Web application for Intensity of Erosion and Outflow

Name of the River Basin: Seremetski potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.672351,19.866152

INPUT DATA

Geometric characteristics of the river basins

F = 6.90446 km^2 (Surface area of the drainage basin)

O = 11.50498 km (Length of the watershed)

Fv = 3.75804 km^2 (Surface area of greater portion of the drainage basin)

Fm = 3.14642 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 1.27037 km (Natural length of main water course)

Lb = 5.07595 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.65353 ","2.85988 ","2.69617 ","2.63675 ","2.49850 ","2.48061 ","2.40735 ","2.49351 ","2.47841 ","2.29500 ","2.21177 ","1.38448 ","0.88421 "]

The area between the two neighboring contour lines - f [km^2]: ["0.95194 ","0.71860 ","0.65874 ","0.69487 ","0.60179 ","0.49996 ","0.48542 ","0.45687 ","0.56179 ","0.50261 ","0.33114 ","0.25706 ","0.12930 ","0.05438 "]

h0 = 900 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 810 (Lowest altitude in the drainage basin)

Hmax = 2126 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 1.27037 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 1.17921 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.327 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1602 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.5128 (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 = 0.680741123 (Part of the surface area of the drainage basin under the forest)

ft = 0.298309852 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.020949025 (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 = 1183.7 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.1281 (Types of soil structures and allied types)

11.24 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

52.23 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

36.53 % (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 = 0.309695 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.09 % (Plough-lands)

2.38 % (Orchards and vineyards)

17.81 % (Mountain pastures)

9.64 % (Meadows)

17.23 % (Degraded forests)

50.85 % (Well-constituted forests)

ϕ = 0.274395 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

4.58 % (Depth erosion)

4.07 % (80% of the river basin under rill and gully erosion)

3.56 % (50% of the river basin under rill and gully erosion)

3.05 % (100% of the river basin under surface erosion)

9.64 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.53 % (50% of the river basin under surface erosion)

1.02 % (20% of the river basin under surface erosion)

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

2.09 % (The river basin mostly under plough-land)

70.45 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 1.7659981737604 (Coefficient of the river basin form)

m = 0.13638306247806 (Coefficient of the watershed development)

B = 1.3602301047095 km (Average river basin width)

a = 0.17716664301046 ((A)symmetry of the river basin)

G = 0.18399266561034 (Density of the river network of the basin)

K = 1.0773059929953 (Coefficient of the river basin tortuousness)

H_{sr} = 1321.8867427721 m (Average river basin altitude)

D = 511.8867427721 m (Average elevation difference of the river basin)

I_{sr} = 43.421455117417 % (Average river basin decline)

H_{leb} = 1316 m (The height of the local erosion base of the river basin)

E_r = 258.41849156576 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.75574 (Coefficient of the regions permeability)

S_2 = 0.6680415804 (Coefficient of the vegetation cover)

W = 1.3951648113995 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 263.33058351586 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 327.56158937589 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.32607973066115 (Coefficient of the river basin erosion)

W_{god} = 4780.8700990263 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.43064726833478 (Coefficient of the deposit retention)

G_{god} = 2058.8686484091 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 298.19401494239 m^3 km^{-2} god^{-1} (Real soil losses per km^2)