Web application for Intensity of Erosion and Outflow

Name of the River Basin: Radulicka rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.965364,19.822026

INPUT DATA

Geometric characteristics of the river basins

F = 40.23096 km^2 (Surface area of the drainage basin)

O = 29.8793 km (Length of the watershed)

Fv = 27.78336 km^2 (Surface area of greater portion of the drainage basin)

Fm = 12.4476 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 8.46906 km (Natural length of main water course)

Lb = 12.16551 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["20.14833 ","33.17354 ","30.38447 ","14.58891 ","9.80364 ","7.63453 ","2.80515 "]

The area between the two neighboring contour lines - f [km^2]: ["4.88120 ","9.81131 ","9.50161 ","7.45868 ","3.61518 ","2.96913 ","1.60158 ","0.39228 "]

h0 = 700 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 619 (Lowest altitude in the drainage basin)

Hmax = 1356 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 12.37249 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 7.0783 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.1025 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1193 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7782 (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 = 0.498684400 (Part of the surface area of the drainage basin under the forest)

ft = 0.352763084 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.148552517 (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 = 1.14102 (Types of soil structures and allied types)

5.1 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

92.46 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

2.44 % (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 = 0.508745 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

14.86 % (Plough-lands)

1.89 % (Orchards and vineyards)

19.36 % (Mountain pastures)

14.03 % (Meadows)

29.92 % (Degraded forests)

19.95 % (Well-constituted forests)

ϕ = 0.31364 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

4.98 % (Depth erosion)

4.42 % (80% of the river basin under rill and gully erosion)

3.87 % (50% of the river basin under rill and gully erosion)

3.32 % (100% of the river basin under surface erosion)

14.03 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.66 % (50% of the river basin under surface erosion)

1.11 % (20% of the river basin under surface erosion)

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

14.86 % (The river basin mostly under plough-land)

51.76 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.68797050676226 (Coefficient of the river basin form)

m = 0.376660500986 (Coefficient of the watershed development)

B = 3.3069686351004 km (Average river basin width)

a = 0.76238598333224 ((A)symmetry of the river basin)

G = 0.30753653405238 (Density of the river network of the basin)

K = 1.1964822061795 (Coefficient of the river basin tortuousness)

H_{sr} = 881.73659639243 m (Average river basin altitude)

D = 262.73659639243 m (Average elevation difference of the river basin)

I_{sr} = 29.46451439389 % (Average river basin decline)

H_{leb} = 737 m (The height of the local erosion base of the river basin)

E_r = 93.14885399898 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.90271 (Coefficient of the regions permeability)

S_2 = 0.7299736242 (Coefficient of the vegetation cover)

W = 1.6799766814581 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 455.39681016669 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 346.83145682303 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.49716044480634 (Coefficient of the river basin erosion)

W_{god} = 43364.604433765 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.3034105639269 (Coefficient of the deposit retention)

G_{god} = 13157.279085716 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 327.04362723922 m^3 km^{-2} god^{-1} (Real soil losses per km^2)