Web application for Intensity of Erosion and Outflow

Name of the River Basin: Kisjele vode

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 43.07919,19.784681

INPUT DATA

Geometric characteristics of the river basins

F = 10.29929 km² (Surface area of the drainage basin)

O = 14.30003 km (Length of the watershed)

 $Fv = 7.00498 \text{ km}^2$ (Surface area of greater portion of the drainage basin)

Fm = 3.29431 km² (Surface area of smaller portion of the drainage basin)

Lv = 4.003 km (Natural length of main water course)

Lb = 5.84308 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["6.10853 ","7.34426 ","4.27789 ","1.76582 ","1.20790 ","0.81557 "]

The area between the two neighboring contour lines - f [km²]: ["2.68118 ","3.11941 ","2.38172 ","1.10291 ","0.50458 ","0.37513 ","0.13436 "]

h0 = 600 m (Altitude of the initial contour)

 $\Delta h = 100 \text{ m (Equidistance)}$

Hmin = 545 (Lowest altitude in the drainage basin)

Hmax = 1185 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

 $\Sigma L = 4.003$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 3.89458 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 = 0.1833 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.8167 (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 = 0.390910153 (Part of the surface area of the drainage basin under the forest)

ft = 0.453519217 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.155570630 (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 = 873.7 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.28378 (Types of soil structures and allied types)

20.42 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

79.58 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

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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 = 0.53572 (Planning of the drainage basin, rate of drainage basin regulation)
0 % (Bare lands)
15.56 % (Plough-lands)
13.72 % (Orchards and vineyards)
6.91 % (Mountain pastures)
24.72 % (Meadows)
25.41 % (Degraded forests)
13.68 % (Well-constituted forests)
\phi = 0.28 (Numerical coefficient of visible and clearly pointed processes of soil erosion)
1.78 % (Depth erosion)
1.58 % (80% of the river basin under rill and gully erosion)
1.38 % (50% of the river basin under rill and gully erosion)
1.19 % (100% of the river basin under surface erosion)
24.72 % (100% of the river basin under surface erosion, without visible furrows, ravines and
land slides)
0.59 % (50% of the river basin under surface erosion)
0.4 % (20% of the river basin under surface erosion)
0 % (There are smaller slides in the watercourse beds)
15.56 % (The river basin mostly under plough-land)
52.8 % (The river basin under forests and perennial vegetation)
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INPUT DATA

A = 0.69660400949288 (Coefficient of the river basin form)

m = 0.3518657655853 (Coefficient of the watershed development)

B = 1.7626474393642 km (Average river basin width)

a = 0.72056811683135 ((A)symmetry of the river basin)

G = 0.38866756834694 (Density of the river network of the basin)

K = 1.0278386886391 (Coefficient of the river basin tortuousness) $H_{sr} = 710.05859141747 \text{ m (Average river basin altitude)}$ D = 165.05859141747 m (Average elevation difference of the river basin) $I_{sr} = 20.894615065699 \text{ (Average river basin decline)}$ $H_{leb} = 640 \text{ m (The height of the local erosion base of the river basin)}$ $E_r = 113.71775558922 \text{ (Coefficient of the erosion energy of the river basins relief)}$ $S_1 = 0.94501 \text{ (Coefficient of the regions permeability)}$ $S_2 = 0.7529320954 \text{ (Coefficient of the vegetation cover)}$ W = 1.7229738266463 m (Analytical presentation of the water retention in inflow) $2gDF^{1/2} = 182.63003916662 \text{ m km s}^{-1} \text{ (Energetic potential of water flow during torrent rains)}$ $Q_{max} = 155.96569211528 \text{ m}^3 \text{ s}^{-1} \text{ (Maximal outflow from the river basin)}$ T = 0.99498743710662 (Temperature coefficient of the region) Z = 0.50694235341003 (Coefficient of the river basin erosion) $W_{god} = 10152.545804758 \text{ m}^3 \text{ god}^{-1} \text{ (Production of erosion material in the river basin)}$ $R_u = 0.21943022500281 \text{ (Coefficient of the deposit retention)}$

 $G_{god} = 2227.7754102893 \text{ m}^3 \text{ god}^{-1} \text{ (Real soil losses)}$

 $G_{god} \text{ km}^{-2} = 216.30378504628 \text{ m}^3 \text{ km}^{-2} \text{ god}^{-1} \text{ (Real soil losses per km}^2\text{)}$

http://www.wintero.me