

## THE GEOTOURISTIC MAP – BETWEEN THEORY AND PRACTICAL USE. CASE STUDY - THE CENTRAL SECTOR OF THE BUCEGI MOUNTAINS (ROMANIA)

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**Abstract:** The geotouristic map is a new type of map which reveals best the connection between the relief and touristic activities. There are several types of geotouristic maps: index, touristic maps, geoscientific maps and interpretative maps. Their elaboration supposes several stages: consulting bibliography and different types of maps (topographic maps at different scales, geological maps) and aerial views, accomplishing detailed mappings in the field, which will finally lead to finalization of general geomorphologic map. This will be subsequently simplified and the touristic information will be included, this way resulting the geotouristic map. The central sector of the Bucegi Mountains (SouthCarpathians, Romania) was chosen as a sample, and it imposes by its geological and geomorphologic complexity, as well as by a large number of geomorphosites, some of them of great value (they are called geomonuments), and also by the well represented touristic infrastructure.

**Key words:** geotouristic map, methodology, geomorphosite, geomonument, Bucegi Mountains, Romania

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### INTRODUCTION

The geotouristic map (*geo* - represents the provenance of information, *touristic* denotes the use of the map) is a new cartographic product which aims to be useful in the field of promoting the geomorphologic and geological heritage from a certain space, as well as for transmitting information related to geosciences for an as large as possible audience (Carton et al., 2005; Castaldini et al., 2005, Bertacchini et al., 2007; Panizza & Piacente, 2008; Reynard et al., Bissig, 2009).

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On the geotouristic map there is information of geological and geomorphologic nature, as well as basic touristic information (belvedere points, information posters, picnic areas etc). The aim of this map is to help the tourist (a new type of tourist who wants to be informed) to understand the elements he or she notices, to decipher the geographic landscape in its whole, but also to value in a superior manner the geomorphologic and geological heritage of a territory. At present, there isn't a worldwide unanimously accepted definition for the geotouristic map and it hasn't been adopted a standard methodology of accomplishment or a unitary superscription.

After Regollini - Bissig (2008, 2009, 2012) who inventoried and analysed more than 50 geotouristic maps, the following categories can be separated:

- Index maps - they contain a reduced volume of information of scientific or touristic nature, their main purpose being to localize in space the interest points and the elementary infrastructure.
- Touristic maps - this type of maps mainly contain information of touristic interest, whereas information of scientific nature is much reduced and they have a general character.
- “*Geoscientific*” maps - (Bissig, 2008) – these maps include numerous scientific elements, but touristic elements are reduced.
- “*Interpretative*” maps - (Bissig, 2008) – present a balance between the scientific and the touristic part, the role of the author being that of disclosing the geomorphologic landscape in its whole to the tourist.

The first geotouristic maps were accomplished in Italy for the regions Abruzzo and Emilia Romagna by the specialists from the University of Modena (Castaldini, 2008; Castaldini et al., 2008; Castaldini et al., 2009; Castaldini et al., 2011) and in Italy in general (Brandolini, Pelfini, 2010). „*But maps intended for geotourists are of a very different class and have also been given different names, such as, for example, Tourist-Environmental map (Barozzini et al., 2004; Castaldini et al., 2005), Exploring the landscape (Goodenough et al., 2004), Geomorphological-Tourist map (Angelini et al., 2004), Geotourist map (Castaldini et al., 2005; 2009), Geological Tourist map (Sapp et al., 2006) or Geo-Hiking map (Coratza et al., 2008)*” (Serrano & Gonzales Trueba, 2011).

In Romania there are some samples done based on the experience gathered in multinational teams of researchers from the University of Oradea (Ilieş et al., 2011). The aim of our demarche is to show the manner in which the Geotouristic map of the Bucegi Massif (the central sector) was done, as well as its interpretation.

## **OBJECTIVES AND METHODOLOGY**

The geotouristic map is done in several stages. Thus, in the first stage, the specialised bibliography about the chosen space is consulted and the cartographic base is created: topographic maps at different scales (1:10000, 1:25000, 1:50000), geological maps, ortophotoplans and aerialphotoplans etc. The data resulted in the first stage are complemented by the data gathered from the field (Figure 1).

Selective information comprised in the general geomorphologic map and in the geological map from the two previous work stages are used for finishing the geotouristic map. The data of geological and geomorphologic nature are simply presented, in order to be understood by the different categories of tourists who they address to (Figure 1). The aim of presenting them is to introduce the map user in the evolution of the respective area and to emphasize particularities of the geology and relief which otherwise would have remained unknown. Some of these data may lead to the increase of tourists' flows, especially of those who profess geotourism or to the introduction in the touristic circuit of new touristic destinations.

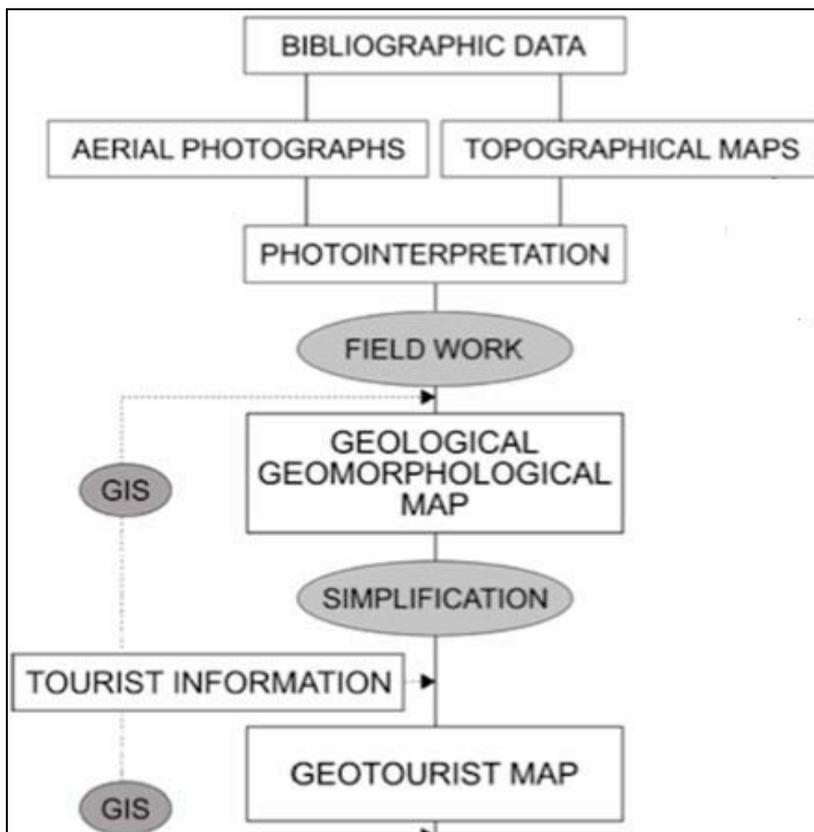


Figure. 1. The Geotouristic map – stages of accomplishment  
(Source: after Bertacchini et al., 2007, modified)

On the geotouristic map there are marked by adequate symbols elements related to relief (structural abrupt, petrographic, glacial, gully), geosites, geomorphosites and geomonuments which exist in the analysed area, as well as the touristic infrastructure (cable installations, belvedere points etc) (Figure 2).

The legend used for the geotouristic map is not unitary, and this is the reason why we propose the following structure: *categories of forms of relief* (different categories of slopes and the deposits covering them were included here; genetic types of forms of relief), *touristic infrastructure* (inclusively paths with trails and different categories of roads used for tourism) and specific elements (geomorphosites and geomonuments).

The map is always accompanied by an index and an explanatory text which facilitate for the tourists the understanding of some elements on the map and they also add extra-information. In order to facilitate the understanding of some specialised terms on the map, a part of these could be explained on the back side of the map.

### STUDY AREA

The space from the analysed geotouristic map is represented by the central sector of the Bucegi Massif or by the Bucegi Plateau, as it is known in the specialised literature.

The Bucegi Massif unfolds between the Prahova Valley in the east, the depression corridor Rucăr Bran in the west, the Râşnoavei Corridor in the north and Ialomiţei Subcarpathians in the south. Along the corridors of valley which surround the massif, important circulation axes unfold, ensuring the access to the settlements from the base of

the mountain, where from numerous paths and unmodernised roads start to the interior of the massif, allowing the relatively easy access to all natural and anthropic objectives.

The Bucegi Massif is made of peaks unfolded as a horseshoe, separated in the central part by the Ialomița Valley. The two branches of the horseshoe converge to the Omu Peak (2505 m), the highest peak of the massif. The eastern branch descends towards the Prahova Valley and consists of peaks of over 2000 m (Bucura, Obârșia, Coștila, Caraiman, Jepii Mici, Jepii Mari, Piatra Arsă, Furnica, Vârfu cu Dor) and towards the valleys Izvorul Dorului and Ialomița under the form of a plateau dominated by the peaks (Babele, Cocora, Lăptici). The western branch includes the peaks Doamnele, Bătrâna, Grohotișu, Strunga Mare, Tătaru. From the Omu Peak a series of short and abrupt crests unfold, too, under the form of summits (Moraru, Bușoiu, Padina Crucii, Țigănești and Gaura) (Ielenicz & Comănescu, 2006).

In the analysed sector varied forms of relief can be mentioned, some of them being geomorphosites or geomonuments which attract numerous tourists. Thus, we can exemplify (Ielenicz & Comănescu, 2006):

- The Prahova structural abrupt with a level difference of over 1000 m, with structural bench (The Prahova Versant with Brâna Mare);
- The structural plateau at the altitude of 1800-2000 m;
- The peaks which become real belvedere points (the Caraiman peak);
- The form of ruiniform relief of type of crags, pinnacles, towers (Babele, Baba Mare and the Sphynx);
- The glacial relief which consists of varied forms (cirques, valleys, moraines);
- Glacial or structural crests on which waterfalls are developed (Caraiman).

In the analysed sector, the sector Babele-Caraiman, we meet a series of geomorphosites of great value which are part of the categories described above and which we will characterise, showing their relationship with the touristic activity, as well as a geomonument (geomorphosite of great value, emblematic for a certain space, which attracts considerable flows of tourists).

The *Babele* represent isolated rocks with bizarre forms, developed on conglomerates as a result of the differential erosion exercised by the wind, water, frost-defrost. The access is easy, both on the road (sylvan road) and by cable transport installations.

*Baba Mare* has got a genesis and a morphology resembling the *Babele*.

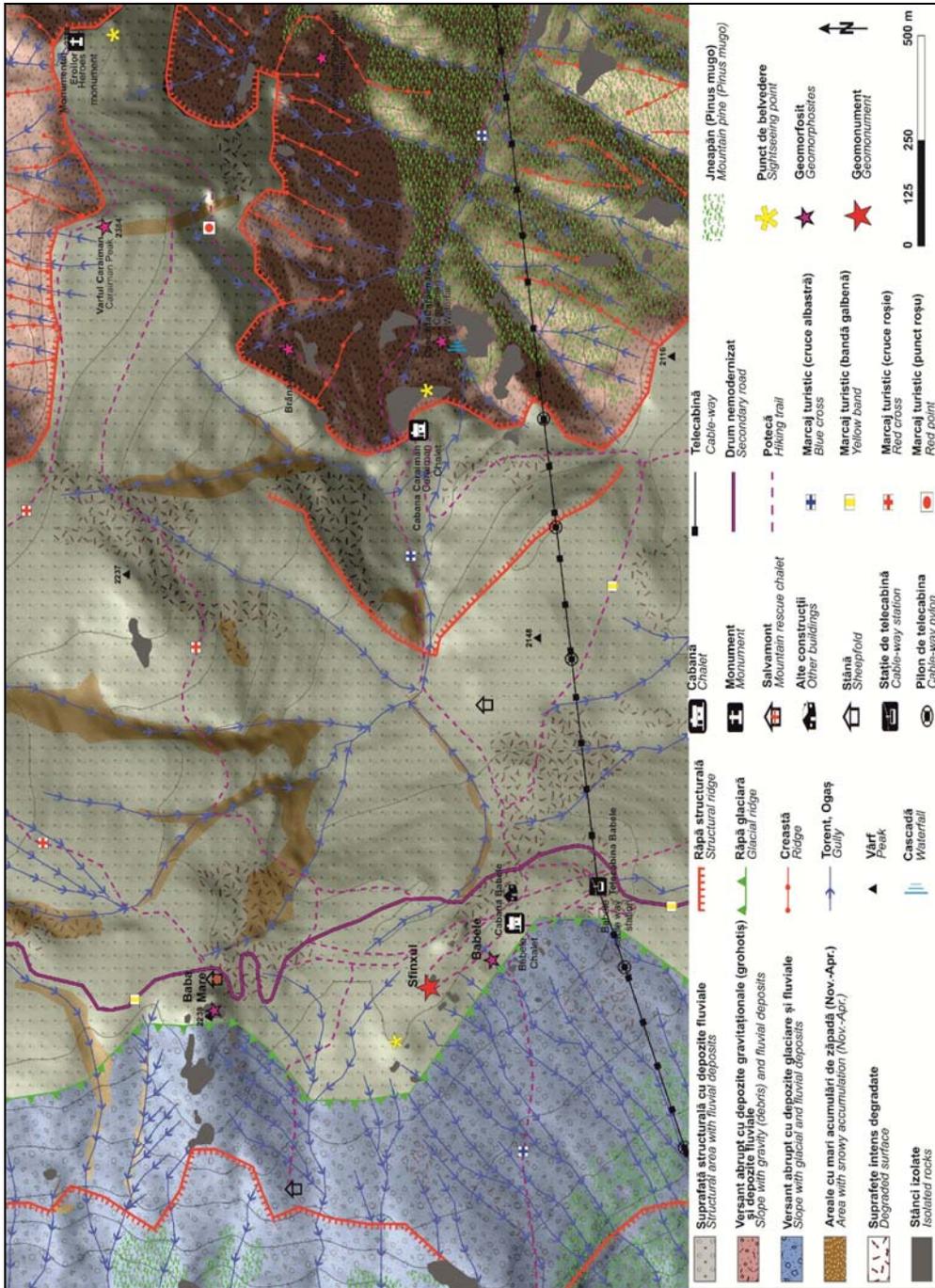
*The Caraiman Peak* (2384m) has got a dome shape and it represents an important belvedere point. Its cultural value is also increased by the presence of the Monument of the Heroes from the First World War (the Cross on the Caraiman).

*Brâna Mare* is a structural bench on the Prahova slope of the Bucegi mountains. It is used as a difficult but very spectacular means of access between the Caraiman chalet and the Heroes' Monument.

*The Caraiman Waterfall* is a spectacular chute formed on a structural crest in the superior sector of the Jepii Mari Valley at the altitude of approximately 1.700 m.

*The Prahova Versant* is an impressive abrupt of large dimensions, with the energy of a relief of over 1.000 m, formed on conglomerates and fragmented by narrow valleys. It is hard to access, the trails being forbidden in winter because of the avalanches risk.

*The Sphynx* can be considered a geomonument due to its scientific, aesthetic but also cultural value (iconographies, myths, legends and also cinematographic value). It is an isolated rock developed on conglomerates resembling the Sphynx from Egypt (human head) resulted from the differential erosion exerted by external agents. It is 8 m height and 12 m wide, being situated at the altitude of 2.215 m. It is a definitive touristic objective for the area of the Romanian Carpathians, accessible all year round by cable car from the town Bușteni.



**Figure 2.** The geotouristic map of the central sector of the Bucegi Massif  
(Source: Comănescu & Dobre, 2011)

**The touristic infrastructure** is well developed in this area, as well as in the entire Bucegi Massif. Thus, we can notice the existence of the Salvamont, of the cable car Bucegi – Babele (the main way of access on the Bucegi Plateau for all categories of tourists; its path is very spectacular, it has got a level difference of 1.235 m and a length of 4.350 m, having six support piers), of an unmodernised road, several marked trails (blue cross, yellow strip, red cross, red bullet), of the belvedere points and of the Babele (situated at 2.205 m altitude, open all year round, accessible both by cable car and on the silvan road from the Mount Paduchiosu or by means of numerous touristic paths coming from Sinaia, Busteni or Ialomitei Valley) and Caraiman (situated at 2.020 m altitude, localised in the superior part of the Prahova abrupt, being an important belvedere point) challets.

We propose three (geotouristic) theme itineraries which can be included in a thematic circuit of approximately 3 hours, in which the main geomorphosites (Figure 3) from this area can be seen. These are:

- *The Babele Challet - Heroes' Monument* - difference of level of 80 m, easy, access all year round. The path is well traced and it represents the main access way towards the Heroes' Monument. The path crosses a series of torrents from the basin of origin of Jepii Mici, which can constitute a risk element for the touristic element in the periods with heavy or long rains.

- *The Babele Challet - The Caraiman Challet* - difference of level of 200 m, easy as difficulty (it may present certain risks in the periods with dense fog), accessibility all year round. The path is an access way towards the Prahova abrupt, the challet and the waterfall Caraiman. The path continuously and steadily descends along the Jepii Mici torrent (crossing a crest developed on conglomerates).

- *The Caraiman Challet – Heroes' Monument* - difference of level of 250 m, high difficulty (especially in the periods with fog and heavy rains). The path unfolds along a structural bench, being hard to cross in the parts where it intercrosses torrential organisms which can be covered by snow.



**Figure 3.** The most importantes geomorphosites in central sector of the Bucegi Massif

## CONCLUSIONS

We consider geotouristic map as an indispensable way in accomplishing the touristic activities in the present period. The geotouristic map is very useful, as it

combines geographic (especially geomorphological) information with touristic information and it represents a handspike by which scientific information can get to the large audience. An important characteristic of the map must be the clearness of the legend and of representations on the map, but also the accuracy of the scientific information. The map accomplished and presented by us represents a first step for an ampler project, namely the geotouristic map for the entire massif Bucegi, the most important touristic area of the country.

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## REFERENCES

- Bertacchini, M., Benito, Calvo, A., Castaldini, D., (2007), *The Geoarchaeo-Tourist Map of the Territory of Otricoli (Umbria Region, Central Italy): Preliminary Notes*, Analele Universitatii din Oradea, Seria Geografie, tom. XVII, Editura Universitatii din Oradea 2007, p. 105-114.
- Bissig, G., (2008), *Mapping geomorphosites: an analysis of geotourist maps*, Geoturystika, 3(14), 3-12.
- Brandolini, P., Pelfini, M., (2010), *Mapping geomorphological hazards in relation to geotourism and hiking trails*, In Regolini-Bissig, G., Reynard, E. (Eds), *Mapping Geoheritage*, Lausanne, Institut de géographie, Géovisions 35, 31-45.
- Carton, A., Coratza, P., Marchetti, M., (2005), *Guidelines for geomorphological sites mapping: examples from Italy*, *Géomorphologie: relief, processus, environnement*, 3/2005, 209-218.
- Castaldini, D., (2008), *Maps and Multimedia Tool for thr Environmental Tourism in Protected Areas of the Modena Apennines (Northern Italy)*, *GeoJournal of Tourism and Geosites*, year I, no. 1, vol. 1, p. 13- 33, Oradea University Press.
- Castaldini, D., Valdati, J., Ilieș, Dorina, Camelia, Barozzini, Eliza, Bartoli, L., Dallai, D., Sala, L., (2005), *Carta Turistico Ambientale dell'Alta Valle delle Tagliole, Parco del Frignano*, Eliofofotecnica Barbieri, Parma.
- Castaldini, D., Valdati, J., Ilieș, Dorina, Camelia, (2005), *The contribution of geomorphological mapping to environmental tourism in protected areas: examples from the Apennines of Modena (Northern Italy)*, *Revista de Geomorfologie*, 7, p. 91-106.
- Castaldini, D., Coratza, P., Bartoli, L., Dallai, D., Del, Prete, C., Dobre, R., Panizza, M., Piacentini, D., Sala, L., Zucchi, E., (2008), *Carta Turistico Ambientale del Monte Cimone, Parco del Frignano, Parco del Frignano*, Eliofofotecnica Barbieri, Parma.
- Castaldini, D., Valdati, J., Ilieș, Dorina, Camelia, (2009), *Geomorphological and Geotourist Maps of the Upper Tagliole Valley (Modena Apennines, Northern Italy)*, *Carta geomorfologica e geo-turistica dell'alta Valle delle Tagliole (Appennino Modenese, Italia settentrionale)*, Mem. Descr. Carta Geol. d'It.LXXXVII, p. 29-38.
- Castaldini, D., Conventi, M., Coratza, P., Dallai, D., Liberatoscioli, E., Sala, L., Buldrini, F., (2011), *Carta Turistico-Ambientale della Riserva Naturale Regionale delle Salse di Nirano*, Comune di Fiorano Modenese, Tipolitografia Notizie, Modena.
- Comănescu, L., Dobre, R., (2012), *Harta geoturistică a Munților Bucegi (sectorul Babele-Caraiman)*, Edit. Ars Docendi, București.
- Ielenicz, M., Comănescu, L., (2006), *România- potențial turistic*, Edit. Universitară, București.
- Ilieș, Dorina, Camelia, Ilieș, A., Herman, G., Baias, Ș., Morar, C., (2011), *Geotourist map of the Băile Felix- Băile 1 Mai- Betfia area (Bihor county, Romania)*, *GeoJournal of Tourism and Geosites Year IV no.2, vol. 8, November 2011*, p. 219-226.
- Panizza, M., Piacente, S. (2008), *Geomorphosites and geotourism*, *Rev. Geogr. Academica*, vol.2, nr.1, 5-9.
- Regolini-Bissig, G., (2010), *Mapping geoheritage for interpretive purpose. Definition and interdisciplinary approach*. In Regolini-Bissig, G., Reynard E., (Eds). *Mapping geoheritage*, Lausanne, Institut de géographie, Géovisions 35, 1-13.
- Regolini-Bissig, G., (2012), *Cartographier les geomorphosites- Objectifs, publics et propositions methodologiques*, Institut de géographie, Géovisions 38, 316.
- Reynard, E., (2005), *Géomorphosites et paysages*, *Géomorphologie: relief, processus, environnement*, 3/2005, 181-188.
- Reynard, E., Coratza, P., Regolini- Bissig, G., (2009), *Geomorphosites*, Verlag Friedrich Pfeil, Munchen, 240 p.
- Serrano, E., Gonzales, Trueba, J., (2011), *Environmental education and landscape leisure. Geotourist map and geomorphosites in the Picos de Europa National Park*, *GeoJournal of Tourism and Geosites Year IV no.2, vol. 8, November 2011*, p. 295-308, Oradea University Press.

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