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 km^2 (Surface area of the drainage basin)

O = 8.27097 km (Length of the watershed)

Fv = 2.2 km^2 (Surface area of greater portion of the drainage basin)

Fm = 2.04056 km^2 (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 paraller lines)

Topograpfic 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 [km^2]: ["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)

▲h = 100 m (Equidistance)

Hmin = 779 (Lowest altitude in the drainage basin)

Hmax = 1584 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

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

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

Water permeability

fp = 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))

fpp = 0.2443 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 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

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

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

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

Meteorological data

hb = 115 mm (Level of torrent rain)

Up (years) = 100

to = 9.0 °C (Average annual air temperature)

Hgod = 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)

ϕ = 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)

S_1 = 0.80245 (Coefficient of the regions permeability)

S_2 = 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 m^3 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 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.30116259118955 (Coefficient of the deposit retention)

G_{god} = 1180.2910893052 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 278.33377886533 m^3 km^{-2} god^{-1} (Real soil losses per km^2)