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SPATIAL REFERENCE SCHEME OF THE DATA IN BIGLEB SYSTEM

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Information System BIGLEB

AIMS AND CRITERIA OF REFERENCE SCHEMES

The reference schemes of data on natural and anthropogenic environment should consist of distinguished spatial units of natural environment of the earth globe. However, in view of a lack of such units distinguished in a uniform way, natural areas of reference fields of information could not be assumed. Thus, it has been stated that a new arrangement of the information reference fields based on the already existing theoretical or physical artificial spatial divisions of the earth globe or its part should be worked out.

At the beginning of the investigations, aims, conditions and criteria, which should correspond with the spatial reference scheme suitable for the information system on the natural and anthropogenic environment integrating information of different kind and origin, have been determined [3, 4, 5, 6, 7].

The basic aims, which should be reached by application of the spatial scheme in natural information systems have been defined as follows [7, 8]:

1. Connection and incorporation into a uniform spatial structure of data forming a computer data bank on natural environment (including soil).
2. Collecting by means of computer spatial characteristics in different thematical, territorial, organizational and time aspects.

On the basis of analysis of the above aims, the conditions, which the spatial reference scheme of data suitable for the BIGLEB soil information system should fulfil, have been established. These conditions are as follows:

1. Adaptation for collecting and recording of data originating from different documentation forms (graphical, numerical, descriptional).
2. Application for the simultaneous automatic processing (analyses, syntheses and estimations of information collections) of source data ori-

ginating from various documentation sources and concerning the same object in the area.

3. Making possible a numerical record of cartographic data originating from various cartographic sources with regard to content, scale and division of map sheets.

4. Possibility of recording interpreted cartographic data supplemented by statistical data for spatial planning purposes.

5. Possibility of recording also data originating directly from area.

6. Making possible to get by means of electronic digital machines processed numerical data in various forms of graphical presentation as well as of graphical information in numerical presentation.

7. Adaptation for recording of the data and for presentation of automatically processed data at various degrees of minuteness and accuracy of spatial identification (depending on the least unit of the system).

8. Possibility of aggregation and disaggregation of information in a spatial unit of an arbitrary, irregular shape.

9. Ability of expressing by the assumed scheme of any other spatial schemes of different structure and shape of units, i.e. making possible transition by means of the proposed scheme to other ones.

10. Adaptation to a continuous updating and recording of data.

11. Possibility of comparing information at different time intervals.

The formulation of the above aims and conditions enabled to establish features and criteria, according to which the spatial scheme for BIGLEB should be designed. The principal features and criteria of the scheme formation would be as follows :

- invariability in time,

- necessity of formation of the scheme on the basis of theoretical division accomplished according to the mathematical and cartographic principles,

- such scheme should refer to already existing uniform mathematical and cartographic divisions of the earth globe (according to geographic or rectangular flat coordinates),

- structure of the scheme should be of a regular geometry,

- elementary units of the scheme should have equal fields with regard to size and shape (almost square),

- units of the scheme should be connected in a hierarchical way (of storeys),

- structure of the scheme should be open, i.e. the scheme can be widened or narrowed by the units of higher or lower order, without any change of its principal structure.

DESIGN OF THE SCHEME OF MODEL FIELDS FOR BIGLEB SYSTEM

1. final design of the spatial reference scheme of information on

soil was worked out by the Polish Soil Science Society in 1978 (Fig. 1).

This scheme covering the whole country territory consists of marked fields of equal size and shape (almost square), where "basic fields" are fields of 100 hectares (cm² in the scale of 1 : 100 000) with deviations from the assumed value varying within -8% – $+4\%$ on the Poland's territory. A superior unit in relation to the "basic field" is the "basic block" of the size about 108 km². The basic fields have been formed in consequence of division of a basic block into 108 parts, and basic block — of division of the sheets of the map of 1 : 100 000 into 9 parts [1].

A considerable condensation of the network of marked fields to basic fields of 25 hectares in size by division of basic fields of 100 hectares into 4 parts is provided.

Marked fields in the designed scheme are denoted uniformly with numerical codes in the following way.

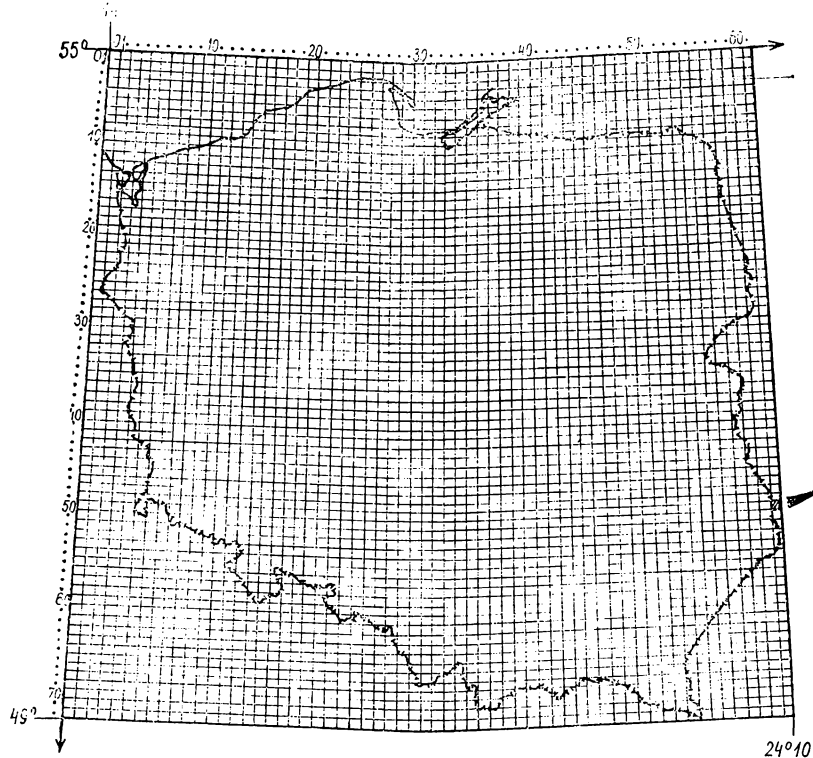
Basic blocks have been numbered beginning from the zero point of the scheme according to meridional and parallel columns correspond with the sides of blocks, with the numbers from 01 to 61 in the direction from west to east and with the numbers from 01 to 72 from north to south. Basic fields of 100 hectares have been numbered inside within the basic blocks by denotation of sectors of horizontal and vertical sides of block with the numbers from 01 to 12 and 1 to 9. The basic field of 25 hectares has been numbered inside particular fields with Nos 1–4.

The range of total numerical codes of basic fields of 100 hectares for fields from the first to the last amounted to 01100101-72906112, where the first two numbers denote the No. of parallel belt of the block ; the third number denotes the No. of side of the basic field of 100 hectares along the meridian (within the block) ; the fourth number for the codes of fields of 100 hectares will be always equal to 0, as this place is reserved for the No. of the basic field of 25 hectares ; the fifth and sixth number denote the No. of meridional belt of the block ; the seventh and eight numbers denote the No. of side of the field of 100 hectares along the parallel within the block.

The scheme of marked fields for BIGLEB system, for the practical application purpose, should be plotted as a network of basic fields in such scale, in which the cartographic source documentation with the data to be recorded in accordance with marked fields, will be available.

In the course of recording the location of soil profiles numerical codes of basic fields with the soil profile are noted. Parallely, the codes of district, commune, town and premises are recorded according to denotations of the Chief Census Office. The soil profile location data obtained are entered in a standard form of the record of data concerning the spatial identification and basic features of the soil profile named "the pattern of the BKA-510101 card" [9]. These cards constitute a basis for establishment of a data file of the soil profile investigation places.

Marked fields of the area of ~100 and ~25 hectares as a spatial reference scheme of data in the BIGLEB system in medium and large scales (1 : 100 000 and 1 : 25 000)

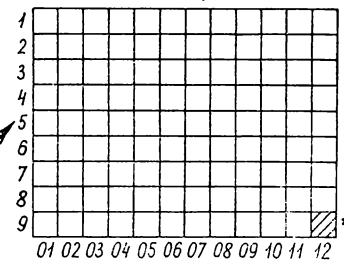


SCHEME OF THE NETWORK OF BASIC BLOCKS
ON THE POLAND'S TERRITORY

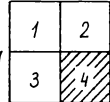
NUMBER:	OF BASIC BLOCKS WITHIN THE SCHEME	4392
	OF BASIC FIELDS OF ~100 HECTARES WITHIN THE SCHEME	474336
	OF BASIC FIELDS OF ~25 HECTARES WITHIN THE SCHEME	1897344

UNITS OF THE SCHEME OF MARKED FIELDS:
 BASIC BLOCKS OF THE AREA OF ~108 km² (9×12 cm IN THE SCALE OF 1:100.000)
 BASIC BLOCKS OF THE AREA OF ~100 ha (1×1 cm IN THE SCALE OF 1:100.000)
 BASIC FIELDS OF THE AREA OF ~25 ha (2×2 cm IN THE SCALE OF 1:25.000)

NETWORK OF BASIC FIELDS OF ~100 HECTARES
WITHIN THE BASIC BLOCK
(No. 50006100)



BASIC FIELDS OF ~25 HECTARES WITHIN THE
BASIC FIELD OF ~100 HECTARES,
No. 50906112



BASIC FIELD OF ~25
HECTARES
No. 50946112

SCHEME OF NUMERICAL CODING OF MARKED FIELDS

POSITION OF THE NUMBER IN THE CODE							
1	2	3	4	5	6	7	8

- No. OF THE PARALLEL BELT OF BASIC BLOCK
- No. OF THE BELT OF BASIC FIELD OF ~100 ha WITHIN THE BASIC BLOCK
- No. OF BASIC FIELD OF ~25 ha WITHIN THE BASIC FIELD OF ~100 ha
- No. OF THE MERIDIONAL COLUMN OF THE BASIC BLOCK
- No. OF BASIC FIELD OF ~100 ha WITHIN THE BASIC BLOCK

In the period 1979–1980 the designed scheme of marked fields in 10 districts was introduced for establishing the BIGLEB BKA-01 data file.

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POLA ZNACZONE JAKO UKŁAD ODNIESIENIA PRZESTRZENNEGO DANYCH W SYSTEMIE BIGLEB

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Glebowym — BIGLEB

Streszczenie

Opracowanie obejmuje zasady podziału obszaru Polski na pola znaczone, ustalone za pomocą siatki kwadratów odpowiadających powierzchniom od 0,01 do 10 km². Pola te służą do notowania danych źródłowych o środowisku glebowym w układzie zintegrowanym z informacjami o warunkach przyrodniczych i stanie zagospodarowania przestrzennego.

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