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

 $F = 26.58 \text{ km}^2$ (Surface area of the drainage basin)

O = 26.44 km (Length of the watershed)

 $Fv = 19.82 \text{ km}^2$ (Surface area of greater portion of the drainage basin)

Fm = 6.76 km² (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 [km²]: ["2.83 ","10.33 ","3.06 ","3.78 ","6.42 ","0.16 "]

h0 = 1200 m (Altitude of the initial contour)

Ah = 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

 $\Sigma L = 35.6$ 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)

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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)
\phi = 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
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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)

 $H_{sr} = 1356.9945447705 \text{ m}$ (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) $2gDF^{1/2} = 326.16418181646 \text{ m km s}^{-1}$ (Energetic potential of water flow during torrent rains) $Q_{max} = 84.961024510265 \text{ m}^3 \text{ s}^{-1}$ (Maximal outflow from the river basin) T = 1.1224972160322 (Temperature coefficient of the region)

Z = 0.58226635845935 (Coefficient of the river basin erosion)

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

 $R_u = 0.29584916338134$ (Coefficient of the deposit retention)

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

 G_{god} km⁻² = 141.93621673959 m³ km⁻² god⁻¹ (Real soil losses per km²)

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