# 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<sup>2</sup> (Surface area of the drainage basin)

O = 14.1326 km (Length of the watershed)

 $Fv = 6.05517 \text{ km}^2$  (Surface area of greater portion of the drainage basin)

 $Fm = 5.44077 \text{ km}^2$  (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 [km²]: ["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)

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

**Hmin = 849 (Lowest altitude in the drainage basin)** 

Hmax = 2003 (Highest altitude in the draigane basin

# Hydrological characteristics of the river basins

 $\Sigma L = 3.72568$  km (The total length of the main watercourse with tributaries of 1<sup>st</sup> and 2<sup>nd</sup> 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)

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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)
\phi = 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
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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)

 $\overline{G}$  = 0.32408659057024 (Density of the river network of the basin) K = 1.1650978503568 (Coefficient of the river basin tortuousness)

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

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

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

 $H_{leb}$  = 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)

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

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

T = 0.95393920141695 (Temperature coefficient of the region)

Z = 0.44158900886332 (Coefficient of the river basin erosion)

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

 $R_u = 0.38424665261268$  (Coefficient of the deposit retention)

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

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

http://www.wintero.me