Web application for Intensity of Erosion and Outflow

Name of the River Basin: Trepcanska rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.775302,19.827458

INPUT DATA

Geometric characteristics of the river basins

F = 39.30106 km^2 (Surface area of the drainage basin)

O = 34.96124 km (Length of the watershed)

Fv = 25.21372 km^2 (Surface area of greater portion of the drainage basin)

Fm = 14.08734 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 13.83445 km (Natural length of main water course)

Lb = 15.94679 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["6.00891 ","6.14476 ","5.92980 ","3.80681 ","4.06229 ","9.15918 ","23.16723 ","28.49943 ","29.58575 ","18.10096 ","6.55870 "]

The area between the two neighboring contour lines - f [km^2]: ["1.79194 ","1.53032 ","1.53571 ","1.17150 ","0.87034 ","1.39986 ","4.05783 ","6.08236 ","8.25404 ","7.20836 ","4.39681 ","1.00200 "]

h0 = 800 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 721 (Lowest altitude in the drainage basin)

Hmax = 1876 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 16.4327 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 12.62873 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.1344 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.0524 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.8132 (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 = 0.706685953 (Part of the surface area of the drainage basin under the forest)

ft = 0.289831663 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.003482384 (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 = 1.09227 (Types of soil structures and allied types)

2.13 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

88.67 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

0.7 % (Solid and Schist limestone, Terra Rosa and Humic soil)

8.5 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

0 % (Good structured Chernozems and alluvial well-structured deposits)

0 % (Bare, compact igneous)

Xa = 0.283355 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

0.35 % (Plough-lands)

0.13 % (Orchards and vineyards)

14.02 % (Mountain pastures)

14.84 % (Meadows)

18.27 % (Degraded forests)

52.39 % (Well-constituted forests)

ϕ = 0.272765 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

3.6 % (Depth erosion)

3.2 % (80% of the river basin under rill and gully erosion)

2.8 % (50% of the river basin under rill and gully erosion)

2.4 % (100% of the river basin under surface erosion)

14.84 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.2 % (50% of the river basin under surface erosion)

0.8 % (20% of the river basin under surface erosion)

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

0.35 % (The river basin mostly under plough-land)

70.8 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.49278733885337 (Coefficient of the river basin form)

m = 0.62252218635761 (Coefficient of the watershed development)

B = 2.4645122936967 km (Average river basin width)

a = 0.56621271792669 ((A)symmetry of the river basin)

G = 0.41812358241737 (Density of the river network of the basin)

K = 1.0954743667811 (Coefficient of the river basin tortuousness)

H_{sr} = 1440.7855632902 m (Average river basin altitude)

D = 719.7855632902 m (Average elevation difference of the river basin)

I_{sr} = 35.882955828672 % (Average river basin decline)

H_{leb} = 1155 m (The height of the local erosion base of the river basin)

E_r = 146.83549293981 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.90364 (Coefficient of the regions permeability)

S_2 = 0.6593592862 (Coefficient of the vegetation cover)

W = 1.3057283178395 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 744.99472794661 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 285.61639764054 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.26981878989408 (Coefficient of the river basin erosion)

W_{god} = 20483.49544393 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.42093965497042 (Coefficient of the deposit retention)

G_{god} = 8622.315504756 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 219.39142366023 m^3 km^{-2} god^{-1} (Real soil losses per km^2)