Web application for Intensity of Erosion and Outflow

Name of the River Basin: Dragovo vrelo

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.678026,19.924543

INPUT DATA

Geometric characteristics of the river basins

F = 11.49594 km^2 (Surface area of the drainage basin)

O = 14.1326 km (Length of the watershed)

Fv = 6.05517 km^2 (Surface area of greater portion of the drainage basin)

Fm = 5.44077 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 3.72568 km (Natural length of main water course)

Lb = 5.58109 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.80685 ","4.10299 ","4.70407 ","5.32706 ","5.34557 ","4.95016 ","4.80633 ","4.44049 ","3.29382 ","2.93046 ","2.65587 ","0.39185 "]

The area between the two neighboring contour lines - f [km^2]: ["0.96358 ","0.78701 ","1.08552 ","1.26289 ","1.36072 ","1.31207 ","1.09857 ","1.18937 ","0.77843 ","0.66581 ","0.64353 ","0.3243 ","0.02649 "]

h0 = 900 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 849 (Lowest altitude in the drainage basin)

Hmax = 2003 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 3.72568 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 3.19774 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.1331 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1086 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.7583 (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 = 0.450957516 (Part of the surface area of the drainage basin under the forest)

ft = 0.512015243 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.037027241 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 89.4 mm (Level of torrent rain)

Up (years) = 100

to = 8.1 °C (Average annual air temperature)

Hgod = 1182.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.14191 (Types of soil structures and allied types)

8.49 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

74.26 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

17.25 % (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 = 0.38131 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

3.7 % (Plough-lands)

3.02 % (Orchards and vineyards)

19.94 % (Mountain pastures)

28.24 % (Meadows)

13.04 % (Degraded forests)

32.06 % (Well-constituted forests)

ϕ = 0.38328 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

5.13 % (Depth erosion)

4.56 % (80% of the river basin under rill and gully erosion)

3.99 % (50% of the river basin under rill and gully erosion)

3.42 % (100% of the river basin under surface erosion)

28.24 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.71 % (50% of the river basin under surface erosion)

1.14 % (20% of the river basin under surface erosion)

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

3.7 % (The river basin mostly under plough-land)

48.12 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.73969235146336 (Coefficient of the river basin form)

m = 0.30997621732387 (Coefficient of the watershed development)

B = 2.059801938331 km (Average river basin width)

a = 0.10688991069891 ((A)symmetry of the river basin)

G = 0.32408659057024 (Density of the river network of the basin)

K = 1.1650978503568 (Coefficient of the river basin tortuousness)

H_{sr} = 1341.0461819564 m (Average river basin altitude)

D = 492.0461819564 m (Average elevation difference of the river basin)

I_{sr} = 39.801460341651 % (Average river basin decline)

H_{leb} = 1154 m (The height of the local erosion base of the river basin)

E_r = 199.48939536053 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.88756 (Coefficient of the regions permeability)

S_2 = 0.717213945 (Coefficient of the vegetation cover)

W = 1.1134000606982 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 333.13838718121 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 174.6519722035 m^3 s^{-1} (Maximal outflow from the river basin)

T = 0.95393920141695 (Temperature coefficient of the region)

Z = 0.44158900886332 (Coefficient of the river basin erosion)

W_{god} = 11952.813129977 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.38424665261268 (Coefficient of the deposit retention)

G_{god} = 4592.8284344986 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 399.51743263262 m^3 km^{-2} god^{-1} (Real soil losses per km^2)