Web application for Intensity of Erosion and Outflow

Name of the River Basin: Karlicica potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.948177,19.841591

INPUT DATA

Geometric characteristics of the river basins

F = 2.13339 km^2 (Surface area of the drainage basin)

O = 6.29609 km (Length of the watershed)

Fv = 1.47775 km^2 (Surface area of greater portion of the drainage basin)

Fm = 0.65564 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 1.09497 km (Natural length of main water course)

Lb = 2.67013 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["1.27164 ","1.16910 ","1.07760 ","0.84885 ","0.71365 ","0.51498 "]

The area between the two neighboring contour lines - f [km^2]: ["0.72860 ","0.39016 ","0.35340 ","0.30792 ","0.18133 ","0.12493 ","0.04705 "]

h0 = 700 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 635 (Lowest altitude in the drainage basin)

Hmax = 1218 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 1.09497 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 1.06647 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 = 0.3288 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.6712 (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 = 0.474517649 (Part of the surface area of the drainage basin under the forest)

ft = 0.355936095 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.169546257 (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 = 1.16045 (Types of soil structures and allied types)

11.4 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

67.48 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

21.13 % (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 = 0.50327 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

16.95 % (Plough-lands)

2.95 % (Orchards and vineyards)

9.6 % (Mountain pastures)

23.04 % (Meadows)

28.47 % (Degraded forests)

18.98 % (Well-constituted forests)

ϕ = 0.291135 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.47 % (Depth erosion)

2.19 % (80% of the river basin under rill and gully erosion)

1.92 % (50% of the river basin under rill and gully erosion)

1.65 % (100% of the river basin under surface erosion)

23.04 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.82 % (50% of the river basin under surface erosion)

0.55 % (20% of the river basin under surface erosion)

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

16.95 % (The river basin mostly under plough-land)

50.4 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 1.1212522260884 (Coefficient of the river basin form)

m = 0.21147652284075 (Coefficient of the watershed development)

B = 0.79898357008835 km (Average river basin width)

a = 0.77070765307797 ((A)symmetry of the river basin)

G = 0.51325355420247 (Density of the river network of the basin)

K = 1.026723677178 (Coefficient of the river basin tortuousness)

H_{sr} = 826.30177792152 m (Average river basin altitude)

D = 191.30177792152 m (Average elevation difference of the river basin)

I_{sr} = 26.229709523341 % (Average river basin decline)

H_{leb} = 583 m (The height of the local erosion base of the river basin)

E_r = 153.55045875482 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.90136 (Coefficient of the regions permeability)

S_2 = 0.7390057224 (Coefficient of the vegetation cover)

W = 1.7680951030382 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 89.483741014778 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 118.16780118003 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.46913394119195 (Coefficient of the river basin erosion)

W_{god} = 2107.8790063911 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.19783304256964 (Coefficient of the deposit retention)

G_{god} = 417.00811720304 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 195.4673628371 m^3 km^{-2} god^{-1} (Real soil losses per km^2)