Web application for Intensity of Erosion and Outflow

Name of the River Basin: Zorin potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.676894,19.862192

INPUT DATA

Geometric characteristics of the river basins

F = 14.76505 km^2 (Surface area of the drainage basin)

O = 17.31694 km (Length of the watershed)

Fv = 8.68274 km^2 (Surface area of greater portion of the drainage basin)

Fm = 6.08231 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 2.68544 km (Natural length of main water course)

Lb = 6.41894 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["1.97336 ","6.38796 ","6.70489 ","6.57601 ","6.39539 ","6.10127 ","5.66343 ","5.33710 ","3.67136 ","1.05165 ","0.64204 ","0.40662 "]

The area between the two neighboring contour lines - f [km^2]: ["0.33677 ","2.67540 ","1.69251 ","1.73429 ","1.84289 ","1.57783 ","1.53829 ","1.23032 ","1.34466 ","0.48165 ","0.16450 ","0.09530 ","0.05064 "]

h0 = 800 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 780 (Lowest altitude in the drainage basin)

Hmax = 1988 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 2.68544 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 2.44721 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.1962 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.156 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.6478 (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 = 0.537175621 (Part of the surface area of the drainage basin under the forest)

ft = 0.422613972 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.040210407 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 115 mm (Level of torrent rain)

Up (years) = 100

to = 9.0 °C (Average annual air temperature)

Hgod = 1183.7 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.23773 (Types of soil structures and allied types)

19.12 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

63.75 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

17.12 % (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 = 0.360605 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

4.02 % (Plough-lands)

3.23 % (Orchards and vineyards)

27.82 % (Mountain pastures)

11.21 % (Meadows)

11.49 % (Degraded forests)

42.23 % (Well-constituted forests)

ϕ = 0.35351 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

7.15 % (Depth erosion)

6.36 % (80% of the river basin under rill and gully erosion)

5.56 % (50% of the river basin under rill and gully erosion)

4.77 % (100% of the river basin under surface erosion)

11.21 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.38 % (50% of the river basin under surface erosion)

1.59 % (20% of the river basin under surface erosion)

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

4.02 % (The river basin mostly under plough-land)

56.94 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 1.2574487979623 (Coefficient of the river basin form)

m = 0.19714831088342 (Coefficient of the watershed development)

B = 2.3002318139755 km (Average river basin width)

a = 0.35224127246437 ((A)symmetry of the river basin)

G = 0.18187815144547 (Density of the river network of the basin)

K = 1.0973475917473 (Coefficient of the river basin tortuousness)

H_{sr} = 1175.9434245058 m (Average river basin altitude)

D = 395.9434245058 m (Average elevation difference of the river basin)

I_{sr} = 34.480804331851 % (Average river basin decline)

H_{leb} = 1208 m (The height of the local erosion base of the river basin)

E_r = 196.15904166331 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.83548 (Coefficient of the regions permeability)

S_2 = 0.7006069572 (Coefficient of the vegetation cover)

W = 1.37751377303 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 338.67530453989 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 343.38418840686 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.4198702219755 (Coefficient of the river basin erosion)

W_{god} = 14938.226989774 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.41283508957208 (Coefficient of the deposit retention)

G_{god} = 6167.0242773715 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 417.67716854135 m^3 km^{-2} god^{-1} (Real soil losses per km^2)