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

 $F = 2.37591 \text{ km}^2$ (Surface area of the drainage basin)

O = 7.62522 km (Length of the watershed)

 $Fv = 1.75819 \text{ km}^2$ (Surface area of greater portion of the drainage basin)

Fm = 0.61772 km² (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)

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

Hmin = 545 (Lowest altitude in the drainage basin)

Hmax = 1123 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

 $\Sigma L = 4.58$ 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)

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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 = 0.4601 (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)
\phi = 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)
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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) $H_{sr} = 960.60275010417 \text{ m (Average river basin altitude)}$ D = 415.60275010417 m (Average elevation difference of the river basin) $I_{sr} = 34.611622494118 \text{ % (Average river basin decline)}$ $H_{leb} = 578 \text{ m (The height of the local erosion base of the river basin)}$ $E_r = 148.19053617049 \text{ (Coefficient of the erosion energy of the river basins relief)}$ $S_1 = 0.53449 \text{ (Coefficient of the regions permeability)}$ $S_2 = 0.6989754572 \text{ (Coefficient of the vegetation cover)}$ W = 1.3826455788623 m (Analytical presentation of the water retention in inflow) $2gDF^{1/2} = 139.188610894 \text{ m km s}^{-1} \text{ (Energetic potential of water flow during torrent rains)}$ $Q_{max} = 48.154881096734 \text{ m}^3 \text{ s}^{-1} \text{ (Maximal outflow from the river basin)}$ T = 1 (Temperature coefficient of the region) Z = 0.48998004464068 (Coefficient of the river basin erosion)

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

 $R_u = 0.29135495489714$ (Coefficient of the deposit retention)

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

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

http://www.wintero.me