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## Geotourism potential of Thethi National Park (Albania)

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### ABSTRACT

Thethi National Park has great potential for geotourism development thanks to the landscape of the alpine scenery of the valley surrounded with high mountains and attractive landforms such as canyons, waterfalls, glacial cirques, glacial lakes, karstic caves, etc. Besides natural assets, Thethi and Okol villages inherit several monuments of culture and the original way of living of the community which has remained almost still for centuries. Due to the scenery of the valley, presence of natural and cultural monuments and the interesting history of the community, Thethi National Park is being frequented by both native and foreign visitors. In general, the tourists visit just two and rarely three natural monuments, although the area has much more potential for geotourism. The valley, the river and the mountains have landforms suitable for different types of nature tourism such as hiking, mountain biking, riding, climbing, caving, swimming, etc. This research project, undertaken in the scope of heritage study and promotion, intends to fill this gap by recognizing and popularizing the geosites of Thethi National Park. The valorization of the geomonuments provides information about the geotourism potential of each geosite by ranking them based on the total points gained from the four criteria of Knapik et al. (Solarska & Jary, 2010). The spatial information is combined with other information of the site in a digital database aiming to inform the visitor about geology, geomorphology, accessibility, hiking trails, etc.

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### 1. Introduction

Thethi National Park is located in the Albanian Alps, between the mountain block of Accursed Mountains on the west and the Block of Jezerca on the east, in the Municipality of Shala, about 70 km far from Shkodra city. An area of 2630 ha was designated National Park since 1966 (AKZM, 2016), where 1680 ha are covered by forests and the rest are pastures and rocky surfaces. On the east, this biocorridor continues with the National Park of Valbona and the Regional Nature Park of Nikaj-Mërturi.

The park and the area nearby have many glacial and karstic landforms such as glacial cirques and lakes and karstic caves, making the area very attractive for the hikers, climbers and cavers. The high mountain peaks that surround Thethi valley, mountain passes, and river valleys are ideal for hiking and exploring the beauty of the alpine landscape.

Thethi National Park is very rich in terms of flora and fauna. Forests of oak, ash tree and beech cover the slopes from 600 to 1900 m. In higher altitudes beech forest is mixed with black pine and Bosnian pine, and at Peja pass, with European spruce. The subalpine and alpine pastures are situated at the altitudes of 1990 to 2300 m. In the park can be found more than 100 medicinal and aromatic plants, forest fruits, balkanic and endemic species. The park is the habitat of the brown bear, wolf, fox, lynx, chamois, deer, wild boar as well as the mountain eagle, falcon, woodpecker, raven, etc. In the river grow the mountain trout and the otter.

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Besides the geodiversity and biodiversity, the isolated valley is very rich in history, legends and cultural sites. Characteristic alpine towers with their unique architecture, Lock-in-tower with its role for blood-feud reconciliation, Ethnographic museum with traditional costumes and folk musical instruments, water mill, etc., introduce the visitor to the original way of living in this remote mountain area.

Foreign travelers and writers, Franz Nopcsa, Edith Durham, Robert Elsie, to mention a few, have toured across the valley and written about the original way of living in Thethi, giving also descriptions of the nature. While the history and traditions of this area are relatively known, the geopotential of this area is not well known enough.

## 2. Methodology

The geotourism potential of the Thethi National Park and the area nearby is evidenced based on the geomorphological study of the area. Questionnaires are used to identify the touristic frequentation of the geosites based on the answers of the visitors of Thethi. Geotouristic values of this area are evidenced based on their valorization according to four criteria of Knapik et al. (2009) modified by Anna Solarska and Zdzisław Jary (2010):(1) accessibility, (2) state of preservation, (3) scientific value and (4) education value. Geoinformation of Thethi National Park created with the help of ArcGIS10 is a digital database about each natural site, where general and specific data about geographical position, geology, geomorphology, biodiversity, state of preservation, management, etc., are provided. An inventory card of each site containing pictures and descriptions divided in sections is created.

## 3. Geology and landforms

Thethi belongs to the tectonic zone of the Alps (Akademia e Shkencave, 1990) characterised by the typical alpine scenery of the high mountains standing on both sides of the valley. Thethi National Park is located almost in the center of the Albanian Alps along the upper section of Shala valley, known as Thethi valley.

This valley has the sizes and morphogenic features of a basin of about 12 km long (till Grunas canyon), 3–4 km wide with a conical shape of the bottom about 1 km wide, situated in the altitude of 700–1100 m and covering an area of about 14 km<sup>2</sup>. The morphological dimensions and features of this valley owe to its modeling throughout a belt of powerful tectonic destruction, formed as a result of the interruption of some tectonic faults\*. Over the terrigene-carbonate core of the lower Triassic are situated the Mesozoic carbonate rocks, representing a secondary anticline structure at the altitude of 1200–1400 m (Albanian Geological Service, 2002). The valley is modeled between the carbonate mountain block of Radohima (2568 m) on the northwest and that of Jezerca (2692 m) on the northeast. Both blocks have had the largest amplitude of the tectonic uplift (over 2200 m) of the structural basement of the Alps\*.

The impressive precipices of the slopes of this block with a relative altitude of 1200–1700 m, owe entirely to the high amplitude of uplifts and the thickness of the limestone\*. The most impressive views are the precipices of the southern slope of Alia Mount (2471 m), Boshi (2415 m), the southern slope of Maja e Harapit Mount (2217 m) and the southeastern slope of Radohima. These precipices end to the bottom of this basin through a ladder structure, which is modeled on the Triassic schists. The wider stretch (2–3 km) of these rocks is between the Peaks of Boshi and Alia, leading to the expansion of this basin mainly along this slope\*.

The displacement of the collapse limestone structure of the Zorgji peak (1663 m) eastward has narrowed the basin creating the Grunas canyon. The difference in the size and morphological features on the slopes here are thanks to the big structural asymmetry, especially along the southern part of Thethi and Ndërlyshës (6 km long). This morphological phenomenon is due to the relatively higher amplitude of the new tectonic uplift (150–200 m) of the carbonate structure on the northeast and southwest of this basin\*. Stone streams located mainly along the left slope, have influenced the expansion of this basin through the accumulation cones.

The most spectacular morphological contrast can be seen at the end of the basin having the shape of a trough (7 km long), which is narrowed abruptly at the exit of Thethi valley, creating the magnificent Grunas canyon. The tectonic origin of this canyon, in addition to the karstic processes, is conditioned by the presence of a normal tectonic fault, where the difference between the Zorgji limestone collapse structure on the right and that of the Black Peak (1923 m) on the left is 250–300 m\*.<sup>1</sup> The territory of Thethi National Park compared with other parks of the whole country is a unique morphostructural and morphological complex. Thanks to these unique values, Thethi National Park is one of the most favorite for the admirers of nature tourism such as alpinism, hiking, climbing, etc.

The glacials and Shala river have also shaped the Thethi valley. Flowing through different rocks (Mesozoic limestone and schists) and along tectonic faults, the river has created an impressive landscape. Upstream, from the Springs of Okoli until the mouth of Kapreit stream, the Quaternary glaciers have modeled the U shaped valley that resembles a trough, which further, from Mardedaj village, gradually gets narrowed. Thethi River, branch of Shala River, has further modeled its valley creating the stunning shapes of Grunasi canyon, and many small stone pools.

Thethi valley (700–1100 m) contrasts with the high mountains which rise like walls of about 1500 m higher. The peaks of Radoinës (2570 m), Arapit (2217 m), Jezerca (2694 m), Paplukës (2569 m), Alisë (2471 m) are all part of the mountain blocks that naturally protect the valley. Although it seems a remote and isolated area, Thethi is connected with Boga, Valbona, Plava and Gucia through mountain passes. The valley of Thethi is connected with that of Valbona on the east through the tectonic

<sup>1</sup> Note: \* is contribution of Prof. Dr. Gjovalin Gruda, geomorphologist.

pass of Valbona (1810 m). Also the road leading to the Vuklit valley and that leading to the Limit valley cross through Valbona pass along the Runica trough. On the west, the Tërthore pass (1722 m) connects the valley of Thethi with that of Boga.

Glacial cirques, glacial lakes, glacial valleys, karstic caves, karstic springs, vertical walls, waterfalls, canyons, alpine meadows, etc., can all be found in the mountains and the valley. These natural attractions are being increasingly frequented by domestic and foreign tourists mainly for hiking, climbing, caving, fishing, or simply to enjoy the alpine scenery and the traditional life among the mountains. The most favorite hiking trails for hikers is that from Thethi to Valbona, which takes about 7 h, but also shorter ones such as that from Boga to Thethi, Thethi to Peja pass, Okoli to Thethi waterfall, etc. Mountain biking from Kopluku to Thethi and from Thethi along the rivers of Shala and Kir is an exciting off-road sport over rough terrains.

#### 4. Biodiversity of Thethi National Park

Natural processes here occur in the absence of any human intervention, and as such in Thethi we find virgin forests and interesting natural ecosystems with peculiar species. The park is very rich in terms of flora and fauna. There are three altitudinal vegetation zones. The zone from 600 to 800 m is dominated by oak (*Quercus*), hornbeam (*Carpinus orientalis*), ash tree (*Fraxinus ornus*), and hazelnut (*Coryllus avellana*). From 700 to 1900 m the most predominant tree is the beech (*Fagus sylvatica*) situated along both sides of the valley, associated in some areas with the wild poplar (*Populus tremula*), sycamore (*Acer pseudoplatanus*), white fir (*Abies alba*), and the relic English yew (*Taxus baccata*). In higher altitudes, it is mixed with the black pine (*Pinus nigra*) and the Bosnian pine so called “rrbulli” (*Pinus heldreichii*). At the Peja pass altitude (1776 m), the European spruce so called “hormoq” (*Picea abies*), known also as Christmas tree, constitutes the southern limit of this species in Europe (Meta & Kola, 2015). Finally, the third vegetation zone is represented by the subalpine and alpine pastures situated at 1900 to 2300 m. In the streams and rivers grows a rich hydrophilic flora dominated by *Caltha palustris*, *Pinguicula hirtiflora* and *Polygonatum odoratum*.

In this park can be found more than 100 medicinal and aromatic plants such as: *Origanum vulgare*, *Salvia officinalis*, (*Juniperus communis*), *Thalictrum flavum*, *Ranunculus repens*, *Ricinus communis*, *Tilia cordata*, *Primula veris* (“aguliçe”), *Humulus lupulus* (“dredhëz”), etc. The area is also rich with forest fruits such as *Vaccinium myrtillus* (“boronica”), a kind of blueberry that in Albania grows only in the Alps in the altitude 1200 to 1800 m, wild rose (*Rosa canina*), cornel (*Cornus mas*), wild blackberry (*Rubus fruticosus*), nuts (*Juglans regia*), horse chestnut (*Aesculus hippocastanum*), etc.

The park has also rare, endemic and balkanic species such as *Wulfenia baldacci* (at Shtegu i Dhenve), *Lilium albanicum*, *Viola ducagjinica*, *Teucrium arduini* L., *Athamantha turbith*, *Asperula scutellaris* Vis., *Campanula albanica* Witasek, *Gentiana lutea* (Meta & Kola, 2015).

The fauna is represented by 20 species of mammals, 50 species of nesting birds, nearly 10 species of reptiles and 8 species of amphibians. Among the big mammals in the park live the brown bear (*Ursus arctos*), wolf (*Canis lupus*), lynx (*Felis lynx*), chamois (*Rupicapra rupicapra*), European roe deer (*Capreolus capreolus*), and wild boar (*Sus scrofa*). The fowls that the visitor can find in this park are golden eagle (*Aquila chrysaetos*), the western capercaillie also known as heather cock or wood grouse, called in Albanian “gjeli i egër” (*Tetrao urogallus*), woodpecker, falcon, etc.

Many species of butterflies make Thethi one of the richest habitats in Europe. Thethi is also the habitat for the alpine salamander (*Salamandra atra*) and other species of amphibians such as *Triturus alpestris*, *Bombina variegata* and reptiles like *Algyroides nigropunctatus*, *Lacerta agilis*, *Coronella austriaca*, *Vipera* sp. etc. In the water of Thethi River grow the mountain trout as well as the globally endangered Eurasian otter (*Lutra lutra*).

**Table 1**

Criteria of assessment for inventoried geomonuments (according to Knapik et al., 2009, modified).

Criteria	Traits	Points
Accessibility	Site clearly visible, located directly on the touristic trail or nature's path	5
	Site clearly visible, located on the road or path	4
	Site barely visible, located more than 250 m away from the path or road	3
	Site difficult to access for tourist (significantly overgrown or difficult to access)	2
	Site unavailable for tourists	1
State of preservation	Well preserved site with no visible signs of degradation	5
	Site in slight violation of its structure	4
	Partially destroyed	3
	Site heavily modified by humans	2
	Site destroyed - loss of geosite's character	1
Scientific worth	Very high: one site in the region, unique in a wider scale	10
	High: very important for regional studies	8
	Average: significant for regional research	6
	Low: common site with average values	4
	Very low: no particular distinctive features	2
Education	Very high: number of represented issues: 5 and more	10
	High: number of represented issues: 4	8
	Average: number of represented issues: 3	6
	Low: number of represented issues: 2	4
	Very low: number of represented issues: 1	2

## 5. Valorization of the geosites for geotourism development

Geotourism is defined as tourism that sustains or enhances the distinctive geographical character of a place, its environment, heritage, aesthetics, culture, and the well-being of its residents (National Geographic, n.d). During communist period (1944–1990) the isolated Thethi valley was frequented in summer for its curative properties of the alpine fresh air. After 1990, the population of Thethi and Okol migrated massively to the other areas of Albania or abroad to escape from the isolation for a better life. But, recently the locals are investing and converting their homes into guesthouses for the visitors. After many years, the tourists are coming back to this park thanks to natural beauties and cultural heritage of the community. The locals, besides their activities of stock breeding and agriculture, are involved in tourism providing shelter, local food and hospitality to the guests.

Thanks to the numerous geomonuments (third category of protected areas according to the IUCN), Thethi National Park and the area nearby have great potential for geotourism development. In Thethi, until now, for their esthetic, scientific or touristic values, the following geosites are designated as nature monuments: Grunas waterfall, Grunas canyon, Cirque of the beautiful hole of Jezerca, Jezerca Lake, Okoli springs, Maja e Arapit wall, Cave of the mount Maja e Arapit, Cave of cataract, Cave of Thethi (AKZM, 2016). The valorization of the geotouristic values of these sites is made based on the four criteria of Knapik et al. (2009), modified by Solarska and Jary (2010): (1) accessibility, (2) state of preservation, (3) scientific value and (4) education value (Table 1). According to this classification, accessibility and state of preservation have 5–1 points depending on their traits, while scientific worth and education values have 10–2 points.

Based on the answers of the questionnaires realized with the visitors of the park, it results that *Grunas waterfall* has the highest number of visitors of all geosites of the area thanks to its esthetic values. Although it takes about 35 min hiking from the center of Thethi, the waterfall is still the first touristic attraction to visit. Based on the valorization of the geosites according to the categories of Knapik et al. (2009), Grunas waterfall is the second geosite of the area (see Table 2). *Canyon of Grunas* is the second touristic attraction to be visited by the visitors and the first geosite of the area for its accessibility, geomorphologic and esthetic values. Grunas canyon is a geosite clearly visible, located directly on the touristic trail only few meters away from the road. The canyon can also be reached by walking down the Grunas waterfall for 10 min. *Blue Eye waterfall* is a site not visible from the road and it takes about 40 min hiking after driving 12 km from Thethi to Ndërlysa village. It has esthetic, scientific and educative values for understanding the erosion activity. *Thethi River* attracts the attention of the visitors as soon as they set foot in Thethi. The white-water cascading and creating stone pools is an attraction either for swimming or for fishing the mountain trout. The *Mount Arapi wall and Arapi cave* are ideal attractions for the climbers and cave explorers. The site is difficult to be accessed by tourists but not by the nature adventurers. The wall and the cave have geomorphologic and hydrological values.

### Grunas waterfall

The springs coming out at the contact of the Mesozoic limestones with the Permo-Triassic schists, flow through a ladder structure on the Mesozoic limestones and drop down the altitude of 30 m forming the waterfall of Grunas. The springs collect the water from the Pass of Valbona, Maja e Boshit (Boshi peak) and Fusha e Dënellit (Dënelli field), and are mainly supplied by the snow melting water (Dollma, 2015). The waterfall has a horsetail shape falling in a small pond with rocks as testimonies of the erosion activity.

### Grunas canyon

Within the National Park of Thethi, on the southern part of it, the spectacular canyon of 2 km long and 60 m deep has mostly a V shape of 1–3 m wide in the bottom, which rarely expands to 40 m. The canyon is very close to the Grunas waterfall, only 15 min walking down to the bridge or just 15 min walking along the road from Thethi village.

### Blue Eye waterfall

Blue Eye waterfall is located in Kaprrë, one of the most beautiful villages of the Alps. It is a small waterfall in a cascade form, falling into a pond where visitors like to jump. Black River, which originates in the Black Peak, has eventually eroded the rock forming the waterfall and some bathtubs. The waterfall is situated in a lovely nature about 12 km from Thethi village.

**Table 2**

Valorization of the geosites of Thethi National Park and the area nearby.

Nr.	Geosite	Criteria				
		Accessibility	State of preservation	Scientific value	Education	Summarized value
1	Grunas canyon	5	5	8	6	24
2	Grunas waterfall	3	5	8	6	22
3	Blue Eye waterfall	3	5	6	6	20
4	Thethi River	5	5	6	4	20
5	Arapit wall and cave	1	5	8	6	20

## Thethi River

Thethi River flows from Okoli springs until Kapreit stream with a range of 1000/1300 l/s and often gets foamy. The meandering riverbanks, the river stone pools and the flow of the white water in cascades attract the attention of any visitor passing by. The river flows through Thethi village and following the trail leading to Grunas waterfall. You'll have to cross the cold water of the river stepping on the rocks.

## Arapi cave and wall

Maja e Arapit mountain of 2217 m high has an impressive 800 m wall (considered the highest in the Balkans) making it a landmark of Thethi valley as well as a spot challenging wall climbers (international difficulty). Beneath the wall is situated Arapi cave, one of the longest recorded horizontal caves of Albania of 2643 m with a vertical rise of 365 m (Zhalov, 2011). The cave has galleries, passage ways, narrow passages, karstic microforms, wells, chimneys, siphons, etc.

## 6. Geoinformation of the geosites of Thethi National Park

Geoinformation, or spatial information, is an important economic asset in public and private life. Geoinformation is recorded by means of computer-based methods of geocomputer science, processed, analyzed, and finally multimedia-based presented, e.g. in internet (Becker, 2019). Understanding the practical and economical value of the geoinformation, a database of the geosites of Thethi is created, where the spatial information is combined with other information. The information of each site is inventoried in a card as it is demonstrated below (Fig. 1).

Following the approach proposed by Giardino and Mortara (2004) to each geosite, a card containing pictures and descriptions divided in sections is created. The general data of the site is presented in the first section; pictures and text in the second, cultural values, curiosities and legends in the third section and state of preservation and risks in the last one. The inventory cards need to be completed with other information about geology and geomorphologic evolution, stratigraphic sections, 3 D views, hiking trails

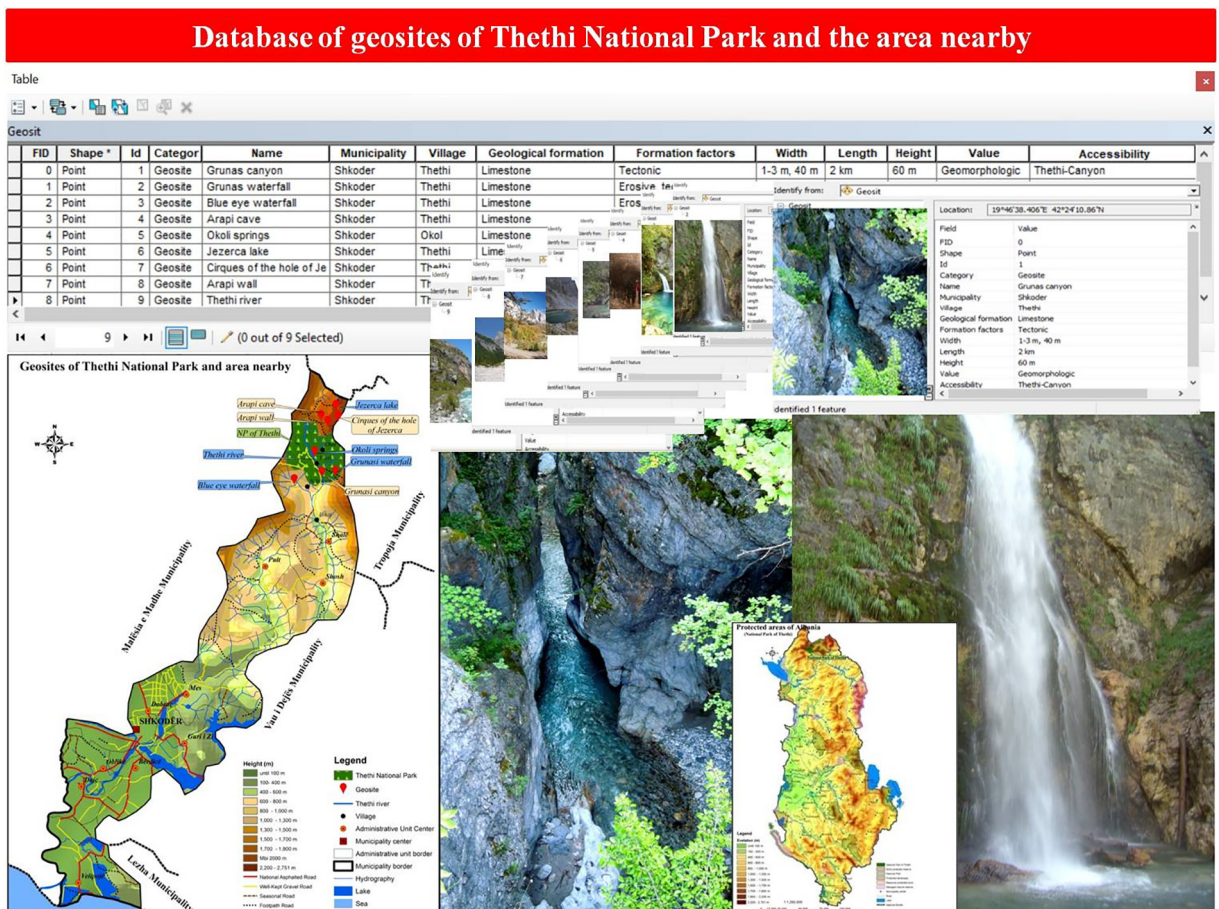


Fig. 1. Database of geosites of Thethi National Park.

(Dollma, 2016). A database accessible directly from Web and a Web-GIS application is being developed in order to promote the geosites of this park to the public and stimulate geotourism development.

Using the database of the geosites of Thethi, some geotours are designated. Based on the time and the requests of the user (visitor), some itineraries are created showing the distance, the time needed, the difficulty level, the geosites and cultural objects that can be visited along the tour, camping sites, water sources, etc. However these geotours need to be completed with more information (risks, safety) and developing a walking app should be the next step. The following are the hiking trails most frequented by the hikers.

The mountain passes of Thethi are very suitable for hiking in one or more days. The most interesting hiking trails from Thethi are: from Thethi to Valbona for about 7 h; from Okoli to the waterfall of Thethi (12 km); from the valley of Boga starting at the Sheep path (1670 m) down to Thethi valley at 900 m altitude and finally a trail of 11 km long from Thethi to Peja Pass (1900 m). Along these trails can be visited several geosites, besides the fantastic landscape all-around of the mountains and the valley. Hiking these trails needs a local tour guide or specialized tour operator such as Albania Adventure, or experienced individuals who guide visitors in high mountain peaks.

Stopping by the villages of Thethi and Okol is a great chance to know the local people, their history of survives in isolation for centuries, their local food and traditions. Some guesthouses in the villages offer bed and breakfast and sometimes give a private tour to the Grunas waterfall or to the Grunas canyon. In the valley there are many spots suitable for camping either close to the existing guesthouses or close to the fresh water springs.

Besides hiking, the park has great potential for mountain biking, climbing, cave exploring, swimming, fishing, and canoeing. *Mountain biking* from Kopliku to Thethi through Bunit T'thores (1733 m), *swimming* at the canyon down Gerla bridge, or in the stone bathtubs of Thethi River or *canoeing* in some parts of the river valley are some other sport activities at Thethi. Besides, *climbing* the 800 m vertical wall of Maja e Arapit Mountain and *cave exploring* at the cave in the altitude of 840 m of this mountain, are unforgettable adventures for those who are passionate about these kinds of sports. Many other caves on the mountain passes and mountains around offer the possibility of exploring the cave scapes such as the cave of Circues over Ulaj, cave of Shakujve valley, Pepes cave in Okol, etc.

## 7. Conclusions

Thethi National Park and the area nearby have high geotourism potential thanks to diverse geosites of high esthetic, scientific and touristic values. This area is being frequented by native and foreign tourists for both geotourism and ecotourism. Although the local businesses are informing the visitors about the beauty of the valley besides promoting the bio food that they offer, there is still much more to be done for the promotion and popularizing the values of this park. Valorization of the geosites of Thethi National Park and the geoinformation of the geosites of this area are the first steps toward geoheritage promotion for geotourism development. However, much more is needed to be done for the information update, monitoring the state of the art of the geosites, completion of the database with more geological and geomorphological aspects of the geosites, etc. (Dollma, 2016). Developing a walking app and interactive maps of the Park and the area nearby would help the hikers to explore the trails' features and the surroundings. This database will be available to the public through a website where all the information about the geosites, hiking trails and touristic itineraries will be easily accessible to the visitors.

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## References

- Akademia e Shkencave (1990). *Gjeografia Fizike e Shqipërisë. vol. 1.* (pp. 43), 43 (Tectonic zones of Albanides: Korabi, Alpet, Vermoshi, Sazani, Mirdita, Gashi, Krasta-Cukali, Jonike, Kruja).
- Albanian Geological Service(2002). Geological map of Albania, scale 1:200 000.
- Becker, M. (2019). What is geoinformation? Retrieved from [www.geodesy.tu-darmstadt.de](http://www.geodesy.tu-darmstadt.de).
- Dollma, M. (2015). Geoinformation of hydromonuments of Albania in function to the tourism development. *Geographical research, Kosovo* (pp. 135).
- Dollma, M. (2016). Geotourism development in the protected area Llogara-Karaburun. *Acta Geoturistica*, 7(2), 6.
- Giardino, M., & Mortara, G. (2004). I geositi nel paesaggio della Provincia di Torino. *Pubblicazione del Servizio Difesa del Suolo della Provincia di Torino. Vol. I.* (pp. 116).
- Knapik, R., Jała, Z., Sobczyk, A., Migoń, P., Alek-sandrowski, P., Szuszkiewicz, A., ... Krakowski, K. (2009). Inwentaryzac-ja i waloryzac-ja geostanowisk Karkonoskiego Parku Narodowego i jego otuliny oraz wyko-nanie mapy geologicznej tego obszaru. *Jelenia Góra*, 5–8.
- Meta, M., & Kola, H. (2015). Studimi i Burimeve Natyrore të Rajonit Verior të Shqipërisë. *GTZ*, 17.
- National Agency of Protected Areas–AKZM (2016). List of protected areas in Albania. Retrieved from [www.akzm.gov.al](http://www.akzm.gov.al).
- National Geographic (d). Geotourism. Retrieved from [www.nationalgeographic.com](http://www.nationalgeographic.com).
- Solarska, A., & Jary, Z. (2010). Geoheritage and geotourism potential of the Strzelin Hills. *Geographica Pannonica*, 14(4), 118–125.
- Zhalov, A. (2011). *Report international caving expedition "Maja e Arapit", The expedition in 2011.*