Web application for Intensity of Erosion and Outflow

Name of the River Basin: Dapsicka rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.852222,19.915897

INPUT DATA

Geometric characteristics of the river basins

F = 80.83718 km^2 (Surface area of the drainage basin)

O = 43.12901 km (Length of the watershed)

Fv = 40.65309 km^2 (Surface area of greater portion of the drainage basin)

Fm = 40.18409 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 14.59089 km (Natural length of main water course)

Lb = 14.27343 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["16.01063 ","28.71888 ","35.03008 ","35.51994 ","39.22990 ","26.47032 ","20.92235 ","15.49818 ","6.61357 ","4.06595 "]

The area between the two neighboring contour lines - f [km^2]: ["5.39101 ","9.52462 ","16.65904 ","11.11142 ","11.76584 ","9.39669 ","6.41921 ","5.11992 ","3.05413 ","1.60851 ","0.78679 "]

h0 = 700 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 671 (Lowest altitude in the drainage basin)

Hmax = 1688 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 29.80422 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 12.50909 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.3414 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.5782 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.0804 (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 = 0.516199238 (Part of the surface area of the drainage basin under the forest)

ft = 0.426054438 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.057746324 (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 = 944.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.07156 (Types of soil structures and allied types)

3.74 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

65.21 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

31.05 % (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 = 0.467035 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

5.77 % (Plough-lands)

2.74 % (Orchards and vineyards)

20.15 % (Mountain pastures)

19.72 % (Meadows)

30.97 % (Degraded forests)

20.65 % (Well-constituted forests)

ϕ = 0.343115 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

5.18 % (Depth erosion)

4.61 % (80% of the river basin under rill and gully erosion)

4.03 % (50% of the river basin under rill and gully erosion)

3.45 % (100% of the river basin under surface erosion)

19.72 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.73 % (50% of the river basin under surface erosion)

1.15 % (20% of the river basin under surface erosion)

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

5.77 % (The river basin mostly under plough-land)

54.36 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.57639780369806 (Coefficient of the river basin form)

m = 0.45779524130161 (Coefficient of the watershed development)

B = 5.663472620106 km (Average river basin width)

a = 0.011603571524885 ((A)symmetry of the river basin)

G = 0.36869445470512 (Density of the river network of the basin)

K = 1.166422977211 (Coefficient of the river basin tortuousness)

H_{sr} = 1012.7323480977 m (Average river basin altitude)

D = 341.7323480977 m (Average elevation difference of the river basin)

I_{sr} = 28.21471506057 % (Average river basin decline)

H_{leb} = 1017 m (The height of the local erosion base of the river basin)

E_r = 107.96134626936 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.6217 (Coefficient of the regions permeability)

S_2 = 0.7083094172 (Coefficient of the vegetation cover)

W = 1.3022668188937 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 736.20391777865 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 243.34604932447 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.43754382493108 (Coefficient of the river basin erosion)

W_{god} = 69407.013185067 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.31223640541411 (Coefficient of the deposit retention)

G_{god} = 21671.396307435 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 268.08699050901 m^3 km^{-2} god^{-1} (Real soil losses per km^2)