Web application for Intensity of Erosion and Outflow

Name of the River Basin: Djuricka rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.617437,19.937493

INPUT DATA

Geometric characteristics of the river basins

F = 69.57222 km^2 (Surface area of the drainage basin)

O = 39.89908 km (Length of the watershed)

Fv = 35.87209 km^2 (Surface area of greater portion of the drainage basin)

Fm = 33.70013 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 14.54081 km (Natural length of main water course)

Lb = 16.2095 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["10.20105 ","20.72815 ","26.40122 ","28.32701 ","31.82954 ","32.87518 ","32.29958 ","29.51557 ","27.32305 ","19.02231 ","12.12301 ","2.52508 "]

The area between the two neighboring contour lines - f [km^2]: ["5.34923 ","4.65281 ","5.91714 ","6.33132 ","6.56607 ","6.79885 ","7.37212 ","7.49663 ","6.74740 ","6.14937 ","4.05821 ","1.83075 ","0.30230 "]

h0 = 1000 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 907 (Lowest altitude in the drainage basin)

Hmax = 2149 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 37.50148 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 12.11945 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.0325 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.0645 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.903 (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 = 0.504824965 (Part of the surface area of the drainage basin under the forest)

ft = 0.469212049 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.025962986 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 89.4 mm (Level of torrent rain)

Up (years) = 100

to = 8.1 °C (Average annual air temperature)

Hgod = 1345.4 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.19888 (Types of soil structures and allied types)

11.06 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

88.61 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

0.33 % (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 = 0.44754 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.6 % (Plough-lands)

0.48 % (Orchards and vineyards)

35.48 % (Mountain pastures)

10.96 % (Meadows)

25.24 % (Degraded forests)

25.24 % (Well-constituted forests)

ϕ = 0.40546 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

9.12 % (Depth erosion)

8.11 % (80% of the river basin under rill and gully erosion)

7.1 % (50% of the river basin under rill and gully erosion)

6.08 % (100% of the river basin under surface erosion)

10.96 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

3.04 % (50% of the river basin under surface erosion)

2.03 % (20% of the river basin under surface erosion)

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

2.6 % (The river basin mostly under plough-land)

50.96 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.53506789511726 (Coefficient of the river basin form)

m = 0.49177419582941 (Coefficient of the watershed development)

B = 4.2920645300595 km (Average river basin width)

a = 0.062437564878625 ((A)symmetry of the river basin)

G = 0.53902951494145 (Density of the river network of the basin)

K = 1.1997912446522 (Coefficient of the river basin tortuousness)

H_{sr} = 1476.4028322655 m (Average river basin altitude)

D = 569.4028322655 m (Average elevation difference of the river basin)

I_{sr} = 39.264342865586 % (Average river basin decline)

H_{leb} = 1242 m (The height of the local erosion base of the river basin)

E_r = 136.88717401773 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.96115 (Coefficient of the regions permeability)

S_2 = 0.7042276042 (Coefficient of the vegetation cover)

W = 1.0628969455629 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 881.61149438756 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 339.37630041292 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.95393920141695 (Temperature coefficient of the region)

Z = 0.553755238131 (Coefficient of the river basin erosion)

W_{god} = 115593.82236054 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.38844752171698 (Coefficient of the deposit retention)

G_{god} = 44902.133821746 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 645.40320578739 m^3 km^{-2} god^{-1} (Real soil losses per km^2)