Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S2-intA

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.82,57.69

INPUT DATA

Geometric characteristics of the river basins

F = 44.57 km^2 (Surface area of the drainage basin)

O = 47.37 km (Length of the watershed)

Fv = 23.2 km^2 (Surface area of greater portion of the drainage basin)

Fm = 21.36 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 9.45 km (Natural length of main water course)

Lb = 9.79 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["1.22 ","34.72 ","30.98 ","23 ","22.07 ","3.11 "]

The area between the two neighboring contour lines - f [km^2]: ["0.13 ","11.60 ","12.29 ","6.51 ","11.62 ","2.15 ","0.27 "]

h0 = 1300 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1291 (Lowest altitude in the drainage basin)

Hmax = 1874 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 72.2 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 9.2 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.31 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.16 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.53 (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 (Part of the surface area of the drainage basin under the forest)

ft = 0.97810 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.02190 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 34.89 mm (Level of torrent rain)

Up (years) = 100

to = 10.80 °C (Average annual air temperature)

Hgod = 319.6 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 0.96577 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

24.21 % (Decomposed limestone and marls)

44.09 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

0 % (Solid and Schist limestone, Terra Rosa and Humic soil)

0 % (Brown forest soils and Mountain soils)

31.71 % (Epieugleysol and Marshlands)

0 % (Good structured Chernozems and alluvial well-structured deposits)

0 % (Bare, compact igneous)

Xa = 0.61367 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

2.19 % (Plough-lands)

7.1 % (Orchards and vineyards)

90.71 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.59227 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

30.79 % (80% of the river basin under rill and gully erosion)

21.5 % (50% of the river basin under rill and gully erosion)

0 % (100% of the river basin under surface erosion)

0 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

0 % (50% of the river basin under surface erosion)

47.72 % (20% of the river basin under surface erosion)

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

0 % (The river basin mostly under plough-land)

0 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.97747619047619 (Coefficient of the river basin form)

m = 0.39930574575061 (Coefficient of the watershed development)

B = 4.5526046986721 km (Average river basin width)

a = 0.082585278276481 ((A)symmetry of the river basin)

G = 1.6199237155037 (Density of the river network of the basin)

K = 1.0271739130435 (Coefficient of the river basin tortuousness)

H_{sr} = 1507.0878393538 m (Average river basin altitude)

D = 216.0878393538 m (Average elevation difference of the river basin)

I_{sr} = 25.824545658515 % (Average river basin decline)

H_{leb} = 583 m (The height of the local erosion base of the river basin)

E_r = 71.822087476017 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.766 (Coefficient of the regions permeability)

S_2 = 0.80438 (Coefficient of the vegetation cover)

W = 0.46439268369981 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 434.69633849387 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 121.58152098868 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.08627804912 (Temperature coefficient of the region)

Z = 0.65219633340214 (Coefficient of the river basin erosion)

W_{god} = 25603.999523126 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.32898587042325 (Coefficient of the deposit retention)

G_{god} = 8423.3540694323 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 188.99156539 m^3 km^{-2} god^{-1} (Real soil losses per km^2)