Web application for Intensity of Erosion and Outflow

Name of the River Basin: Tronosa

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.968747,19.836161

INPUT DATA

Geometric characteristics of the river basins

F = 29.5919 km^2 (Surface area of the drainage basin)

O = 27.49582 km (Length of the watershed)

Fv = 19.85667 km^2 (Surface area of greater portion of the drainage basin)

Fm = 9.73523 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 11.33772 km (Natural length of main water course)

Lb = 12.40093 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["10.42299 ","17.33215 ","19.26944 ","16.25709 ","11.98655 ","9.71556 ","5.71036 ","0.74851 "]

The area between the two neighboring contour lines - f [km^2]: ["2.98664 ","4.35729 ","5.20436 ","5.85422 ","3.92314 ","3.46386 ","2.40854 ","1.35322 ","0.04063 "]

h0 = 700 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 622 (Lowest altitude in the drainage basin)

Hmax = 1476 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 11.33772 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 10.43256 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.2021 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.0383 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7596 (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 = 0.532023983 (Part of the surface area of the drainage basin under the forest)

ft = 0.314555218 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.153420799 (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 = 983.7 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.1063 (Types of soil structures and allied types)

3.71 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

82.79 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

13.49 % (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 = 0.50782 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

15.34 % (Plough-lands)

1.94 % (Orchards and vineyards)

17.99 % (Mountain pastures)

11.52 % (Meadows)

31.92 % (Degraded forests)

21.28 % (Well-constituted forests)

ϕ = 0.29172 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

4.63 % (Depth erosion)

4.11 % (80% of the river basin under rill and gully erosion)

3.6 % (50% of the river basin under rill and gully erosion)

3.08 % (100% of the river basin under surface erosion)

11.52 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.54 % (50% of the river basin under surface erosion)

1.03 % (20% of the river basin under surface erosion)

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

15.34 % (The river basin mostly under plough-land)

55.15 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.47290680136747 (Coefficient of the river basin form)

m = 0.58794184371746 (Coefficient of the watershed development)

B = 2.3862645785437 km (Average river basin width)

a = 0.68406827544024 ((A)symmetry of the river basin)

G = 0.3831359257094 (Density of the river network of the basin)

K = 1.0867629805148 (Coefficient of the river basin tortuousness)

H_{sr} = 953.84329765916 m (Average river basin altitude)

D = 331.84329765916 m (Average elevation difference of the river basin)

I_{sr} = 30.901243245618 % (Average river basin decline)

H_{leb} = 854 m (The height of the local erosion base of the river basin)

E_r = 116.55067292076 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.86725 (Coefficient of the regions permeability)

S_2 = 0.7242793632 (Coefficient of the vegetation cover)

W = 1.6583702814239 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 438.93726385624 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 216.22700768523 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.99498743710662 (Temperature coefficient of the region)

Z = 0.47618773455425 (Coefficient of the river basin erosion)

W_{god} = 29899.938795429 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.28312736497123 (Coefficient of the deposit retention)

G_{god} = 8465.4908839509 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 286.07459757403 m^3 km^{-2} god^{-1} (Real soil losses per km^2)