Web application for Intensity of Erosion and Outflow

Name of the River Basin: Rakljanska rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.978454,19.762097

INPUT DATA

Geometric characteristics of the river basins

F = 11.59289 km^2 (Surface area of the drainage basin)

O = 15.51315 km (Length of the watershed)

Fv = 7.25637 km^2 (Surface area of greater portion of the drainage basin)

Fm = 4.33652 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 5.94182 km (Natural length of main water course)

Lb = 7.01044 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.36384 ","10.12389 ","13.01776 ","5.28770 ","2.56176 "]

The area between the two neighboring contour lines - f [km^2]: ["0.04403 ","2.54123 ","3.65344 ","3.38590 ","1.47726 ","0.49102 "]

h0 = 600 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 593 (Lowest altitude in the drainage basin)

Hmax = 1026 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 5.94182 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 5.38445 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 = 0.0934 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.9066 (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 = 0.558266472 (Part of the surface area of the drainage basin under the forest)

ft = 0.357922474 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.083811054 (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 = 1.20197 (Types of soil structures and allied types)

11.33 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

88.67 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

0 % (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 = 0.47814 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

8.38 % (Plough-lands)

4.97 % (Orchards and vineyards)

8.55 % (Mountain pastures)

22.28 % (Meadows)

36.29 % (Degraded forests)

19.54 % (Well-constituted forests)

ϕ = 0.27568 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.2 % (Depth erosion)

1.95 % (80% of the river basin under rill and gully erosion)

1.71 % (50% of the river basin under rill and gully erosion)

1.47 % (100% of the river basin under surface erosion)

22.28 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.73 % (50% of the river basin under surface erosion)

0.49 % (20% of the river basin under surface erosion)

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

8.38 % (The river basin mostly under plough-land)

60.79 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.50911408457341 (Coefficient of the river basin form)

m = 0.49228737901982 (Coefficient of the watershed development)

B = 1.653660825854 km (Average river basin width)

a = 0.50373116625794 ((A)symmetry of the river basin)

G = 0.51254001374981 (Density of the river network of the basin)

K = 1.1035147508102 (Coefficient of the river basin tortuousness)

H_{sr} = 793.32751841862 m (Average river basin altitude)

D = 200.32751841862 m (Average elevation difference of the river basin)

I_{sr} = 27.046707076493 % (Average river basin decline)

H_{leb} = 433 m (The height of the local erosion base of the river basin)

E_r = 74.694752899571 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.97198 (Coefficient of the regions permeability)

S_2 = 0.7051089164 (Coefficient of the vegetation cover)

W = 1.7023202673314 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 213.4595869098 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 126.79016925308 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.45732226310679 (Coefficient of the river basin erosion)

W_{god} = 11024.410407001 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.22116296110144 (Coefficient of the deposit retention)

G_{god} = 2438.1912500099 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 210.3178111765 m^3 km^{-2} god^{-1} (Real soil losses per km^2)