
Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S5-1

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.74,57.4

INPUT DATA

Geometric characteristics of the river basins

F = 13.64 km² (Surface area of the drainage basin)

O = 22.84 km (Length of the watershed)

Fv = 8.43 km² (Surface area of greater portion of the drainage basin)

Fm = 5.21 km² (Surface area of smaller portion of the drainage basin)

Lv = 8.24 km (Natural length of main water course)

Lb = 8.7 km (Length of the drainage basin measured by a series of parallel lines)

Topographic characteristics of the river basins

Contour line length - Liz [km]: ["1.41 ", "3.93 ", "14.30 ", "8.68 ", "2.57 "]

The area between the two neighboring contour lines - f [km²]: ["0.41 ", "0.90 ", "4.24 ", "4.53 ", "3.55 ", "0.01 "]

h0 = 1100 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1069 (Lowest altitude in the drainage basin)

Hmax = 1562 (Highest altitude in the drainage basin)

Hydrological characteristics of the river basins

$\Sigma L = 21.98$ km (The total length of the main watercourse with tributaries of 1st and 2nd class)

$L_m = 6.19$ km (The shortest distance between the fountain (head and mouth))

Water permeability

$f_p = 0.1$ (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

$f_{pp} = 0.41$ (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

$f_o = 0.49$ (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

$f_s = 0$ (Part of the surface area of the drainage basin under the forest)

$f_t = 0.96410$ (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

$f_g = 0.03590$ (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

$h_b = 33.55$ mm (Level of torrent rain)

U_p (years) = 100

$t_o = 11.80$ °C (Average annual air temperature)

$H_{god} = 303.5$ mm (Average annual quantity of precipitation)

Erosion coefficients

$Y = 1.13753$ (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

87.13 % (Decomposed limestone and marls)

2.95 % (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)

9.92 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.61975 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

3.59 % (Plough-lands)

8.98 % (Orchards and vineyards)

87.43 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

$\phi = 0.65274$ (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

30.97 % (80% of the river basin under rill and gully erosion)

31.62 % (50% of the river basin under rill and gully erosion)

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

2.94 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

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

34.47 % (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 = 0.54050970873786 (Coefficient of the river basin form)

m = 0.62938312511904 (Coefficient of the watershed development)

B = 1.567816091954 km (Average river basin width)

a = 0.47214076246334 ((A)symmetry of the river basin)

G = 1.6114369501466 (Density of the river network of the basin)

K = 1.3311793214863 (Coefficient of the river basin tortuousness)

H_{sr} = 1323.8969941349 m (Average river basin altitude)

D = 254.8969941349 m (Average elevation difference of the river basin)

I_{sr} = 22.646627565982 % (Average river basin decline)

H_{leb} = 493 m (The height of the local erosion base of the river basin)

E_r = 81.657006333787 (Coefficient of the erosion energy of the river basins relief)

S₁ = 0.817 (Coefficient of the regions permeability)

S₂ = 0.80718 (Coefficient of the vegetation cover)

W = 0.44959475970996 m (Analytical presentation of the water retention in inflow)

2gDF^{1/2} = 261.17947449982 m km s⁻¹ (Energetic potential of water flow during torrent rains)

Q_{max} = 41.855856437588 m³ s⁻¹ (Maximal outflow from the river basin)

T = 1.1313708498985 (Temperature coefficient of the region)

Z = 0.79566262169514 (Coefficient of the river basin erosion)

W_{god} = 10442.905738115 m³ god⁻¹ (Production of erosion material in the river basin)

R_u = 0.26456693648801 (Coefficient of the deposit retention)

G_{god} = 2762.8475791662 m³ god⁻¹ (Real soil losses)

G_{god} km⁻² = 202.55480785676 m³ km⁻² god⁻¹ (Real soil losses per km²)

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