mici decât cele de viitură. Interpolarea este liniară şi parabolica tip spline a caracteristicilor acumulării. În prezenta lucrare sunt expuse rezultate ale simulării cu software Mathcad 14 şi programele proprii folosite în aceasta aplicaţie.

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IDENTIFICATION OF AREAS OF PREVENTIVE EVACUATION AND ACCOMMODATION OF POPULATION, ANIMALS AND PROPERTY NECESSARY FOR THE DEFENSE PLAN OF THE BACIU COMMUNE, CLUJ COUNTY

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Abstract. By this study a delineation of areas for the evacuation of population was achieved, which, after further checking on the ground, can be introduced into the flood defense plans. These areas were selected using geographic information systems, by analyzing the digital elevation model, and taking into account the slope and sunshine exposure of the ground, as well as the proximity to the exposed locality. These characteristics were quantified by means of a proportional and objective rating, so that the evacuation areas were highlighted at the end of the analysis by the highest scores obtained.

Key words. Aspect, Evacuation areas, Slope, Score.

INTRODUCTION

For the factors implied in flood risk management there are duties and responsibilities established by law, specific to their operating sector. In the national strategy are presented only their duties related to the prevention, protection and reduction of flood effects, those which require an organized, correlated or simultaneous implementation of the actions and measures designed to achieve the objectives.

In different fields of action, the flood management activities constitute a complex of problems including policies, plans and programs on short, medium and long term, aiming to protect life, property and environment against the natural phenomenon of risk.

One of the roles of county and local councils in flood management activities is to organize and to coordinate the evacuation of people from the flood endangered area, to previously established places and to assure the necessities in food, drugs, and health care.

The local council is responsible for mobilizing the community in the actions of supplying food and water, clothes and their distribution, as well as in the restoring the basic services in the affected localities.

We believe that at county level a spatial database and an integrated information system have to be created, which should be shared by institutions, companies, public administrations, etc. in order to ensure interoperability and data exchange. The management of spatial database can be accomplished optimally and efficiently based on access levels and the users can be individuals or legal.

MATERIAL AND METHOD

According to the actual legislation, at communal level are drawn up plans for defense against flooding. These are technical documentations, including maps and drawings, on which affected are localized objectives, flooding areas are outlined, both from rivers overflow and due to leakage for the slopes, transport routes are evidenced, as well as preventive evacuation areas for the population accommodation, etc. In the flood defense plan of the commune, a single evacuation area is assessed, near the Baciu locality.

As a matter of principle, these areas should present a slope as small as possible, a sunshine exposure during the day as long as possible, they should be as close as possible to the built-up area of the locality from where the flood victims are evacuated and should be located on agricultural land. Such areas were identified by analyzing the digital elevation model using geographic information systems, taking into account slope, aspect and land use, as well as the proximity to the exposed locality. To this purpose, a geodatabase was created, which should organize all necessary information to the study. The digital elevation model of the terrain was generated by digitizing the contour from the topographic map with a map scale of 1:25,000.

RESULTS AND DISCUTIONS

The slope is the angle between the ground surface and the horizontal plane, and can be analyzed in degrees or percent. The **TIN Slope command** produces as output a feature class with polygon entities. These are generated by the slope values of each triangle in the TIN structure. Contiguous triangles which the same slope belong to the same class, and are joined together during the command execution into a single polygon. By applying this command, the slope was calculated in percent, and was achieved the following classification: 2.5, 5.0, 7.5, 10.0, 12.5, 15.0, 17.5, 20.0, 22.5.

A .txt type file was created, by which the encoding was executed, namely to each class an integer from 1 to 9 was assigned. The obtained layer containing the ground slope is presented in figure 1.
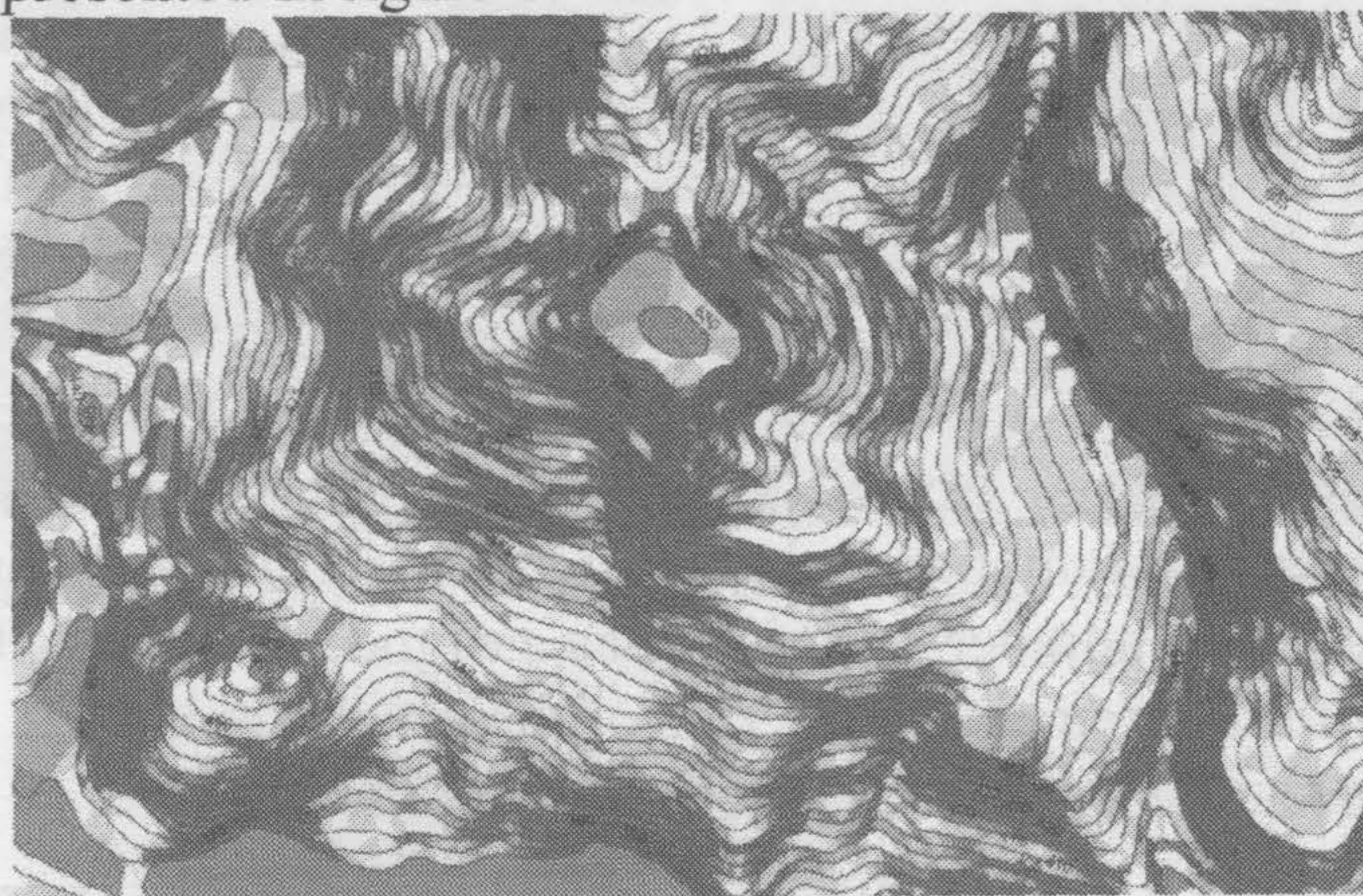

Fig. 1- Detail with the slope terrain in Baciu commune.

The aspect identifies the direction of maximum slope from a given location on the investigated surface. Aspect is measured clockwise, from 0 degrees up to 360

degrees, during a complete rotation. Planar grounds don't have a direction and the -1 value is assigned for them. A score was assigned to each class of slope or aspect.
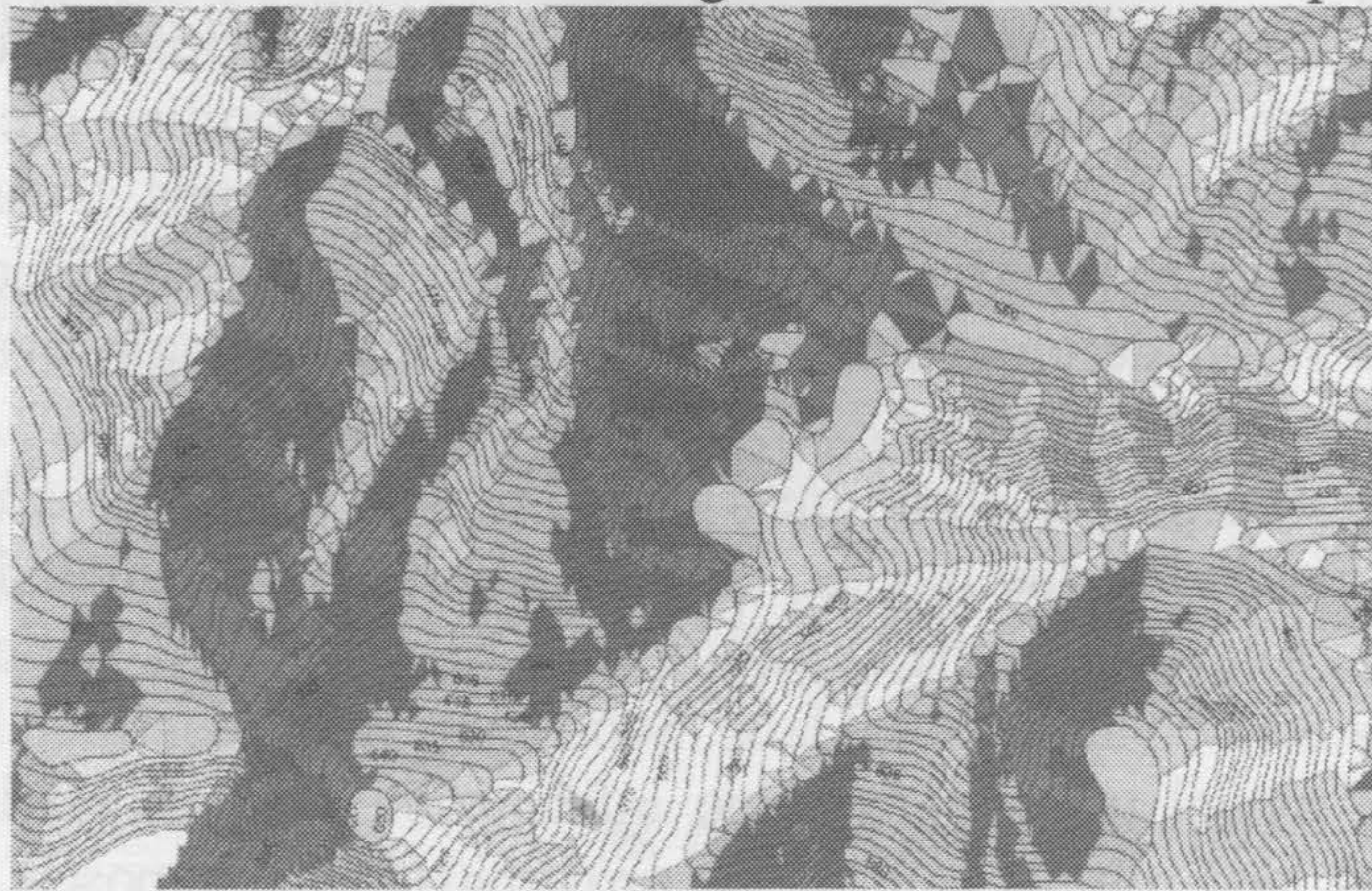

Fig. 2 - Detail with the aspect terrain in Baciu commune

The **TIN Aspect command** generates a features class containing polygon entities, according to the values of the TIN's triangles aspect. By default, these values are divided into 8 classes, each of them corresponding to 45 degrees measured clockwise. A .txt type file was created, by which an integer from 1 to 8 was assigned to each class. în figure 2 the obtained aspect of the ground is presented.

The two vector layers obtained representing slope and aspect were reclassified according to the intended goals. In each layer table was created an integer attribute named Punctaj, containing the number of points assigned in proportion to the interest represented by the slope and aspect attribute for the study.

The scores for the slope values were assigned as follows:

Slope		code		score
0 - 2.5 %	...	1	...	100 pts.
2.51 - 5.0 %	...	2	...	100 pts.
5.01 - 7.5 %	...	3	...	33 pts.
7.51 - 10.0 %	...	4	...	25 pts.
10.01 - 12.5 %	...	5	...	20 pts.
12.51 - 15.0%	...	6	...	16 pts.
15.01 - 17.5 %	...	7	...	0 pts.
17.51 - 20.0 %	...	8	...	0 pts.
20.01 - 22.5 %	...	9	...	0 pts.
> 22.5 %	...	10	...	0 pts.

For areas with a slope greater tham 15 %, 0 points were assigned, since it is very difficult to ensure temporary shelters to the victims for a such slope of the ground. The maximum number of points was assigned to areas with slope between 0 and 5%, while for the remaining the rule of three was applied.

For the aspect, the assigned scores were the following:

-1	...	flat ground	...	-1	...	100 pts.
0°- 45°	...	N – NE	...	1	...	0 pts.
45° - 90°	...	NE – E	...	2	...	50 pts.

90° - 135°	...	E – SE	...	3	...	75 pts.
135° - 180°	...	SE – S	...	4	....	100 pts.
180° - 225°	...	S – SV	...	5	...	100 pts.
225° - 270°	...	SV – V	...	6	...	75 pts.
70° - 315°	...	V – NV	...	7	....	50 pts.
315° - 360°	...	NV – V	...	8	....	0 pts.

Points were awarded according to the duration of sunshine exposure of the ground during the day. Areas oriented toward N - NE and NW - V present no interest in terms of sunshine exposure, but will be considered further because they can present a location near the settlements, the water courses or the transport routes. The areas of greatest interest are those with flat ground and high duration of sunshine exposure.

The third criterion which was taken into account when choosing the evacuation areas is the distance from the built-up area of the localities. Around built-up areas of the localities were created buffers, corresponding to the following distances: 250, 500, 750, 1000, 1250, 1500, 1750, 2000, 2250, 2500. 2750, 300, 3250, 3500, 3750, 4000, 4250, 4500, 4750, 5000, measured in meters.

In the layer's table, an integer attribute was created, containing the proportional score awarded. Further, the **Union** command was applied to the three layers. Entities with zero scores were eliminated. From the layer obtained that way, areas were eliminated which corresponding to floodable zones, backwoods, cultivated with vineyards and orchards, affected by landslides, and obviously those which are natural protected: the Baciu Canyon and fossil Coruşu zone. In the figure 3 the result is presented for the Suceagu locality. All the grounds selected as evacuation areas are arable zones.

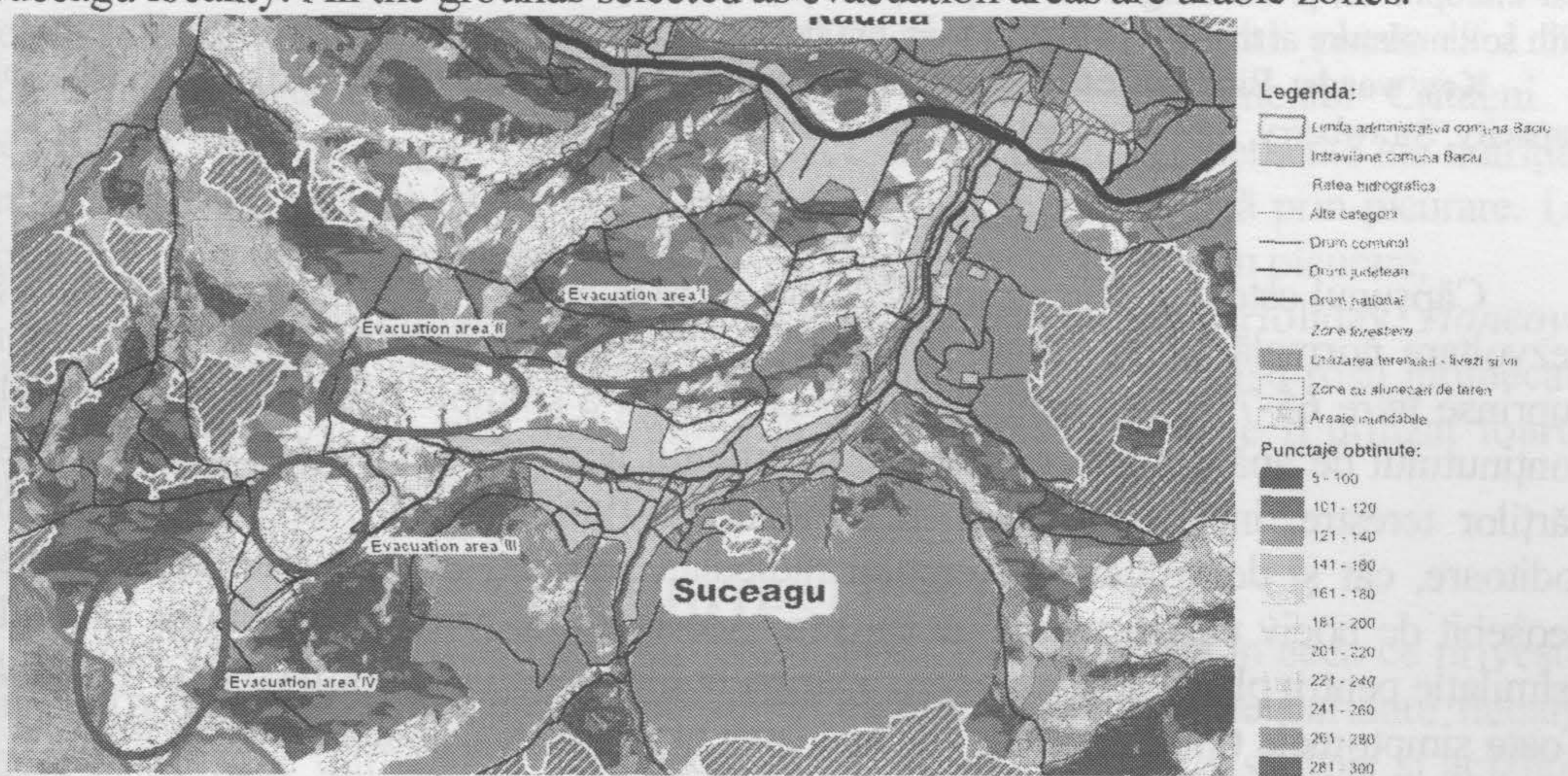
Fig. 3 - Evacuation areas identified for the Suceagu locality from the Baciu commune

CONCLUSION

At the level of the commune administration, several evacuation areas should be established, which could be used depending on the number of people, animals and fowl to be evacuated and on the living conditions which can be provided;

The spatial analyses, applied to spatial reference data, allow to obtain vital information for the flood management and to improve the quality of decision making;

The G.I.S. provides instruments for a digital management of human allocation, material and financial resources, a fair distribution of aid to the affected target population and effective measures to restore basic services in the area;

Flood management approach by the public administration has to be done in an integrated manner, by using of geographic information systems;

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INDICII BIOCHIMICI AI FRUCTELOR DE CĂPȘUN DE SOIUL HONEOYE ÎN CONDIȚIILE IRIGĂRII PRIN PICURARE

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Abstract: In article results of studying of biochemical parameters Honeoye variety of strawberry at 6 levels of soil moisture in relation to the field soil capacity at drip irrigation are resulted. At carrying out of the analysis of the data big attention was given to such biochemical parameters, as weight of dry substance and the content of carbohydrates. Came to the conclusion, that the optimal, proceeding from the parity of quality and productivity of strawberry, the option 3 with soil moisture at the level of 75 % from the field soil capacity is.

Key words: Biochemical Parameters, Content of Carbohydrates, Drip Irrigation, Field Soil Capacity, Strawberry, Soil Moisture, Weight of Dry Substance.

INTRODUCERE

Căpșunul este o specie cu înrădăcinare superficială, necesitând pentru creștere și dezvoltare normală, pentru toată perioada de vegetație, o umiditate în sol cu valori cuprinse între 65-75% din capacitatea totală de apă a solului. Actualele fluctuații ale conținutului de apă din sol, cu referire la dificitul acestea, afectează atât dezvoltarea părților terestre, inclusiv diferențierea mugurilor floriferi și formarea ramificațiilor roditoare, cât și dezvoltarea sistemului radicular. Excesul de apă este de asemenea deosebit de nociv pentru planta de căpșun. Acesta poate produce blocaje la nivel de asimilație pentru plantă și favorizează apariția bolilor specifice pentru colet și rădăcină. Toate simptomele tipice excesului de apă (mai ales dacă acesta durează mai mult de 7 zile), conduc în final către pieirea plantei. Cantitatea de apă necesară pentru irigarea culturii se aplică funcție de momentul plantării, mărimea precipitațiilor, nivelul evapotranspirației, umiditatea aerului, precum și de metoda de udare.

Căpșunul este una dintre speciile pomicole care prezintă un deosebit interes economic și alimentar datorită potențialului mare de producție, calității fructelor, conținutului în vitamina C și altor substanțe utile pentru alimentația omului (Dragoș Șerban).

Procentual căpșunele în stare proaspătă conțin: 87-91% apă; 4,5-9,7% glucide (glucoză, fructoză); 0,72-1,19% acizi organici; 0,1-0,5% pectine; 0,94-1,74% proteine;