Web application for Intensity of Erosion and Outflow

Name of the River Basin: Ramcina

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.98746,19.755437

INPUT DATA

Geometric characteristics of the river basins

F = 9.88503 km^2 (Surface area of the drainage basin)

O = 14.83463 km (Length of the watershed)

Fv = 6.36461 km^2 (Surface area of greater portion of the drainage basin)

Fm = 3.52042 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 3.70578 km (Natural length of main water course)

Lb = 6.26708 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.3181 ","1.31226 ","2.12829 ","4.51802 ","5.523 ","6.75476 ","7.30353 ","7.69399 ","8.05699 ","7.84416 ","4.52585 ","3.23553 ","3.35417 ","3.21198 ","3.23518 ","3.47135 ","3.26101 ","2.82166 ","2.96052 ","2.25237 ","1.84255 ","2.15

The area between the two neighboring contour lines - f [km^2]: ["0.012686275 ","0.075166667 ","0.201147059 ","0.376539216 ","0.475588235 ","0.773588235 ","1.000970588 ","0.838009804 ","0.908764706 ","0.949941176 ","0.919607843 ","0.381372549 ","0.372745098 ","0.271343137 ","0.31872549 ","0.23422549 ",

h0 = 600 m (Altitude of the initial contour)

Δh = 50 m (Equidistance)

Hmin = 580 (Lowest altitude in the drainage basin)

Hmax = 1757 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 10.10603 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 2.52952 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 = 0.1157 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.8843 (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 = 0.676996973 (Part of the surface area of the drainage basin under the forest)

ft = 0.261297321 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.061705706 (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 = 983.7 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 0.907145 (Types of soil structures and allied types)

11.39 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

0 % (Serpentines, red sand stones, flishe deposits)

39.38 % (Podzols and parapodzols, decomposed schist)

0 % (Solid and Schist limestone, Terra Rosa and Humic soil)

29.54 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

19.69 % (Bare, compact igneous)

Xa = 0.461275 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

6.17 % (Plough-lands)

5.86 % (Orchards and vineyards)

3.9 % (Mountain pastures)

16.37 % (Meadows)

44 % (Degraded forests)

23.69 % (Well-constituted forests)

ϕ = 0.212295 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

1 % (Depth erosion)

0.89 % (80% of the river basin under rill and gully erosion)

0.78 % (50% of the river basin under rill and gully erosion)

0.67 % (100% of the river basin under surface erosion)

16.37 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.33 % (50% of the river basin under surface erosion)

0.22 % (20% of the river basin under surface erosion)

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

6.17 % (The river basin mostly under plough-land)

73.57 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.7806056619659 (Coefficient of the river basin form)

m = 0.33249544895342 (Coefficient of the watershed development)

B = 1.5772943699458 km (Average river basin width)

a = 0.57545399457564 ((A)symmetry of the river basin)

G = 1.022357038876 (Density of the river network of the basin)

K = 1.4650131250198 (Coefficient of the river basin tortuousness)

H_{sr} = 1055.6012384204 m (Average river basin altitude)

D = 475.6012384204 m (Average elevation difference of the river basin)

I_{sr} = 45.087627452825 % (Average river basin decline)

H_{leb} = 1177 m (The height of the local erosion base of the river basin)

E_r = 211.29153209166 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.96529 (Coefficient of the regions permeability)

S_2 = 0.6769417466 (Coefficient of the vegetation cover)

W = 1.7265533765394 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 303.71062517259 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 267.47352216594 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.36980689582108 (Coefficient of the river basin erosion)

W_{god} = 6835.5055602383 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.3876020693761 (Coefficient of the deposit retention)

G_{god} = 2649.4561003802 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 268.0271178115 m^3 km^{-2} god^{-1} (Real soil losses per km^2)