Web application for Intensity of Erosion and Outflow

Name of the River Basin: Sliv Lipnice

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 43.038386,19.752343

INPUT DATA

Geometric characteristics of the river basins

F = 5.11182 km^2 (Surface area of the drainage basin)

O = 12.58694 km (Length of the watershed)

Fv = 3.03952 km^2 (Surface area of greater portion of the drainage basin)

Fm = 2.0723 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 4.12232 km (Natural length of main water course)

Lb = 5.8545 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["1.90947 ","4.72769 ","6.15777 ","1.47384 ","0.86249 "]

The area between the two neighboring contour lines - f [km^2]: ["0.54766 ","0.98079 ","1.71140 ","1.27544 ","0.35407 ","0.24246 "]

h0 = 600 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 560 (Lowest altitude in the drainage basin)

Hmax = 1096 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 4.12232 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 4.03403 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.143 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.857 (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 = 0.536223996 (Part of the surface area of the drainage basin under the forest)

ft = 0.418065896 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.045710107 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 157.6 mm (Level of torrent rain)

Up (years) = 100

to = 8.9 °C (Average annual air temperature)

Hgod = 893.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.17695 (Types of soil structures and allied types)

8.55 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

91.45 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

0 % (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 = 0.466325 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

4.57 % (Plough-lands)

7.53 % (Orchards and vineyards)

8.44 % (Mountain pastures)

25.84 % (Meadows)

34.85 % (Degraded forests)

18.77 % (Well-constituted forests)

ϕ = 0.290825 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.17 % (Depth erosion)

1.93 % (80% of the river basin under rill and gully erosion)

1.69 % (50% of the river basin under rill and gully erosion)

1.45 % (100% of the river basin under surface erosion)

25.84 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.72 % (50% of the river basin under surface erosion)

0.48 % (20% of the river basin under surface erosion)

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

4.57 % (The river basin mostly under plough-land)

61.15 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.59540581517204 (Coefficient of the river basin form)

m = 0.5143384514286 (Coefficient of the watershed development)

B = 0.87314373558801 km (Average river basin width)

a = 0.37842490541529 ((A)symmetry of the river basin)

G = 0.80642902136617 (Density of the river network of the basin)

K = 1.0218863022833 (Coefficient of the river basin tortuousness)

H_{sr} = 765.53847357693 m (Average river basin altitude)

D = 205.53847357693 m (Average elevation difference of the river basin)

I_{sr} = 29.600533665113 % (Average river basin decline)

H_{leb} = 536 m (The height of the local erosion base of the river basin)

E_r = 113.46738047561 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.9571 (Coefficient of the regions permeability)

S_2 = 0.7018972214 (Coefficient of the vegetation cover)

W = 1.7215743450696 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 143.57665841494 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 98.867495989006 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.45822133689495 (Coefficient of the river basin erosion)

W_{god} = 4427.4464685227 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.22778786920778 (Coefficient of the deposit retention)

G_{god} = 1008.5185970963 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 197.29149248141 m^3 km^{-2} god^{-1} (Real soil losses per km^2)