
Web application for Intensity of Erosion and Outflow

Name of the River Basin: Duboki potok

Country: Montenegro

Year: 2018

**GPS coordinates, latitude and longitude with Google Maps:
42.683737,19.84094**

INPUT DATA

Geometric characteristics of the river basins

F = 4.24056 km² (Surface area of the drainage basin)

O = 8.27097 km (Length of the watershed)

Fv = 2.2 km² (Surface area of greater portion of the drainage basin)

Fm = 2.04056 km² (Surface area of smaller portion of the drainage basin)

Lv = 1.13015 km (Natural length of main water course)

Lb = 1.2 km (Length of the drainage basin measured by a series of parallel lines)

Topographic characteristics of the river basins

Contour line length - Liz [km]: ["1.53027 ", "2.09790 ", "2.29707 ", "2.26314 ", "2.30188 ", "1.96121 ", "1.67482 ", "1.45506 "]

The area between the two neighboring contour lines - f [km²]: ["0.33899 ", "0.69756 ", "0.51660 ", "0.49337 ", "0.56858 ", "0.54668 ", "0.49229 ", "0.34768 ", "0.23881 "]

h0 = 800 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 779 (Lowest altitude in the drainage basin)

Hmax = 1584 (Highest altitude in the drainage basin)

Hydrological characteristics of the river basins

$\Sigma L = 1.13015$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

$L_m = 1.09757$ km (The shortest distance between the fountain (head and mouth))

Water permeability

$f_p = 0.2071$ (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

$f_{pp} = 0.2443$ (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.5486$ (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

$f_s = 0.531408047$ (Part of the surface area of the drainage basin under the forest)

$f_t = 0.453821473$ (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

$f_g = 0.014770480$ (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

$h_b = 115$ mm (Level of torrent rain)

U_p (years) = 100

$t_o = 9.0$ °C (Average annual air temperature)

$H_{god} = 1183.7$ mm (Average annual quantity of precipitation)

Erosion coefficients

$Y = 1.20757$ (Types of soil structures and allied types)

18.69 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

50.99 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

30.32 % (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 = 0.35318 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

1.48 % (Plough-lands)

1.36 % (Orchards and vineyards)

32.88 % (Mountain pastures)

11.14 % (Meadows)

11.26 % (Degraded forests)

41.88 % (Well-constituted forests)

$\phi = 0.32068$ (Numerical coefficient of visible and clearly pointed processes of soil erosion)

1.46 % (Depth erosion)

1.52 % (80% of the river basin under rill and gully erosion)

6.58 % (50% of the river basin under rill and gully erosion)

5.64 % (100% of the river basin under surface erosion)

17.14 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.82 % (50% of the river basin under surface erosion)

8.88 % (20% of the river basin under surface erosion)

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

1.48 % (The river basin mostly under plough-land)

54.48 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 1.4271018448878 (Coefficient of the river basin form)

m = 0.15481732210181 (Coefficient of the watershed development)

B = 3.5338 km (Average river basin width)

a = 0.075197615409286 ((A)symmetry of the river basin)

G = 0.26650961193805 (Density of the river network of the basin)
K = 1.0296837559336 (Coefficient of the river basin tortuousness)
H_{sr} = 1118.6156132681 m (Average river basin altitude)
D = 339.6156132681 m (Average elevation difference of the river basin)
I_{sr} = 36.743614050974 % (Average river basin decline)
H_{leb} = 805 m (The height of the local erosion base of the river basin)
E_r = 178.56247814031 (Coefficient of the erosion energy of the river basins relief)
S₁ = 0.80245 (Coefficient of the regions permeability)
S₂ = 0.6966724866 (Coefficient of the vegetation cover)
W = 1.3973735629116 m (Analytical presentation of the water retention in inflow)
2gDF^{1/2} = 168.09505273417 m km s⁻¹ (Energetic potential of water flow during torrent rains)
Q_{max} = 187.39977395426 m³ s⁻¹ (Maximal outflow from the river basin)
T = 1 (Temperature coefficient of the region)
Z = 0.39528977480512 (Coefficient of the river basin erosion)
W_{god} = 3919.1158657626 m³ god⁻¹ (Production of erosion material in the river basin)
R_u = 0.30116259118955 (Coefficient of the deposit retention)
G_{god} = 1180.2910893052 m³ god⁻¹ (Real soil losses)
G_{god} km⁻² = 278.33377886533 m³ km⁻² god⁻¹ (Real soil losses per km²)