Web application for Intensity of Erosion and Outflow

Name of the River Basin: Shirindareh S3-int

Country: Iran, Islamic Republic of

Year: 2019

GPS coordinates, latitude and longitude with Google Maps: 37.74,57.53

INPUT DATA

Geometric characteristics of the river basins

F = 26.58 km^2 (Surface area of the drainage basin)

O = 26.44 km (Length of the watershed)

Fv = 19.82 km^2 (Surface area of greater portion of the drainage basin)

Fm = 6.76 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 5.7 km (Natural length of main water course)

Lb = 7.59 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["19.45 ","25.78 ","9.05 ","9.86 ","4.42 "]

The area between the two neighboring contour lines - f [km^2]: ["2.83 ","10.33 ","3.06 ","3.78 ","6.42 ","0.16 "]

h0 = 1200 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 1153 (Lowest altitude in the drainage basin)

Hmax = 1699 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 35.6 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 5.32 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.17 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.37 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.46 (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 = 1.00000 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.00000 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 33.78 mm (Level of torrent rain)

Up (years) = 100

to = 11.60 °C (Average annual air temperature)

Hgod = 306.2 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 1.08436 (Types of soil structures and allied types)

0 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

67.56 % (Decomposed limestone and marls)

15.8 % (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)

16.64 % (Epieugleysol and Marshlands)

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

0 % (Bare, compact igneous)

Xa = 0.6 (Planning of the drainage basin, rate of drainage basin regulation)

0 % (Bare lands)

0 % (Plough-lands)

0 % (Orchards and vineyards)

100 % (Mountain pastures)

0 % (Meadows)

0 % (Degraded forests)

0 % (Well-constituted forests)

ϕ = 0.38707 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

0 % (Depth erosion)

0 % (80% of the river basin under rill and gully erosion)

11.84 % (50% of the river basin under rill and gully erosion)

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

9.29 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

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

78.87 % (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 = 0.90452631578947 (Coefficient of the river basin form)

m = 0.31188352590256 (Coefficient of the watershed development)

B = 3.501976284585 km (Average river basin width)

a = 0.98269375470278 ((A)symmetry of the river basin)

G = 1.339352896915 (Density of the river network of the basin)

K = 1.0714285714286 (Coefficient of the river basin tortuousness)

H_{sr} = 1356.9945447705 m (Average river basin altitude)

D = 203.9945447705 m (Average elevation difference of the river basin)

I_{sr} = 25.793829947329 % (Average river basin decline)

H_{leb} = 546 m (The height of the local erosion base of the river basin)

E_r = 76.542743746155 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.787 (Coefficient of the regions permeability)

S_2 = 0.8 (Coefficient of the vegetation cover)

W = 0.45740146181222 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 326.16418181646 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 84.961024510265 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.1224972160322 (Temperature coefficient of the region)

Z = 0.58226635845935 (Coefficient of the river basin erosion)

W_{god} = 12751.986849715 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.29584916338134 (Coefficient of the deposit retention)

G_{god} = 3772.6646409382 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 141.93621673959 m^3 km^{-2} god^{-1} (Real soil losses per km^2)