Web application for Intensity of Erosion and Outflow

Name of the River Basin: Pepicka rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.655985,19.90641

INPUT DATA

Geometric characteristics of the river basins

F = 8.37729 km^2 (Surface area of the drainage basin)

O = 14.87242 km (Length of the watershed)

Fv = 5.16713 km^2 (Surface area of greater portion of the drainage basin)

Fm = 3.21016 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 5.49795 km (Natural length of main water course)

Lb = 6.40713 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.63084 ","3.34422 ","3.84844 ","4.23396 ","3.89224 ","2.95327 ","2.6569 ","2.9065 ","3.0454 ","3.16974 ","1.95251 ","1.25336 ","0.25212 ","0.10000 "]

The area between the two neighboring contour lines - f [km^2]: ["1.36782 ","0.66695 ","0.77565 ","0.8747 ","0.9344 ","0.78505 ","0.55176 ","0.58917 ","0.46316 ","0.49859 ","0.45822 ","0.29376 ","0.09634 ","0.02062 ","0.10000 "]

h0 = 900 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 845 (Lowest altitude in the drainage basin)

Hmax = 2211 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 5.49795 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 4.35858 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.1357 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1629 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7014 (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 = 0.583741637 (Part of the surface area of the drainage basin under the forest)

ft = 0.408709233 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.007549130 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 89.4 mm (Level of torrent rain)

Up (years) = 100

to = 8.1 °C (Average annual air temperature)

Hgod = 1182.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.19581 (Types of soil structures and allied types)

15.55 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

62.38 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

22.07 % (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 = 0.34533 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

0.74 % (Plough-lands)

0.61 % (Orchards and vineyards)

24.01 % (Mountain pastures)

15.45 % (Meadows)

17.99 % (Degraded forests)

41.2 % (Well-constituted forests)

ϕ = 0.351375 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

6.3 % (Depth erosion)

5.6 % (80% of the river basin under rill and gully erosion)

4.9 % (50% of the river basin under rill and gully erosion)

4.2 % (100% of the river basin under surface erosion)

15.76 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

2.1 % (50% of the river basin under surface erosion)

1.4 % (20% of the river basin under surface erosion)

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

0.75 % (The river basin mostly under plough-land)

58.99 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.52749150137779 (Coefficient of the river basin form)

m = 0.53585104128542 (Coefficient of the watershed development)

B = 1.307494931428 km (Average river basin width)

a = 0.46720836929365 ((A)symmetry of the river basin)

G = 0.65629218995642 (Density of the river network of the basin)

K = 1.2614085321366 (Coefficient of the river basin tortuousness)

H_{sr} = 1325.9790994462 m (Average river basin altitude)

D = 480.9790994462 m (Average elevation difference of the river basin)

I_{sr} = 43.259216285935 % (Average river basin decline)

H_{leb} = 1366 m (The height of the local erosion base of the river basin)

E_r = 255.57886620057 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.86971 (Coefficient of the regions permeability)

S_2 = 0.6847614986 (Coefficient of the vegetation cover)

W = 1.1022813277418 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 281.16702059095 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 97.361239418983 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.95393920141695 (Temperature coefficient of the region)

Z = 0.41670376056399 (Coefficient of the river basin erosion)

W_{god} = 7984.411986772 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.34515141916523 (Coefficient of the deposit retention)

G_{god} = 2755.8311284342 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 328.96451339684 m^3 km^{-2} god^{-1} (Real soil losses per km^2)