Web application for Intensity of Erosion and Outflow

Name of the River Basin: Rastocki potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 43.014343,19.730621

INPUT DATA

Geometric characteristics of the river basins

F = 3.11484 km^2 (Surface area of the drainage basin)

O = 9.04999 km (Length of the watershed)

Fv = 2.01053 km^2 (Surface area of greater portion of the drainage basin)

Fm = 1.10431 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 3.05494 km (Natural length of main water course)

Lb = 3.79687 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.96111 ","2.67691 ","3.95387 ","4.51106 ","3.04726 ","2.8391 ","1.99244 ","1.14 "]

The area between the two neighboring contour lines - f [km^2]: ["2.80222 ","0.24287 ","0.46999 ","0.5509 ","0.42817 ","0.38134 ","0.36028 ","0.23723 ","0.90068 "]

h0 = 600 m (Altitude of the initial contour)

▲h = 50 m (Equidistance)

Hmin = 552 (Lowest altitude in the drainage basin)

Hmax = 983 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 4.6904 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 2.80611 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 = 0.0855 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.9145 (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 = 0.449512057 (Part of the surface area of the drainage basin under the forest)

ft = 0.409614519 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.140873424 (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 = 893.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.26695 (Types of soil structures and allied types)

18.55 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

81.45 % (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 = 0.519875 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

14.09 % (Plough-lands)

11 % (Orchards and vineyards)

6.52 % (Mountain pastures)

23.44 % (Meadows)

29.22 % (Degraded forests)

15.73 % (Well-constituted forests)

ϕ = 0.270085 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

1.68 % (Depth erosion)

1.49 % (80% of the river basin under rill and gully erosion)

1.3 % (50% of the river basin under rill and gully erosion)

1.12 % (100% of the river basin under surface erosion)

23.44 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.56 % (50% of the river basin under surface erosion)

0.37 % (20% of the river basin under surface erosion)

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

14.09 % (The river basin mostly under plough-land)

55.95 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.57767028157672 (Coefficient of the river basin form)

m = 0.48829230623438 (Coefficient of the watershed development)

B = 0.82037046303929 km (Average river basin width)

a = 0.58187258414557 ((A)symmetry of the river basin)

G = 1.5058237341244 (Density of the river network of the basin)

K = 1.0886743570281 (Coefficient of the river basin tortuousness)

H_{sr} = 1455.6591799258 m (Average river basin altitude)

D = 903.6591799258 m (Average elevation difference of the river basin)

I_{sr} = 33.905032040169 % (Average river basin decline)

H_{leb} = 431 m (The height of the local erosion base of the river basin)

E_r = 103.26864096877 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.97435 (Coefficient of the regions permeability)

S_2 = 0.7382722734 (Coefficient of the vegetation cover)

W = 1.7349314679035 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 235.00099738342 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 169.4195809817 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.56141518924913 (Coefficient of the river basin erosion)

W_{god} = 3658.6998684316 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.4381083166953 (Coefficient of the deposit retention)

G_{god} = 1602.9068406519 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 514.60326715077 m^3 km^{-2} god^{-1} (Real soil losses per km^2)