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: 42.985615,19.754802

INPUT DATA

Geometric characteristics of the river basins

F = 3.90474 km^2 (Surface area of the drainage basin)

O = 10.66291 km (Length of the watershed)

Fv = 2.40391 km^2 (Surface area of greater portion of the drainage basin)

Fm = 1.50083 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 3.80992 km (Natural length of main water course)

Lb = 4.23154 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.15032 ","0.73023 ","1.30891 ","4.32289 ","6.92308 ","6.65907 ","5.67712 ","3.12694 ","0.24539 "]

The area between the two neighboring contour lines - f [km^2]: ["0.00514 ","0.0268 ","0.11623 ","0.36052 ","0.95916 ","1.00387 ","0.80403 ","0.4995 ","0.22348 ","0.07525 "]

h0 = 600 m (Altitude of the initial contour)

▲h = 50 m (Equidistance)

Hmin = 592 (Lowest altitude in the drainage basin)

Hmax = 1006 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 8.13186 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 2.91368 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1157 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.8843 (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 = 0.676996973 (Part of the surface area of the drainage basin under the forest)

ft = 0.261297321 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.061705706 (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 = 0.81359 (Types of soil structures and allied types)

11.39 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

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

19.69 % (Podzols and parapodzols, decomposed schist)

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

39.38 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

29.54 % (Bare, compact igneous)

Xa = 0.461275 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

6.17 % (Plough-lands)

5.86 % (Orchards and vineyards)

3.9 % (Mountain pastures)

16.37 % (Meadows)

44 % (Degraded forests)

23.69 % (Well-constituted forests)

ϕ = 0.212295 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

1 % (Depth erosion)

0.89 % (80% of the river basin under rill and gully erosion)

0.78 % (50% of the river basin under rill and gully erosion)

0.67 % (100% of the river basin under surface erosion)

16.37 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.33 % (50% of the river basin under surface erosion)

0.22 % (20% of the river basin under surface erosion)

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

6.17 % (The river basin mostly under plough-land)

73.57 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.54575094752646 (Coefficient of the river basin form)

m = 0.54389474634674 (Coefficient of the watershed development)

B = 0.92277043345921 km (Average river basin width)

a = 0.46255576555673 ((A)symmetry of the river basin)

G = 2.0825611948555 (Density of the river network of the basin)

K = 1.307597265314 (Coefficient of the river basin tortuousness)

H_{sr} = 868.20631847447 m (Average river basin altitude)

D = 276.20631847447 m (Average elevation difference of the river basin)

I_{sr} = 37.318681909679 % (Average river basin decline)

H_{leb} = 414 m (The height of the local erosion base of the river basin)

E_r = 93.745933511616 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.96529 (Coefficient of the regions permeability)

S_2 = 0.6769417466 (Coefficient of the vegetation cover)

W = 1.725283370609 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 145.46629139839 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 89.500694691916 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.30893212066687 (Coefficient of the river basin erosion)

W_{god} = 2061.6591279934 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.24853840637952 (Coefficient of the deposit retention)

G_{god} = 512.40147416926 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 131.22550391813 m^3 km^{-2} god^{-1} (Real soil losses per km^2)