Web application for Intensity of Erosion and Outflow

Name of the River Basin: Sekularska rijeka

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.781727,19.835325

INPUT DATA

Geometric characteristics of the river basins

F = 64.93593 km^2 (Surface area of the drainage basin)

O = 40.61151 km (Length of the watershed)

Fv = 44.52282 km^2 (Surface area of greater portion of the drainage basin)

Fm = 20.41311 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 15.17969 km (Natural length of main water course)

Lb = 17.4308 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["9.15953 ","15.16561 ","20.38885 ","25.65009 ","29.77258 ","32.39267 ","34.84162 ","31.79902 ","26.31041 ","22.16719 ","21.64608 ","12.82036 ","0.22610 "]

The area between the two neighboring contour lines - f [km^2]: ["1.46373 ","2.30328 ","2.93086 ","4.49297 ","5.76601 ","7.91851 ","7.96642 ","7.82193 ","6.58029 ","5.40123 ","4.88961 ","5.41711 ","1.97717 ","0.00679 "]

h0 = 800 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 710 (Lowest altitude in the drainage basin)

Hmax = 2003 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 21.70965 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 13.02266 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.4286 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.1223 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.4491 (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 = 0.552708356 (Part of the surface area of the drainage basin under the forest)

ft = 0.422843164 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.024448480 (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 = 1.03459 (Types of soil structures and allied types)

0.98 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

61.86 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

37.17 % (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 = 0.34842 (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)

7.06 % (Degraded forests)

38.04 % (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 = 0.52170001166032 (Coefficient of the river basin form)

m = 0.53139252144067 (Coefficient of the watershed development)

B = 3.725355692223 km (Average river basin width)

a = 0.74256917549344 ((A)symmetry of the river basin)

G = 0.33432415613359 (Density of the river network of the basin)

K = 1.1656366671632 (Coefficient of the river basin tortuousness)

H_{sr} = 1397.521770074 m (Average river basin altitude)

D = 687.521770074 m (Average elevation difference of the river basin)

I_{sr} = 43.479797702135 % (Average river basin decline)

H_{leb} = 1293 m (The height of the local erosion base of the river basin)

E_r = 144.98643989094 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.70615 (Coefficient of the regions permeability)

S_2 = 0.6943480248 (Coefficient of the vegetation cover)

W = 1.2996341303175 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 935.9125289239 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 311.13680196408 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.3758539482342 (Coefficient of the river basin erosion)

W_{god} = 44388.820212213 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.41970815980843 (Coefficient of the deposit retention)

G_{god} = 18630.350047335 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 286.90356859962 m^3 km^{-2} god^{-1} (Real soil losses per km^2)