Web application for Intensity of Erosion and Outflow

Name of the River Basin: Orahovacka rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 43.126851,19.766691

INPUT DATA

Geometric characteristics of the river basins

F = 11.4021 km^2 (Surface area of the drainage basin)

O = 14.58839 km (Length of the watershed)

Fv = 5.7314 km^2 (Surface area of greater portion of the drainage basin)

Fm = 5.6707 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 5.20805 km (Natural length of main water course)

Lb = 6.52291 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["4.66683 ","6.71907 ","7.60343 ","6.77277 ","5.69539 ","3.50497 ","2.04705 "]

The area between the two neighboring contour lines - f [km^2]: ["0.84581 ","1.59509 ","2.10808 ","2.21129 ","2.09680 ","1.37155 ","0.81267 ","0.36081 "]

h0 = 600 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 537 (Lowest altitude in the drainage basin)

Hmax = 1212 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 5.20805 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 4.07012 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 = 0.0766 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.9234 (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 = 0.512796530 (Part of the surface area of the drainage basin under the forest)

ft = 0.401242996 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.085960473 (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 = 1.13519 (Types of soil structures and allied types)

3.91 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

96.09 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

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 = 0.481495 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

8.6 % (Plough-lands)

4.48 % (Orchards and vineyards)

10.59 % (Mountain pastures)

25.06 % (Meadows)

33.33 % (Degraded forests)

17.95 % (Well-constituted forests)

ϕ = 0.30398 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.72 % (Depth erosion)

2.42 % (80% of the river basin under rill and gully erosion)

2.12 % (50% of the river basin under rill and gully erosion)

1.81 % (100% of the river basin under surface erosion)

25.06 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.91 % (50% of the river basin under surface erosion)

0.6 % (20% of the river basin under surface erosion)

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

8.6 % (The river basin mostly under plough-land)

55.76 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.54621903591555 (Coefficient of the river basin form)

m = 0.4350886861393 (Coefficient of the watershed development)

B = 1.7480081742658 km (Average river basin width)

a = 0.010647161487796 ((A)symmetry of the river basin)

G = 0.45676235079503 (Density of the river network of the basin)

K = 1.2795814374023 (Coefficient of the river basin tortuousness)

H_{sr} = 857.74575253681 m (Average river basin altitude)

D = 320.74575253681 m (Average elevation difference of the river basin)

I_{sr} = 32.458503258172 % (Average river basin decline)

H_{leb} = 675 m (The height of the local erosion base of the river basin)

E_r = 116.92508350443 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.97702 (Coefficient of the regions permeability)

S_2 = 0.7146327878 (Coefficient of the vegetation cover)

W = 1.709670871128 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 267.86895367866 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 174.65785292733 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.47755619836772 (Coefficient of the river basin erosion)

W_{god} = 10276.645623896 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.28447270568727 (Coefficient of the deposit retention)

G_{god} = 2923.4251860189 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 256.39357539566 m^3 km^{-2} god^{-1} (Real soil losses per km^2)