average elevation difference of the river basin)

I_{sr} = 30.901820739806 % (Average river basin decline)

H_{leb} = 1538 m (The height of the local erosion base of the river basin)

E_r = 114.17484138467 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.82510792089148 (Coefficient of the regions permeability)

S_2 = 0.69882 (Coefficient of the vegetation cover)

W = 1.5258857818312 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 1871.7463339092 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 972.24124065267 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.40832312818125 (Coefficient of the river basin erosion)

W_{god} = 246271.95448898 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.32467824009414 (Coefficient of the deposit retention)

G_{god} = 79959.144768026 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 236.55054719474 m^3 km^{-2} god^{-1} (Real soil losses per km^2)