Web application for Intensity of Erosion and Outflow

Name of the River Basin: Kaludarska rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.922158,19.860094

INPUT DATA

Geometric characteristics of the river basins

F = 77.74127 km^2 (Surface area of the drainage basin)

O = 47.69818 km (Length of the watershed)

Fv = 45.31309 km^2 (Surface area of greater portion of the drainage basin)

Fm = 32.42818 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 18.63097 km (Natural length of main water course)

Lb = 16.9459 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["5.10930 ","7.81371 ","19.51511 ","29.49667 ","35.41558 ","34.12410 ","34.91699 ","38.16232 ","37.39740 ","35.58561 ","19.90150 ","21.86124 ","5.85499 "]

The area between the two neighboring contour lines - f [km^2]: ["1.89333 ","2.81206 ","3.89692 ","4.81249 ","6.64300 ","7.76400 ","7.31605 ","7.67770 ","8.51072 ","8.20787 ","8.21651 ","5.50208 ","3.77999 ","0.70854 "]

h0 = 700 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 681 (Lowest altitude in the drainage basin)

Hmax = 1963 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 32.92231 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 12.67805 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.7834 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1577 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.0589 (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 = 0.494437420 (Part of the surface area of the drainage basin under the forest)

ft = 0.477727166 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.027835414 (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 = 1.13401 (Types of soil structures and allied types)

5.87 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

84.72 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

9.41 % (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 = 0.47594 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.78 % (Plough-lands)

1.03 % (Orchards and vineyards)

34.42 % (Mountain pastures)

12.32 % (Meadows)

29.67 % (Degraded forests)

19.78 % (Well-constituted forests)

ϕ = 0.4049 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

8.85 % (Depth erosion)

7.87 % (80% of the river basin under rill and gully erosion)

6.88 % (50% of the river basin under rill and gully erosion)

5.9 % (100% of the river basin under surface erosion)

12.32 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.95 % (50% of the river basin under surface erosion)

1.97 % (20% of the river basin under surface erosion)

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

2.78 % (The river basin mostly under plough-land)

50.48 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.49923031919433 (Coefficient of the river basin form)

m = 0.59608023138098 (Coefficient of the watershed development)

B = 4.5876152933748 km (Average river basin width)

a = 0.33148184998779 ((A)symmetry of the river basin)

G = 0.42348562095783 (Density of the river network of the basin)

K = 1.4695453953881 (Coefficient of the river basin tortuousness)

H_{sr} = 1329.0816431864 m (Average river basin altitude)

D = 648.0816431864 m (Average elevation difference of the river basin)

I_{sr} = 41.825213300477 % (Average river basin decline)

H_{leb} = 1282 m (The height of the local erosion base of the river basin)

E_r = 137.42800585229 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.48265 (Coefficient of the regions permeability)

S_2 = 0.7066795988 (Coefficient of the vegetation cover)

W = 1.2851355546211 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 994.23758624287 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 217.56795692625 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.56758334561869 (Coefficient of the river basin erosion)

W_{god} = 98617.947375407 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.38838254028279 (Coefficient of the deposit retention)

G_{god} = 38301.488919135 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 492.67897114538 m^3 km^{-2} god^{-1} (Real soil losses per km^2)