Web application for Intensity of Erosion and Outflow

Name of the River Basin: Zim potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.728154,19.836015

INPUT DATA

Geometric characteristics of the river basins

F = 4.43397 km^2 (Surface area of the drainage basin)

O = 9.6491 km (Length of the watershed)

Fv = 2.58211 km^2 (Surface area of greater portion of the drainage basin)

Fm = 1.85186 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 0.65491 km (Natural length of main water course)

Lb = 3.62389 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["4.02329 ","3.79075 ","3.40498 ","2.87883 ","2.31531 ","1.93894 ","1.49808 ","0.52992 "]

The area between the two neighboring contour lines - f [km^2]: ["0.84366 ","0.57276 ","0.74182 ","0.63388 ","0.58726 ","0.45977 ","0.37590 ","0.18269 ","0.03624 "]

h0 = 800 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 741 (Lowest altitude in the drainage basin)

Hmax = 1503 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 0.65491 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 0.61386 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.5726 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.3987 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.0287 (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 = 0.499253578 (Part of the surface area of the drainage basin under the forest)

ft = 0.484862241 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.015884181 (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 = 1.1022 (Types of soil structures and allied types)

15.94 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

13.43 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

70.63 % (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 = 0.35816 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

1.59 % (Plough-lands)

0.57 % (Orchards and vineyards)

34.19 % (Mountain pastures)

13.73 % (Meadows)

9.97 % (Degraded forests)

39.96 % (Well-constituted forests)

ϕ = 0.409695 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

8.79 % (Depth erosion)

7.81 % (80% of the river basin under rill and gully erosion)

6.84 % (50% of the river basin under rill and gully erosion)

5.86 % (100% of the river basin under surface erosion)

13.73 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.93 % (50% of the river basin under surface erosion)

1.95 % (20% of the river basin under surface erosion)

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

1.59 % (The river basin mostly under plough-land)

50.5 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 2.8730275915775 (Coefficient of the river basin form)

m = 0.087736501854513 (Coefficient of the watershed development)

B = 1.2235387939479 km (Average river basin width)

a = 0.32938878702382 ((A)symmetry of the river basin)

G = 0.14770284868865 (Density of the river network of the basin)

K = 1.0668719251947 (Coefficient of the river basin tortuousness)

H_{sr} = 1033.8433480605 m (Average river basin altitude)

D = 292.8433480605 m (Average elevation difference of the river basin)

I_{sr} = 45.963549595509 % (Average river basin decline)

H_{leb} = 762 m (The height of the local erosion base of the river basin)

E_r = 167.15020403232 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.53683 (Coefficient of the regions permeability)

S_2 = 0.7033261206 (Coefficient of the vegetation cover)

W = 1.4061303540943 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 159.61127192149 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 243.45711055629 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.42936865571343 (Coefficient of the river basin erosion)

W_{god} = 4639.0577267313 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.3155304634884 (Coefficient of the deposit retention)

G_{god} = 1463.764034665 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 330.12492972775 m^3 km^{-2} god^{-1} (Real soil losses per km^2)