Web application for Intensity of Erosion and Outflow

Name of the River Basin: Pisevska rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.713853,19.841359

INPUT DATA

Geometric characteristics of the river basins

F = 13.1774 km^2 (Surface area of the drainage basin)

O = 17.67563 km (Length of the watershed)

Fv = 8.13781 km^2 (Surface area of greater portion of the drainage basin)

Fm = 5.03959 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 4.29066 km (Natural length of main water course)

Lb = 7.73623 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.74605 ","4.20528 ","5.27618 ","5.71525 ","6.62818 ","7.15637 ","7.99406 ","8.38899 ","5.47760 ","3.73894 ","2.56524 ","1.73568 "]

The area between the two neighboring contour lines - f [km^2]: ["0.34733 ","0.85915 ","0.85252 ","1.06944 ","1.28883 ","1.26091 ","1.48741 ","1.50505 ","1.80966 ","1.01645 ","0.81578 ","0.45640 ","0.40846 "]

h0 = 800 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 775 (Lowest altitude in the drainage basin)

Hmax = 1988 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 4.29066 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 3.86715 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.1694 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.0949 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7357 (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 = 0.554404007 (Part of the surface area of the drainage basin under the forest)

ft = 0.419556599 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.026039393 (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 = 1.14458 (Types of soil structures and allied types)

7.82 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

79.28 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

12.9 % (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 = 0.34176 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.6 % (Plough-lands)

1.69 % (Orchards and vineyards)

25.37 % (Mountain pastures)

14.9 % (Meadows)

12.18 % (Degraded forests)

43.26 % (Well-constituted forests)

ϕ = 0.35404 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

6.52 % (Depth erosion)

5.8 % (80% of the river basin under rill and gully erosion)

5.07 % (50% of the river basin under rill and gully erosion)

4.35 % (100% of the river basin under surface erosion)

14.9 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.17 % (50% of the river basin under surface erosion)

1.45 % (20% of the river basin under surface erosion)

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

2.6 % (The river basin mostly under plough-land)

57.13 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.80331414048188 (Coefficient of the river basin form)

m = 0.33342971790941 (Coefficient of the watershed development)

B = 1.7033361210822 km (Average river basin width)

a = 0.47023236753836 ((A)symmetry of the river basin)

G = 0.32560747947243 (Density of the river network of the basin)

K = 1.109514758931 (Coefficient of the river basin tortuousness)

H_{sr} = 1345.7389633008 m (Average river basin altitude)

D = 570.7389633008 m (Average elevation difference of the river basin)

I_{sr} = 46.767814591649 % (Average river basin decline)

H_{leb} = 1213 m (The height of the local erosion base of the river basin)

E_r = 202.65321400665 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.86989 (Coefficient of the regions permeability)

S_2 = 0.6943270764 (Coefficient of the vegetation cover)

W = 1.3625870161202 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 384.13433479227 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 253.95760641893 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.40600096959969 (Coefficient of the river basin erosion)

W_{god} = 12676.864712869 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.44451244148543 (Coefficient of the deposit retention)

G_{god} = 5635.0240838979 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 427.62791475541 m^3 km^{-2} god^{-1} (Real soil losses per km^2)