Web application for Intensity of Erosion and Outflow

Name of the River Basin: Komaracka rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.619435,19.940214

INPUT DATA

Geometric characteristics of the river basins

F = 88.70148 km^2 (Surface area of the drainage basin)

O = 40.01784 km (Length of the watershed)

Fv = 47.39958 km^2 (Surface area of greater portion of the drainage basin)

Fm = 41.3019 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 16.33554 km (Natural length of main water course)

Lb = 16.65007 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["9.03277 ","12.68366 ","19.31676 ","22.54119 ","28.49542 ","25.49528 ","36.24810 ","39.65107 ","37.47339 ","40.42133 ","29.72351 ","22.40549 ","13.09430 ","1.06107 ","0.1 "]

The area between the two neighboring contour lines - f [km^2]: ["1.80258 ","2.43246 ","3.78096 ","4.73565 ","6.11416 ","6.65865 ","8.33182 ","8.98081 ","10.71202 ","10.17923 ","10.26820 ","7.46545 ","4.46962 ","2.71639 ","0.05349 ","0.1 "]

h0 = 1000 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 906 (Lowest altitude in the drainage basin)

Hmax = 2426 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 36.61443 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 12.68833 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.0041 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.2417 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7542 (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 = 0.489992714 (Part of the surface area of the drainage basin under the forest)

ft = 0.494120993 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.015886293 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 89.4 mm (Level of torrent rain)

Up (years) = 100

to = 8.1 °C (Average annual air temperature)

Hgod = 1345.4 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.1597 (Types of soil structures and allied types)

8.59 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

85.54 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

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

5.87 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.37382 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

1.59 % (Plough-lands)

0.15 % (Orchards and vineyards)

40.96 % (Mountain pastures)

8.3 % (Meadows)

10 % (Degraded forests)

39 % (Well-constituted forests)

ϕ = 0.430105 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

10.53 % (Depth erosion)

9.36 % (80% of the river basin under rill and gully erosion)

8.19 % (50% of the river basin under rill and gully erosion)

7.02 % (100% of the river basin under surface erosion)

8.3 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

3.51 % (50% of the river basin under surface erosion)

2.34 % (20% of the river basin under surface erosion)

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

1.59 % (The river basin mostly under plough-land)

49.15 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.47769946998997 (Coefficient of the river basin form)

m = 0.48928638406835 (Coefficient of the watershed development)

B = 5.3273938187647 km (Average river basin width)

a = 0.13748767213354 ((A)symmetry of the river basin)

G = 0.41278262775322 (Density of the river network of the basin)

K = 1.2874460232355 (Coefficient of the river basin tortuousness)

H_{sr} = 1681.7617839071 m (Average river basin altitude)

D = 775.7617839071 m (Average elevation difference of the river basin)

I_{sr} = 38.076404136662 % (Average river basin decline)

H_{leb} = 1520 m (The height of the local erosion base of the river basin)

E_r = 157.65617973967 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.92503 (Coefficient of the regions permeability)

S_2 = 0.7051787158 (Coefficient of the vegetation cover)

W = 1.056769018737 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 1161.9277534439 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 382.62114821943 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.95393920141695 (Temperature coefficient of the region)

Z = 0.45396633067502 (Coefficient of the river basin erosion)

W_{god} = 109392.69555868 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.42313483470199 (Coefficient of the deposit retention)

G_{god} = 46287.860152827 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 521.83864522697 m^3 km^{-2} god^{-1} (Real soil losses per km^2)