

Program interface

Image 1 shows the appearance of the main form of the "IntErO" program. In addition to the complete calculation using 26 inputs¹ and 21 results², the "IntErO" program can be used also in a "short" version. Instead of requesting all 21 results, the user may request processing of some specific results, i.e. output data that need to be calculated. In this "short" version, the program automatically selects the group of input data to be entered, so the user needs not enter the data that are not necessary for this calculation with the shortened, special request. In settings, the program offers the change of the language of the program interface and the report: Serbian or English language.

Image 1: The main form of the "IntErO" program

Image 2 shows the appearance of the dialogue for setting the program parameters.

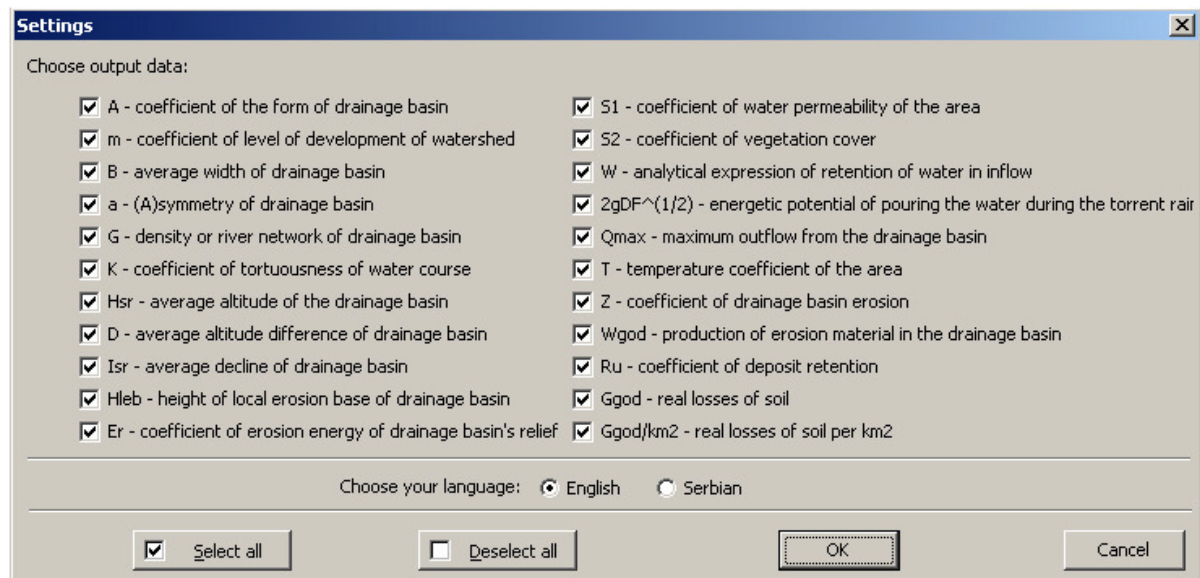


Image 2: Appearance of the dialogue for setting the "IntErO" program

River basin name and **year** of data collection are descriptive data. They are needed but not necessary for systematisation of the data in the database for work with a large number of basins.

Furthermore, in the cells on the main form of the program, we enter the values for the following data that are, for the most part, obtained using the IntErO "Areas and Distances" subroutine or using some other, classic methods:

Geometric properties of the river basin:

1. River basin area, F , in km^2 ;
2. River basin circumference, watershed line length, O , in km;
3. Length of the main watercourse, L_v , in km;
4. River basin length measured by the series of parallel lines, L_b , in km;
5. Area of the larger part of the River basin F_v , in km^2 ;
6. Area of the smaller part of the River basin F_m , in km^2 .

Topographic properties of the River basin:

1. Isohypse length, l_{iz} , in km;
2. Area between two adjacent isohypses, f , in km^2 ;
3. Value of the lowest isohypse, h_0 , in m;
4. Equidistance, Δh , in km;
5. The lowest elevation spot in the River basin, H_{min} , in m;
6. The highest elevation spot in the River basin, H_{max} , in m.

Maximum outflow from the River basin:

1. Part of the river basin area that consists of very permeable rock products (limestone, sand, gravel), f_p , in %;
2. Part of the river basin area that consists of rocks of medium permeability (slates, marls, sandstones), f_{pp} , in %;
3. Part of the river basin area that consists of the rocks of poor permeability (heavy clay, compact eruptives), f_o , in %;
4. Part of the river basin area under forest, $f_{\check{s}}$, in %;
5. Part of the river basin area under grass, meadows, pastureland and orchards, f_t , in %;
6. Part of the river basin area under bare land, ploughland and soils without grass vegetation, f_g , in %.

Hydrological properties of the river basin:

1. Total length of the main watercourse with tributaries of the I and II order, ΣL , in km;
2. The shortest distance between the source and the mouth, L_m , in km.

Meteorological data:

1. Torrential rain height, h_b , in mm;
2. Mean annual air temperature, t_o , in °C;
3. Mean annual precipitation, H_{god} , in mm.

Soil erosion intensity:

1. Types of soil products and related types, is a reciprocal value of the coefficient of soil resistance to erosion and it is in the function of the soil type, Y ;
2. River basin regulation coefficient, X_a ;
3. Numerical equivalent of visible and clearly pronounced soil erosion processes, φ .

Obtaining the mean values of data on types of soil products (Y), river basin regulation (X_a), as well as for the numerical equivalent of visible and clearly pronounced soil erosion processes (φ), is done by entering the data needed through dialogues activated by pressing ellipsis buttons ("..."), adjacent to the corresponding cells of the said elements. The appearance of the dialogues are given in images 3, 4 and 5.

Coefficient entry

Sand, gravel and incoherent soils:	11.06	%
Saline soils...		%
Decomposed limestone and marls:		%
Serpentine, red sand stones, flishe deposits:	88.61	%
Podzols and parapodzols, decomposed schist:		%
Solid and Schist limestone, Terra Rosa and Humic soil:	0.33	%
Brown forest soils and Mountain soils:		%
Epieugleysol and Marshlands:		%
Good structured Chernozems and alluvial well-structured deposits:		%
Bare, compact igneous:		%

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OK Cancel

Image 3: Dialogue for entry of types of soil products and related types (Y)

Coefficient entry

Bare lands:		%
Plough-lands:	2.6	%
Orchards and vineyards:	0.48	%
Mountain pastures:	35.48	%
Meadows:	10.96	%
Degraded forests:	25.24	%
Well-constituted forests:	25.24	%

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OK Cancel

Image 4: Dialogue for entry or data on river basin regulation (X_a)

Coefficient entry

Depth erosion: 9.12 %

80% of the river basin under rill and gully erosion: 8.11 %

50% of the river basin under rill and gully erosion: 7.1 %

100% of the river basin under surface erosion: 6.08 %

100% of the river basin under surface erosion, without visible furrows, ravines and land slides: 10.96 %

50% of the river basin under surface erosion: 3.04 %

20% of the river basin under surface erosion: 2.03 %

There are smaller slides in the watercourse beds: %

The river basin mostly under plough-land: 2.6 %

The river basin under forests and perennial vegetation: 50.96 %

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OK Cancel

Image 5: Dialogue for entry of numerical data of visible and clearly visible soil erosion processes (φ)

¹ River basin area, Watershed line length, Natural length of the main current of the main watercourse, River basin length measured by the series of parallel lines, Area of the larger part of the river basin, Area of the smaller part of the river basin, Total length of the main watercourse with the tributaries of the I and II order, elevation of the starting isohypse, Equidistance, Isohypse length, Area between two adjacent isohypses, the lowest elevation spot in the river basin, the highest elevation spot in the river basin, Part of the river basin area that consists of very permeable rock products (limestone, sand, gravel), Part of the river basin area that consists of rocks of medium permeability (slates, marls, sandstones), Part of the river basin area that consists of the rocks of poor permeability (heavy clay, compact eruptives), Part of the river basin area under forest, Part of the river basin area under grass, meadows, pastureland and orchards, Part of the river basin area under bare land, ploughland and soils without grass vegetation, the shortest distance between the source and the mouth, Torrential rain height, Mean annual air temperature, Mean annual precipitation, Types of soil products and related types, River basin regulation coefficient, Numerical equivalent of visible and clearly pronounced soil erosion processes.

² River basin shape coefficient, Watershed development coefficient, Mean river basin width, (A)symmetry of the river basin, River basin network density, Flow tortuousness coefficient, Mean elevation of the river basin, Mean height difference of the river basin, Mean river basin slope, Height of local erosion basis of the river basin, Coefficient of the river basin relief erosion energy, Coefficient of water permeability of the area, Vegetation cover coefficient, Analytical expression of inflowing water retention, energetic potential of water flow during torrential rain, Maximum outflow from the river basin, Temperature coefficient of the area, River basin erosion coefficient, Production of erosion material in the river basin, Erosion sediment retention coefficient, Actual soil loss, Actual soil loss per km².