Web application for Intensity of Erosion and Outflow

Name of the River Basin: Rovacki potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.817809,19.866599

INPUT DATA

Geometric characteristics of the river basins

F = 11.69991 km^2 (Surface area of the drainage basin)

O = 17.97199 km (Length of the watershed)

Fv = 7.77371 km^2 (Surface area of greater portion of the drainage basin)

Fm = 3.9262 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 7.32939 km (Natural length of main water course)

Lb = 8.95886 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.26373 ","2.44888 ","3.41644 ","6.61094 ","5.77042 ","4.94255 ","4.89357 ","4.17590 ","0.68560 "]

The area between the two neighboring contour lines - f [km^2]: ["1.46015 ","1.21997 ","0.85333 ","0.98065 ","2.09782 ","1.89411 ","1.20545 ","1.27968 ","0.67651 ","0.03226 "]

h0 = 700 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 690 (Lowest altitude in the drainage basin)

Hmax = 1567 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 7.32939 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 6.06925 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.7788 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.2212 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0 (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 = 0.569665531 (Part of the surface area of the drainage basin under the forest)

ft = 0.361735681 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.068598788 (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 = 944.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.33903 (Types of soil structures and allied types)

33.07 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

37.63 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

29.3 % (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 = 0.460195 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

6.86 % (Plough-lands)

3.34 % (Orchards and vineyards)

13.62 % (Mountain pastures)

19.22 % (Meadows)

34.18 % (Degraded forests)

22.79 % (Well-constituted forests)

ϕ = 0.29517 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

3.5 % (Depth erosion)

3.11 % (80% of the river basin under rill and gully erosion)

2.72 % (50% of the river basin under rill and gully erosion)

2.33 % (100% of the river basin under surface erosion)

19.22 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.17 % (50% of the river basin under surface erosion)

0.78 % (20% of the river basin under surface erosion)

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

6.86 % (The river basin mostly under plough-land)

60.31 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.47814866585077 (Coefficient of the river basin form)

m = 0.60446566749059 (Coefficient of the watershed development)

B = 1.3059596868352 km (Average river basin width)

a = 0.65769907631768 ((A)symmetry of the river basin)

G = 0.6264484085775 (Density of the river network of the basin)

K = 1.2076269720311 (Coefficient of the river basin tortuousness)

H_{sr} = 1045.517269791 m (Average river basin altitude)

D = 355.517269791 m (Average elevation difference of the river basin)

I_{sr} = 30.092564814601 % (Average river basin decline)

H_{leb} = 877 m (The height of the local erosion base of the river basin)

E_r = 150.93991129251 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.46636 (Coefficient of the regions permeability)

S_2 = 0.6997866514 (Coefficient of the vegetation cover)

W = 1.3406486806972 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 285.67426131384 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 59.763495936829 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.51992326106903 (Coefficient of the river basin erosion)

W_{god} = 13012.215743941 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.29172601205162 (Coefficient of the deposit retention)

G_{god} = 3796.0018069353 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 324.44709463024 m^3 km^{-2} god^{-1} (Real soil losses per km^2)