Web application for Intensity of Erosion and Outflow

Name of the River Basin: Susica

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.99937,19.783771

INPUT DATA

Geometric characteristics of the river basins

F = 19.88449 km^2 (Surface area of the drainage basin)

O = 18.87811 km (Length of the watershed)

Fv = 15.55164 km^2 (Surface area of greater portion of the drainage basin)

Fm = 4.33285 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 4.61118 km (Natural length of main water course)

Lb = 8.47295 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["4.71580 ","7.09187 ","9.06489 ","12.09064 ","9.39542 ","8.02450 ","3.10048 ","1.45538 "]

The area between the two neighboring contour lines - f [km^2]: ["5.46874 ","1.96215 ","1.76201 ","2.47458 ","3.14015 ","2.55860 ","1.73104 ","0.55649 ","0.23072 "]

h0 = 700 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 670 (Lowest altitude in the drainage basin)

Hmax = 1474 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 8.96687 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 3.4541 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.5922 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1445 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.2633 (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 = 0.564559451 (Part of the surface area of the drainage basin under the forest)

ft = 0.350041601 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.085398949 (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 = 944.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.3092 (Types of soil structures and allied types)

24.35 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

71.13 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

3.53 % (Solid and Schist limestone, Terra Rosa and Humic soil)

1 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.45926 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

8.54 % (Plough-lands)

3.27 % (Orchards and vineyards)

9.02 % (Mountain pastures)

22.72 % (Meadows)

33.87 % (Degraded forests)

22.58 % (Well-constituted forests)

ϕ = 0.28125 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.32 % (Depth erosion)

2.06 % (80% of the river basin under rill and gully erosion)

1.8 % (50% of the river basin under rill and gully erosion)

1.55 % (100% of the river basin under surface erosion)

22.72 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0.77 % (50% of the river basin under surface erosion)

0.52 % (20% of the river basin under surface erosion)

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

8.54 % (The river basin mostly under plough-land)

59.72 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.79832742378307 (Coefficient of the river basin form)

m = 0.29170905822571 (Coefficient of the watershed development)

B = 2.3468201747915 km (Average river basin width)

a = 1.1283960513948 ((A)symmetry of the river basin)

G = 0.45094794988456 (Density of the river network of the basin)

K = 1.3349874062708 (Coefficient of the river basin tortuousness)

H_{sr} = 933.00922176028 m (Average river basin altitude)

D = 263.00922176028 m (Average elevation difference of the river basin)

I_{sr} = 27.629061645534 % (Average river basin decline)

H_{leb} = 804 m (The height of the local erosion base of the river basin)

E_r = 121.1930072017 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.60133 (Coefficient of the regions permeability)

S_2 = 0.7041679004 (Coefficient of the vegetation cover)

W = 1.3599658789281 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 320.32602015572 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 147.26189109066 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.48514937173591 (Coefficient of the river basin erosion)

W_{god} = 19933.682148869 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.305006748772 (Coefficient of the deposit retention)

G_{god} = 6079.907583281 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 305.76130357284 m^3 km^{-2} god^{-1} (Real soil losses per km^2)