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 km² (Surface area of the drainage basin)

O = 17.31694 km (Length of the watershed)

 $Fv = 8.68274 \text{ km}^2$ (Surface area of greater portion of the drainage basin)

Fm = 6.08231 km² (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 [km²]: ["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)

 $\Delta h = 100 \text{ m (Equidistance)}$

Hmin = 780 (Lowest altitude in the drainage basin)

Hmax = 1988 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

 $\Sigma L = 2.68544$ 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)

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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)
\phi = 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
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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)

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

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

T = 1 (Temperature coefficient of the region)

Z = 0.4198702219755 (Coefficient of the river basin erosion)

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

 $R_u = 0.41283508957208$ (Coefficient of the deposit retention)

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

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

http://www.wintero.me