Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S2-intC

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.74,57.59

INPUT DATA

Geometric characteristics of the river basins

F = 35.98 km^2 (Surface area of the drainage basin)

O = 36.17 km (Length of the watershed)

Fv = 26.86 km^2 (Surface area of greater portion of the drainage basin)

Fm = 9.12 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 6.23 km (Natural length of main water course)

Lb = 11.49 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["2.34 ","34.19 ","27.58 ","11.49 ","15 ","1.84 "]

The area between the two neighboring contour lines - f [km^2]: ["0.22 ","12.37 ","8.05 ","5.15 ","7.04 ","3.14 ","0.01 "]

h0 = 1200 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1187 (Lowest altitude in the drainage basin)

Hmax = 1727 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 50.11 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 6.05 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.21 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.32 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.47 (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 = 0.47020 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.52980 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 34.04 mm (Level of torrent rain)

Up (years) = 100

to = 11.4 °C (Average annual air temperature)

Hgod = 309.3 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.05818 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

63.03 % (Decomposed limestone and marls)

16 % (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)

20.97 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.75894 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

52.98 % (Plough-lands)

0 % (Orchards and vineyards)

47.02 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.49476 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

14.34 % (80% of the river basin under rill and gully erosion)

17.55 % (50% of the river basin under rill and gully erosion)

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

6.99 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

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

61.12 % (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 = 1.1321268057785 (Coefficient of the river basin form)

m = 0.2929898228272 (Coefficient of the watershed development)

B = 3.1314186248912 km (Average river basin width)

a = 0.98610339077265 ((A)symmetry of the river basin)

G = 1.3927181767649 (Density of the river network of the basin)

K = 1.0297520661157 (Coefficient of the river basin tortuousness)

H_{sr} = 1394.3914674819 m (Average river basin altitude)

D = 207.3914674819 m (Average elevation difference of the river basin)

I_{sr} = 25.692051139522 % (Average river basin decline)

H_{leb} = 540 m (The height of the local erosion base of the river basin)

E_r = 70.182461706558 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.778 (Coefficient of the regions permeability)

S_2 = 0.90596 (Coefficient of the vegetation cover)

W = 0.45961900553079 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 382.62692129537 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 140.33215537716 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.113552872566 (Temperature coefficient of the region)

Z = 0.80440680002892 (Coefficient of the river basin erosion)

W_{god} = 28087.64931386 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.33750574715775 (Coefficient of the deposit retention)

G_{god} = 9479.7430675792 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 263.47256997163 m^3 km^{-2} god^{-1} (Real soil losses per km^2)