Web application for Intensity of Erosion and Outflow

Name of the River Basin: Zlorecica

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.735018,19.79568

INPUT DATA

Geometric characteristics of the river basins

F = 170.19755 km^2 (Surface area of the drainage basin)

O = 60.93071 km (Length of the watershed)

Fv = 117.47809 km^2 (Surface area of greater portion of the drainage basin)

Fm = 52.71946 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 16.69702 km (Natural length of main water course)

Lb = 22.77723 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["9.25276 ","27.74068 ","44.55425 ","57.96002 ","64.56767 ","67.29615 ","70.76123 ","73.52592 ","71.72385 ","71.32298 ","74.58127 ","66.54549 ","49.64816 ","15.88754 ","5.53762 ","4.59787 ","1.06358 "]

The area between the two neighboring contour lines - f [km^2]: ["2.03517 ","5.66120 ","9.52310 ","13.46591 ","13.94602 ","14.45533 ","14.15940 ","14.54445 ","14.41372 ","14.63845 ","15.15389 ","16.67854 ","11.29736 ","7.11058 ","1.83785 ","0.54158 ","0.54807 ","0.18691 "]

h0 = 800 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 732 (Lowest altitude in the drainage basin)

Hmax = 2461 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 43.36777 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 14.09585 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.3986 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.086 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.5154 (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 = 0.521257964 (Part of the surface area of the drainage basin under the forest)

ft = 0.461097844 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.017644192 (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 = 0.84518 (Types of soil structures and allied types)

3.06 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

19.67 % (Decomposed limestone and marls)

0 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

3.52 % (Solid and Schist limestone, Terra Rosa and Humic soil)

49.17 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

24.58 % (Good structured Chernozems and alluvial well-structured deposits)

0 % (Bare, compact igneous)

Xa = 0.39965 (Planning of the drainage basin, rate of drainage basin regulation)

6.93 % (Bare lands)

1.64 % (Plough-lands)

1.64 % (Orchards and vineyards)

29.62 % (Mountain pastures)

11.66 % (Meadows)

10.09 % (Degraded forests)

38.42 % (Well-constituted forests)

ϕ = 0.38722 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

8.18 % (Depth erosion)

7.27 % (80% of the river basin under rill and gully erosion)

6.37 % (50% of the river basin under rill and gully erosion)

5.46 % (100% of the river basin under surface erosion)

12.53 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.73 % (50% of the river basin under surface erosion)

1.82 % (20% of the river basin under surface erosion)

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

1.76 % (The river basin mostly under plough-land)

53.88 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.71159335318518 (Coefficient of the river basin form)

m = 0.36104171485807 (Coefficient of the watershed development)

B = 7.4722672598907 km (Average river basin width)

a = 0.76098192952836 ((A)symmetry of the river basin)

G = 0.25480842703082 (Density of the river network of the basin)

K = 1.1845344551765 (Coefficient of the river basin tortuousness)

H_{sr} = 1476.2661182549 m (Average river basin altitude)

D = 744.2661182549 m (Average elevation difference of the river basin)

I_{sr} = 45.62739240371 % (Average river basin decline)

H_{leb} = 1729 m (The height of the local erosion base of the river basin)

E_r = 152.37257066374 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.73504 (Coefficient of the regions permeability)

S_2 = 0.6992772456 (Coefficient of the vegetation cover)

W = 1.2930761440727 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 1576.4865793743 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 745.60125496966 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.35895492735269 (Coefficient of the river basin erosion)

W_{god} = 136114.59750605 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.50448638795329 (Coefficient of the deposit retention)

G_{god} = 68667.961643546 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 403.46034148873 m^3 km^{-2} god^{-1} (Real soil losses per km^2)