Web application for Intensity of Erosion and Outflow

Name of the River Basin: Navotinski potok

Country: Montenegro

Year: 2018

GPS coordinates, latitude and longitude with Google Maps: 42.79676,19.844666

INPUT DATA

Geometric characteristics of the river basins

F = 8.37511 km^2 (Surface area of the drainage basin)

O = 14.48935 km (Length of the watershed)

Fv = 5.00739 km^2 (Surface area of greater portion of the drainage basin)

Fm = 3.36772 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 4.68168 km (Natural length of main water course)

Lb = 5.80048 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.89220 ","2.41157 ","3.55199 ","3.82108 ","4.29406 ","2.07612 "]

The area between the two neighboring contour lines - f [km^2]: ["0.20124 ","0.77035 ","1.03434 ","1.42206 ","1.30556 ","2.06744 ","1.57411 "]

h0 = 700 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 698 (Lowest altitude in the drainage basin)

Hmax = 1280 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 5.34878 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 4.29355 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.5403 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.3185 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.1412 (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 = 0.684040325 (Part of the surface area of the drainage basin under the forest)

ft = 0.288509487 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.027450188 (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 = 1.08792 (Types of soil structures and allied types)

13.92 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

0 % (Decomposed limestone and marls)

17.4 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

68.68 % (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 = 0.26738 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.75 % (Plough-lands)

2.05 % (Orchards and vineyards)

13.08 % (Mountain pastures)

13.72 % (Meadows)

11.04 % (Degraded forests)

57.36 % (Well-constituted forests)

ϕ = 0.261895 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

3.36 % (Depth erosion)

2.99 % (80% of the river basin under rill and gully erosion)

2.62 % (50% of the river basin under rill and gully erosion)

2.24 % (100% of the river basin under surface erosion)

13.72 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

1.12 % (50% of the river basin under surface erosion)

0.75 % (20% of the river basin under surface erosion)

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

2.75 % (The river basin mostly under plough-land)

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

INPUT DATA

A = 0.60350627338904 (Coefficient of the river basin form)

m = 0.45635365557466 (Coefficient of the watershed development)

B = 1.4438649904835 km (Average river basin width)

a = 0.39155784222536 ((A)symmetry of the river basin)

G = 0.63865191024357 (Density of the river network of the basin)

K = 1.0903983882801 (Coefficient of the river basin tortuousness)

H_{sr} = 1032.6868136657 m (Average river basin altitude)

D = 334.6868136657 m (Average elevation difference of the river basin)

I_{sr} = 22.742411741458 % (Average river basin decline)

H_{leb} = 582 m (The height of the local erosion base of the river basin)

E_r = 108.89939875984 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.58027 (Coefficient of the regions permeability)

S_2 = 0.6686819726 (Coefficient of the vegetation cover)

W = 1.3594016937901 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 234.5114556383 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 74.652334102262 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1 (Temperature coefficient of the region)

Z = 0.21490374154398 (Coefficient of the river basin erosion)

W_{god} = 2475.2344871205 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.29998393264781 (Coefficient of the deposit retention)

G_{god} = 742.53057567188 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 88.659202765323 m^3 km^{-2} god^{-1} (Real soil losses per km^2)