Web application for Intensity of Erosion and Outflow

Name of the River Basin: Nikolin potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 43.009608,19.739122

INPUT DATA

Geometric characteristics of the river basins

F = 1.55807 km^2 (Surface area of the drainage basin)

O = 6.60901 km (Length of the watershed)

Fv = 0.84346 km^2 (Surface area of greater portion of the drainage basin)

Fm = 0.71461 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 2.43468 km (Natural length of main water course)

Lb = 3.02977 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.25 ","1.25458 ","2.36614 ","2.96405 ","2.02494 ","1.79414 ","1.77331 ","0.18047 "]

The area between the two neighboring contour lines - f [km^2]: ["0.08060 ","0.07773 ","0.20672 ","0.25671 ","0.28424 ","0.18212 ","0.22623 ","0.24325 ","0.01236 "]

h0 = 600 m (Altitude of the initial contour)

▲h = 50 m (Equidistance)

Hmin = 551 (Lowest altitude in the drainage basin)

Hmax = 983 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 3.02207 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 2.2963 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 = 0.077 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.923 (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 = 0.572645755 (Part of the surface area of the drainage basin under the forest)

ft = 0.372279326 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.055074919 (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 = 1.17425 (Types of soil structures and allied types)

8.25 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

91.75 % (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 = 0.47634 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

5.51 % (Plough-lands)

8.67 % (Orchards and vineyards)

9.24 % (Mountain pastures)

19.32 % (Meadows)

37.22 % (Degraded forests)

20.04 % (Well-constituted forests)

ϕ = 0.264305 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.38 % (Depth erosion)

2.11 % (80% of the river basin under rill and gully erosion)

1.85 % (50% of the river basin under rill and gully erosion)

1.58 % (100% of the river basin under surface erosion)

19.32 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.79 % (50% of the river basin under surface erosion)

0.53 % (20% of the river basin under surface erosion)

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

5.51 % (The river basin mostly under plough-land)

65.93 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.52933319779191 (Coefficient of the river basin form)

m = 0.55022899638651 (Coefficient of the watershed development)

B = 0.51425355720071 km (Average river basin width)

a = 0.16539693338553 ((A)symmetry of the river basin)

G = 1.9396240220273 (Density of the river network of the basin)

K = 1.0602621608675 (Coefficient of the river basin tortuousness)

H_{sr} = 786.90671150847 m (Average river basin altitude)

D = 235.90671150847 m (Average elevation difference of the river basin)

I_{sr} = 40.459125713222 % (Average river basin decline)

H_{leb} = 432 m (The height of the local erosion base of the river basin)

E_r = 123.07989944145 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.9769 (Coefficient of the regions permeability)

S_2 = 0.6964858328 (Coefficient of the vegetation cover)

W = 1.7437961156615 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 84.920615373418 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 53.333534639835 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.5036205052634 (Coefficient of the river basin erosion)

W_{god} = 1554.9157981503 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.20083238005273 (Coefficient of the deposit retention)

G_{god} = 312.27744052413 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 200.42580918965 m^3 km^{-2} god^{-1} (Real soil losses per km^2)