
Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S1-intA

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.75,57.79

INPUT DATA

Geometric characteristics of the river basins

F = 21.94 km² (Surface area of the drainage basin)

O = 26.31 km (Length of the watershed)

Fv = 11.32 km² (Surface area of greater portion of the drainage basin)

Fm = 10.62 km² (Surface area of smaller portion of the drainage basin)

Lv = 9.13 km (Natural length of main water course)

Lb = 8.48 km (Length of the drainage basin measured by a series of parallel lines)

Topographic characteristics of the river basins

Contour line length - Liz [km]: ["10.96 ", "38.43 ", "21.16 ", "10.80 ", "3.48 ", "0.24 "]

The area between the two neighboring contour lines - f [km²]: ["2.118 ", "8.905 ", "6.028 ", "3.478 ", "1.165 ", "0.236 ", "0.01 "]

h0 = 1500 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1426 (Lowest altitude in the drainage basin)

Hmax = 2007 (Highest altitude in the drainage basin)

Hydrological characteristics of the river basins

$\Sigma L = 52.89$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

$L_m = 8.4$ km (The shortest distance between the fountain (head and mouth))

Water permeability

$f_p = 0.2$ (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

$f_{pp} = 0.32$ (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.48$ (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

$f_s = 0.00$ (Part of the surface area of the drainage basin under the forest)

$f_t = 0.75200$ (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

$f_g = 0.24800$ (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

$h_b = 36.03$ mm (Level of torrent rain)

U_p (years) = 100

$t_o = 9.90$ °C (Average annual air temperature)

$H_{god} = 334.4$ mm (Average annual quantity of precipitation)

Erosion coefficients

$Y = 1.07585$ (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

47.79 % (Decomposed limestone and marls)

37.81 % (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)

14.41 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.6744 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

24.8 % (Plough-lands)

0 % (Orchards and vineyards)

75.2 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

$\phi = 0.39414$ (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

9.49 % (80% of the river basin under rill and gully erosion)

8.5 % (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)

76.71 % (20% of the river basin under surface erosion)

5.3 % (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 = 0.56193318729463 (Coefficient of the river basin form)

m = 0.54985418378271 (Coefficient of the watershed development)

B = 2.5872641509434 km (Average river basin width)

a = 0.063810391978122 ((A)symmetry of the river basin)

G = 2.4106654512306 (Density of the river network of the basin)

K = 1.0869047619048 (Coefficient of the river basin tortuousness)

H_{sr} = 1621.2201002735 m (Average river basin altitude)

D = 195.2201002735 m (Average elevation difference of the river basin)

I_{sr} = 38.773928896992 % (Average river basin decline)

H_{leb} = 581 m (The height of the local erosion base of the river basin)

E_r = 85.450991031702 (Coefficient of the erosion energy of the river basins relief)

S₁ = 0.784 (Coefficient of the regions permeability)

S₂ = 0.8496 (Coefficient of the vegetation cover)

W = 0.47923010485089 m (Analytical presentation of the water retention in inflow)

2gDF^{1/2} = 289.88789381416 m km s⁻¹ (Energetic potential of water flow during torrent rains)

Q_{max} = 51.998332828571 m³ s⁻¹ (Maximal outflow from the river basin)

T = 1.0440306508911 (Temperature coefficient of the region)

Z = 0.73776223448115 (Coefficient of the river basin erosion)

W_{god} = 15248.974705374 m³ god⁻¹ (Production of erosion material in the river basin)

R_u = 0.23693963518222 (Coefficient of the deposit retention)

G_{god} = 3613.0865035941 m³ god⁻¹ (Real soil losses)

G_{god} km⁻² = 164.68033288943 m³ km⁻² god⁻¹ (Real soil losses per km²)

<http://www.wintero.me>