Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S7-4

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.86,57.46

INPUT DATA

Geometric characteristics of the river basins

F = 36.4 km^2 (Surface area of the drainage basin)

O = 26.83 km (Length of the watershed)

Fv = 23.51 km^2 (Surface area of greater portion of the drainage basin)

Fm = 12.89 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 13.77 km (Natural length of main water course)

Lb = 10.65 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.81 ","15.98 ","21.82 ","24.49 ","21.73 ","14.26 ","15.73 ","6.07 ","0.39 "]

The area between the two neighboring contour lines - f [km^2]: ["0.55 ","5.63 ","6.41 ","7.17 ","6.34 ","3.73 ","4.09 ","2.11 ","0.36 ","0.01 "]

h0 = 1200 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 1171 (Lowest altitude in the drainage basin)

Hmax = 2030 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 81.74 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 11.47 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.09 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.2 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.71 (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 = 0.90310 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.09690 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 34.78 mm (Level of torrent rain)

Up (years) = 100

to = 10.80 °C (Average annual air temperature)

Hgod = 318.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.10366 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

49.86 % (Decomposed limestone and marls)

40.9 % (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)

9.24 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.62907 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

9.69 % (Plough-lands)

0 % (Orchards and vineyards)

90.31 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.43109 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

4.84 % (80% of the river basin under rill and gully erosion)

20.41 % (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)

74.75 % (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 = 0.37994553376906 (Coefficient of the river basin form)

m = 0.64384053624519 (Coefficient of the watershed development)

B = 3.4178403755869 km (Average river basin width)

a = 0.58351648351648 ((A)symmetry of the river basin)

G = 2.2456043956044 (Density of the river network of the basin)

K = 1.2005231037489 (Coefficient of the river basin tortuousness)

H_{sr} = 1497.3674450549 m (Average river basin altitude)

D = 326.3674450549 m (Average elevation difference of the river basin)

I_{sr} = 33.868131868132 % (Average river basin decline)

H_{leb} = 859 m (The height of the local erosion base of the river basin)

E_r = 111.31865368363 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.886 (Coefficient of the regions permeability)

S_2 = 0.81938 (Coefficient of the vegetation cover)

W = 0.45636929951207 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 482.78482318727 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 60.772969193942 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.08627804912 (Temperature coefficient of the region)

Z = 0.70334205499652 (Coefficient of the river basin erosion)

W_{god} = 23322.697402516 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.24898005933052 (Coefficient of the deposit retention)

G_{god} = 5806.8865830263 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 159.52985118204 m^3 km^{-2} god^{-1} (Real soil losses per km^2)