Web application for Intensity of Erosion and Outflow

Name of the River Basin: Malski potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.751792,19.788604

INPUT DATA

Geometric characteristics of the river basins

F = 10.5856 km^2 (Surface area of the drainage basin)

O = 15.36462 km (Length of the watershed)

Fv = 6.90521 km^2 (Surface area of greater portion of the drainage basin)

Fm = 3.68039 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 2.9127 km (Natural length of main water course)

Lb = 6.60504 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["5.00500 ","4.98801 ","4.05822 ","3.33958 ","3.45037 ","3.20026 ","2.78777 ","1.48300 ","0.22885 "]

The area between the two neighboring contour lines - f [km^2]: ["2.50054 ","1.85878 ","1.85338 ","1.16409 ","1.06377 ","0.70530 ","0.69200 ","0.51245 ","0.21541 ","0.01988 "]

h0 = 800 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 726 (Lowest altitude in the drainage basin)

Hmax = 1640 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 2.9127 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 2.8697 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.0486 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.3995 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.5519 (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 = 0.494792756 (Part of the surface area of the drainage basin under the forest)

ft = 0.454165783 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.051041461 (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 = 1.19724 (Types of soil structures and allied types)

12.84 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

78.72 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

6.92 % (Solid and Schist limestone, Terra Rosa and Humic soil)

1.53 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.362405 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

5.1 % (Plough-lands)

12.84 % (Orchards and vineyards)

8.86 % (Mountain pastures)

23.72 % (Meadows)

9.79 % (Degraded forests)

39.69 % (Well-constituted forests)

ϕ = 0.28349 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.28 % (Depth erosion)

2.03 % (80% of the river basin under rill and gully erosion)

1.77 % (50% of the river basin under rill and gully erosion)

1.52 % (100% of the river basin under surface erosion)

23.72 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.76 % (50% of the river basin under surface erosion)

0.51 % (20% of the river basin under surface erosion)

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

5.1 % (The river basin mostly under plough-land)

62.32 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 1.0286335358945 (Coefficient of the river basin form)

m = 0.25254169103003 (Coefficient of the watershed development)

B = 1.6026549422865 km (Average river basin width)

a = 0.60928431076179 ((A)symmetry of the river basin)

G = 0.27515681680774 (Density of the river network of the basin)

K = 1.0149841446841 (Coefficient of the river basin tortuousness)

H_{sr} = 1003.1726704202 m (Average river basin altitude)

D = 277.1726704202 m (Average elevation difference of the river basin)

I_{sr} = 26.962156136638 % (Average river basin decline)

H_{leb} = 914 m (The height of the local erosion base of the river basin)

E_r = 161.29371808927 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.85099 (Coefficient of the regions permeability)

S_2 = 0.711249741 (Coefficient of the vegetation cover)

W = 1.3751701123048 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 239.92883439137 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 205.42160885251 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.34829787407486 (Coefficient of the river basin erosion)

W_{god} = 8091.578186912 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.31963111466604 (Coefficient of the deposit retention)

G_{god} = 2586.3201552901 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 244.32437984527 m^3 km^{-2} god^{-1} (Real soil losses per km^2)