Web application for Intensity of Erosion and Outflow

Name of the River Basin: Tifran

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.929765,19.849683

INPUT DATA

Geometric characteristics of the river basins

F = 2.37591 km^2 (Surface area of the drainage basin)

O = 7.62522 km (Length of the watershed)

Fv = 1.75819 km^2 (Surface area of greater portion of the drainage basin)

Fm = 0.61772 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 2.22005 km (Natural length of main water course)

Lb = 2.99791 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["0.21619 ","0.41679 ","0.80423 ","1.98632 ","3.82004 ","0.97984 "]

The area between the two neighboring contour lines - f [km^2]: ["0.02119 ","0.02951 ","0.08112 ","0.59 ","0.60163 ","0.85699 ","0.19547 "]

h0 = 600 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 545 (Lowest altitude in the drainage basin)

Hmax = 1123 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 4.58 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 1.81702 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.715 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1217 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.1633 (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 = 0.598511530 (Part of the surface area of the drainage basin under the forest)

ft = 0.308099654 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.093388816 (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 = 1.23581 (Types of soil structures and allied types)

15.09 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

84.91 % (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 = 0.4601 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

9.34 % (Plough-lands)

1.37 % (Orchards and vineyards)

10.63 % (Mountain pastures)

18.81 % (Meadows)

35.91 % (Degraded forests)

23.94 % (Well-constituted forests)

ϕ = 0.27342 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.73 % (Depth erosion)

2.43 % (80% of the river basin under rill and gully erosion)

2.13 % (50% of the river basin under rill and gully erosion)

1.82 % (100% of the river basin under surface erosion)

18.81 % (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)

0.61 % (20% of the river basin under surface erosion)

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

9.34 % (The river basin mostly under plough-land)

61.22 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.66976775297854 (Coefficient of the river basin form)

m = 0.40629626598175 (Coefficient of the watershed development)

B = 0.79252212374621 km (Average river basin width)

a = 0.96002794718655 ((A)symmetry of the river basin)

G = 1.9276824458839 (Density of the river network of the basin)

K = 1.2218082354625 (Coefficient of the river basin tortuousness)

H_{sr} = 960.60275010417 m (Average river basin altitude)

D = 415.60275010417 m (Average elevation difference of the river basin)

I_{sr} = 34.611622494118 % (Average river basin decline)

H_{leb} = 578 m (The height of the local erosion base of the river basin)

E_r = 148.19053617049 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.53449 (Coefficient of the regions permeability)

S_2 = 0.6989754572 (Coefficient of the vegetation cover)

W = 1.3826455788623 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 139.188610894 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 48.154881096734 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.48998004464068 (Coefficient of the river basin erosion)

W_{god} = 2417.4496485715 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.29135495489714 (Coefficient of the deposit retention)

G_{god} = 704.33593332567 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 296.44891150156 m^3 km^{-2} god^{-1} (Real soil losses per km^2)