TRENDS IN 3D TOURIST MAPPING

Gabriela Ilieş[1], M. Ilieş[1]

ABSTRACT
3D representations are much more effective and more precise. Today's tourism is still based on analogical products, presented in travel guides and brochures. Today's tourism is still based on analogical products, presented in travel guides and brochures. The result is the necessity of 3D representations that may convince the operators of the effectiveness of a tourist map, its role in advertising and promotion.

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1. CHALLENGES

Today's tourism is still based on analogical products, presented in travel guides and brochures, without using the technical support offered by digital cartography and the new ways of disseminating cartographic products.

Digital support of 3D representations is much more effective and more precise, but the companies using the latest generation products are those affected by a strong concurrency (in the Alps area) and are willing to improve their image and economic performances. In the travel and tourist industries it is important that potential customers can quickly find all the information they need.

The tourist boards are increasingly looking for new ways of presenting their main assets drawing on the full range of analogue and digital media. (Almer, A & Stelzl, H. , 2000) Tourist companies and organizations take an increasing interest in the development of a Travel, Leisure and Tourism Information Service.

Travel, Leisure and Tourism Information Service **(TLTIS)**

- Tends to be an innovative system which offers information on a specific resort, region, entertainment, businesses;
- Integrates satellite imagery, GPS data, information from GIS, other information on accommodation, reservations;
- Allows visualizations for multimedia CD's, Internet, mobile devices.

The result is the necessity of 3D representations and new ways of storage for spatial and thematic information. (Almer, A & Stelzl, H. , 2000)

At regional level, for Maramures (Romania), there are 3 projects running at the Extension of Babes-Bolyai University in Sighetu Marmatiei. The main objectives are linked to this subject: building a TLTIS starting with some basic products:

[1] *"Babeş-Bolyai" University, Faculty of Geography, 435500 Sighetu Marmaţiei Extensio, Romania.*

- 3D (or pseudo 3D) tourist maps, for Maramures Land, Tibles Mountains, Rodnei Mountains, Ignis-Gutai Mountains;
- Virtual flights over the mountain regions and over the town (Sighetu Marmatiei);
- Guides, photos;
- Tourist tracks for download, track description;
- An interactive tourist atlas for Maramures Land.

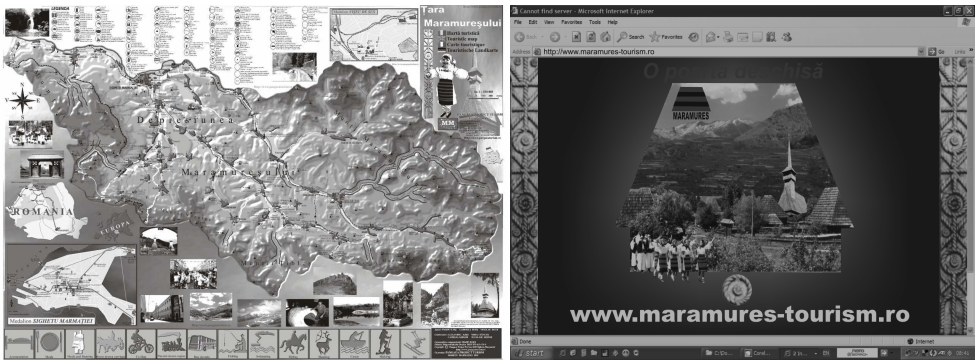

Fig. 1. ***Elements of the future TLTIS for Maramures Land***

2. MAPS FOR URBAN TOURISM

Urban maps with 3D visualization of the buildings and sights are much easier to understand. In order to produce an accurate urban tourist map it is necessary an integrated approach of used software. GIS products are often too hard to handle by urban planners and tourists. Therefore, insertion of other objects in a DEM, with graphic soft as CorelDraw, AutoCAD and Autodesk seems to be a better solution.

Their realism is depending on the scale, but in the same time tourists need an artistic 3D view over the city. Orientation becomes possible when the map designer pays a lot of attention to the posts' visualization:

- Used mostly on maps for orientation
- Based on common aspects of visual acknowledgements
- Recognizing objects can be made based on the image or on the structure (here is the place of 3D representations).

The first ***Adaptive tourist maps*** are based on LBS (Location based Services). They are able to translate the spatial context of the user and adapt the system to:

- Physical condition of the user
- weather
- requirements
- how well he knows the environments
- cognitive capacity (age, education)
- special needs (low visual acuity, reduced mobility)

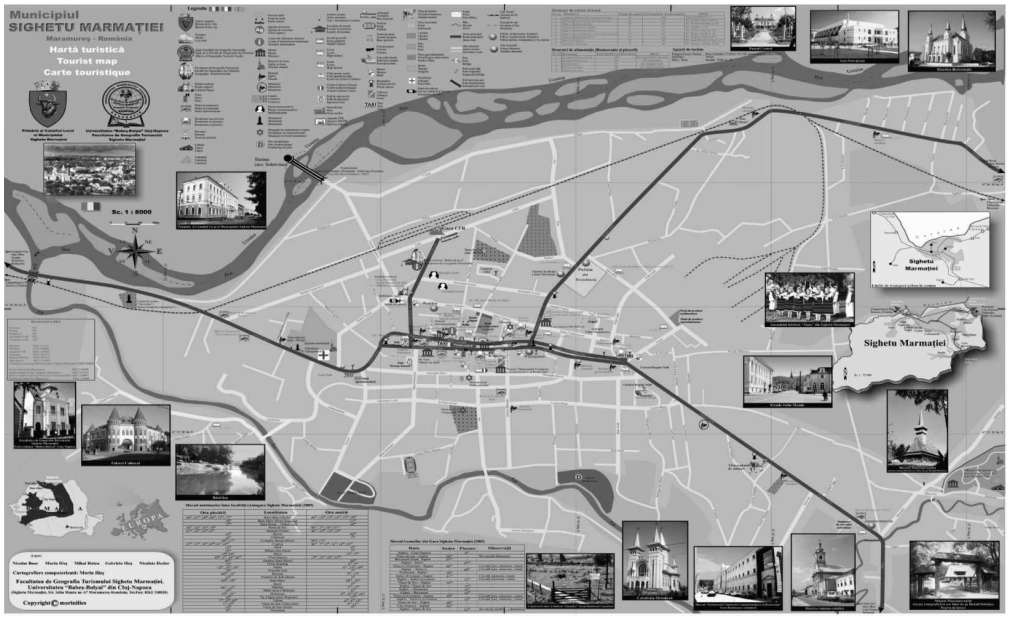

Fig. 2. ***Tourist map for Sighetu Marmatiei***

3. ADAPTIVE TOURIST MAPS

Producing interactive maps for internet applications in tourism has become widespread. But they are often quite simple in terms of adaptation to the user or context. Examples of where maps are useful for tourists range from walking and navigating in a foreign area, searching for some kind of business or sight, to general or special information about a region (e.g., on social, economic, historic, environmental, or other aspects). Personal interests of a tourist should also influence the map design. In order to facilitate the correct reading and understanding of a map, it needs to be designed properly. The art to design maps in a way that such condensed information is not confusing but easy to understand has a tradition in cartography (Zipf, A., 2002).

There are different official signatures for map features in different countries. These are already familiar from people from different cultures/countries and therefore easier to understand. It is possible to specify different particular map styles for different countries. Right now the only online service doing this (only with respect to color, not other style parameters) is Maporama. The interpretation of colors varies also clearly in different cultures. Therefore one should use colors the user can associate something with. As colors don't have the same meaning in all countries a culture-adaptive map should take this into account (Zipf, A., 2001).

Colors have great significance, depending on the origin, culture. „Focus Maps" attract the attention on some important elements on a map, by generalization and fading (without omitting less important details).

The Atlas of Maramures Land, a CEEX/2006 project running at the Extension of Babes-Bolyai University in Sighetu Marmatiei will have a sample of adaptive map, based on this model.

Adaptive maps for children have some specific features:

- picturesque symbols, easy to understand (simplified)
- 3D representations or pseudo 3D
- without abstract information
- few details for the data.

Cultural associations of colors (Zipf, A., 2002)

Table 1

	Red	***Blue***	***Green***	***Yellow***	***White***
USA	Danger	Manliness, reliability	Safety	Cowardice	Purity
France	Aristocracy	Liberty, peace	Crime	Transitoriness	Neutrality
Egypt	Death	Faith, truth, virtue	Fertility, strength	Joy, luck	Cheerfulness
India	Life, creativity	Fertility, strength	Success	Death, purity	
China	Joy	Heavens, clouds	Heaven, clouds	Prosperity, strength	Death, purity
Japan	Anger, danger	Schurkerei youth, energy	Decency, dignity	Death	

Designing, producing and testing tourist maps for children represents another preoccupation for the team, a future project.

CONCLUSIONS

The great challenge of 3D mappers its o produce a perfect map, functional as well as aesthetic. Elaborated and well refined products will be the only ones that may convince the operators of the effectiveness of a tourist map, its role in advertising and promotion.

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