Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S10-intA

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.8,57.25

INPUT DATA

Geometric characteristics of the river basins

F = 36.57 km^2 (Surface area of the drainage basin)

O = 33.29 km (Length of the watershed)

Fv = 18.98 km^2 (Surface area of greater portion of the drainage basin)

Fm = 17.59 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 8.8 km (Natural length of main water course)

Lb = 0.83 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["3.73 ","23.18 ","26.89 ","37.43 ","28.19 ","15.01 ","2.36 ","0.14 "]

The area between the two neighboring contour lines - f [km^2]: ["0.43 ","3.63 ","5.64 ","11.62 ","8.74 ","5.46 ","0.74 ","0.29 ","0.02 "]

h0 = 900 m (Altitude of the initial contour)

▲h = 100 m (Equidistance)

Hmin = 831 (Lowest altitude in the drainage basin)

Hmax = 1603 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 72.18 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 7.71 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 = 0.39 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.52 (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 = 0.79950 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.20050 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 32.55 mm (Level of torrent rain)

Up (years) = 100

to = 12.50 °C (Average annual air temperature)

Hgod = 291.4 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.14327 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

88.72 % (Decomposed limestone and marls)

2.19 % (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)

9.09 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.67044 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

20.05 % (Plough-lands)

10.29 % (Orchards and vineyards)

69.66 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.37645 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

6.52 % (80% of the river basin under rill and gully erosion)

5.93 % (50% of the river basin under rill and gully erosion)

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

2.56 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

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

84.99 % (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 = 0.73767613636364 (Coefficient of the river basin form)

m = 0.41050198354429 (Coefficient of the watershed development)

B = 44.060240963855 km (Average river basin width)

a = 0.076018594476347 ((A)symmetry of the river basin)

G = 1.9737489745693 (Density of the river network of the basin)

K = 1.1413748378729 (Coefficient of the river basin tortuousness)

H_{sr} = 1174.6293409899 m (Average river basin altitude)

D = 343.6293409899 m (Average elevation difference of the river basin)

I_{sr} = 37.443259502324 % (Average river basin decline)

H_{leb} = 772 m (The height of the local erosion base of the river basin)

E_r = 99.927768114492 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.829 (Coefficient of the regions permeability)

S_2 = 0.8401 (Coefficient of the vegetation cover)

W = 0.4359732737094 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 496.54327152829 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 111.2162423778 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.1618950038622 (Temperature coefficient of the region)

Z = 0.75757116453389 (Coefficient of the river basin erosion)

W_{god} = 25648.762628964 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.35981077406971 (Coefficient of the deposit retention)

G_{god} = 9228.7011354576 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 252.35715437401 m^3 km^{-2} god^{-1} (Real soil losses per km^2)