Web application for Intensity of Erosion and Outflow

Name of the River Basin: Talar

Country: Iran, Islamic Republic of

Year: 2021

GPS coordinates, latitude and longitude with Google Maps: 36.51887158071369,52.80924680892626

INPUT DATA

Geometric characteristics of the river basins

F = 2055.755 km^2 (Surface area of the drainage basin)

O = 102.69 km (Length of the watershed)

Fv = 1188.015 km^2 (Surface area of greater portion of the drainage basin)

Fm = 867.74 km^2 (Surface area of smaller portion of the drainage basin)

Lv = 101.46 km (Natural length of main water course)

Lb = 68.79 km (Length of the drainage basin measured by a series of paraller lines)

Topograpfic characteristics of the river basins

Contour line length - Liz [km]: ["20 ","74 ","157 ","225 ","266 ","300 ","258 ","242 ","254 ","286 ","327 ","350 ","341 ","352 ","349 ","354 ","359 ","377 ","405 ","418 ","414 ","422 ","448 ","422 ","389 ","327 ","245 ","198 ","145 ","95 ","46 ","26 ","15

The area between the two neighboring contour lines - f [km^2]: ["4.2 ","16.01 ","32.562 ","55.493 ","72.593 ","80.043 ","78.964 ","62.322 ","55.873 ","60.372 ","69.923 ","77.713 ","77.213 ","78.253 ","76.943 ","75.713 ","79.024 ","82.123 ","91.924 ","97.914 ","99.474 ","97.044 ","98.714 ","97.0

h0 = 300 m (Altitude of the initial contour)

Δh = 100 m (Equidistance)

Hmin = 213 (Lowest altitude in the drainage basin)

Hmax = 4003 (Highest altitude in the draigane basin

Hydrological characteristics of the river basins

ΣL = 1574.32 km (The total length of the main watercourse with tributaries of 1st and 2nd class)

Lm = 18.78 km (The shortest distance between the fountain (head and mouth))

Water permeability

fp = 0.114 (Part of the surface area of the drainage basin which is composed of highly water permeable structures from the rocks (limestone, sand, gravel))

fpp = 0.883 (Part of the surface area of the drainage basin which is composed of the rocks of medium water permeability (schist, marls, sandstone))

fo = 0.003 (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 = 0.337 (Part of the surface area of the drainage basin under the forest)

ft = 0.48150 (Part of the surface area of the drainage basin which is under the grass, meadows, pastures and orchards)

fg = 0.18150 (Part of the surface area of the drainage basin which is bare or under the soils without grass vegetation)

Meteorological data

hb = 50.7 mm (Level of torrent rain)

Up (years) = 25

to = 17 °C (Average annual air temperature)

Hgod = 729.2 mm (Average annual quantity of precipitation)

Erosion coefficients

Y = 0.880215 (Types of soil structures and allied types)

1.17 % (Sand, gravel and incoherent soils)

0 % (Saline soils)

11.3 % (Decomposed limestone and marls)

2.66 % (Serpentines, red sand stones, flishe deposits)

0 % (Podzols and parapodzols, decomposed schist)

45.16 % (Solid and Schist limestone, Terra Rosa and Humic soil)

33.33 % (Brown forest soils and Mountain soils)

0 % (Epieugleysol and Marshlands)

1.16 % (Good structured Chernozems and alluvial well-structured deposits)

5.23 % (Bare, compact igneous)

Xa = 0.54617 (Planning of the drainage basin, rate of drainage basin regulation)

1.72 % (Bare lands)

16.43 % (Plough-lands)

0 % (Orchards and vineyards)

48.15 % (Mountain pastures)

0 % (Meadows)

13.7 % (Degraded forests)

20 % (Well-constituted forests)

ϕ = 0.36562 (Numerical coefficient of visible and clearly pointed processes of soil erosion)

2.02 % (Depth erosion)

3.03 % (80% of the river basin under rill and gully erosion)

6.06 % (50% of the river basin under rill and gully erosion)

8.08 % (100% of the river basin under surface erosion)

15.15 % (100% of the river basin under surface erosion, without visible furrows, ravines and land slides)

8.08 % (50% of the river basin under surface erosion)

8.08 % (20% of the river basin under surface erosion)

1.01 % (There are smaller slides in the watercourse beds)

14.14 % (The river basin mostly under plough-land)

34.34 % (The river basin under forests and perennial vegetation)

INPUT DATA

A = 0.19736398580721 (Coefficient of the river basin form)

m = 0.63125415302083 (Coefficient of the watershed development)

B = 29.884503561564 km (Average river basin width)

a = 0.31158868639502 ((A)symmetry of the river basin)

G = 0.76581110103101 (Density of the river network of the basin)

K = 5.4025559105431 (Coefficient of the river basin tortuousness)

H_{sr} = 1807.872145027 m (Average river basin altitude)

D = 1594.872145027 m (Average elevation difference of the river basin)

I_{sr} = 43.39525381186 % (Average river basin decline)

H_{leb} = 3790 m (The height of the local erosion base of the river basin)

E_r = 179.16224612067 (Coefficient of the erosion energy of the river basins relief)

S_1 = 0.6667 (Coefficient of the regions permeability)

S_2 = 0.7689 (Coefficient of the vegetation cover)

W = 0.55074291338699 m (Analytical presentation of the water retention in inflow)

$2gDF^{1/2}$ = 8020.4385480552 m km s^{-1} (Energetic potential of water flow during torrent rains)

Q_{max} = 446.90504418541 m^3 s^{-1} (Maximal outflow from the river basin)

T = 1.3416407864999 (Temperature coefficient of the region)

Z = 0.49246318758359 (Coefficient of the river basin erosion)

W_{god} = 2183558.3318188 m^3 god^{-1} (Production of erosion material in the river basin

R_u = 0.22963494092335 (Coefficient of the deposit retention)

G_{god} = 501421.28852991 m^3 god^{-1} (Real soil losses)

G_{god} km^{-2} = 243.9110149458 m^3 km^{-2} god^{-1} (Real soil losses per km^2)