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Geomorphosite assesment in Qeshm Geopark (Iran)

Abstract

One of the new fields in geosciences and tourism studies is tourism geomorphology or geomorphotourism, which is based on recognition of geomorphosites or specific sites of geomorphology. The purpose of this research was to study the geomorphotourism of Qeshm Geopark. As the first geopark in Iran and in the Middle East, Qeshm Geopark is the final part of the Zagros Mountains. It has valuable geomorphotourism potential which should be studied for its conservation and use of its potential. The assessment method introduced by Kubalíková was used for assessing the geomorphotourism potential of Qeshm Geopark. Also, TCI index was used to assess climatic comfort for tourists. Seven important geomorphological and geological sites (Chahkuh Valley, Stars Valley, Namakdan, Dulab, Roof of the Qeshm, Tandis-ha valley and Korkorakuh) were selected as representatives from East to West of the Qeshm Geopark. The results indicated that Chahkuh Valley, Stars Valley, and Namakdanas well as Dulab, Roof of the Qeshm, Tandis-ha valley and Korkorakuh have the highest and lowest values based on Kubalíková geomorphosite assessment, respectively. The obtained results also demonstrated that winter is the best season for tourism in Qeshm Geopark.

Key words: geomorphotourism; geomorphosite; Kubalíková method; TCI; Qeshm Geopark; Iran

Introduction

Geology and geomorphology of natural sites have been inviting and attractive, so they have been of interest and visited by tourists for a long time (Migoń, 2009; Dowling, 2013). Over the past two decades, geological tourism (geotourism) has become an important activity at local, national, and international levels (Dowling & Newsome, 2010; Gray, 2013). It employs geological heritage sites (geosites), heritage objects (primarily those from museum collections), especially created geoparks, and other geology-related objects for the purposes of tourism and recreation. Its main objectives include promotion of geological knowledge, elevation of the awareness of geological heritage and its conservation needs, as well as the diversification and sustainable development of tourism industry.

Panizza (2001), an Italian geomorphologist, introduced the term "geomorphosite" into geomorphology literature for the first time (Shayan, Zare & Ghasemnezhad, 2015). Geomorphosites refer to the landforms with specific geomerphological characteristics that are considered as part of the cultural heritage of a territory. Landforms with higher scientific, aesthetic and cultural values within geomorphotourism

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are called "geomorphosites". Also, large areas, with different geomorphosites and geosites, are known as "geo-parks" (Necheş, 2013; Lazzari & Aloia, 2014).

Geopark is an area with distinct boundaries and sufficient area which includes several rare geological phenomena and has natural attractions as well as historical and cultural value necessitating management, utilization programs, and protection plans in this area. Also, it has the ability to enhance the economic conditions of the local community and attract the people who are involved (UNESCO, 2006). Some geoparks, national parks, and protected areas have both geoscientific value and historical as well as cultural value. These sites may represent a source of geotourism activities which could lead to economic and cultural development of the local community and play an important role in local identity. Notably, a tourist is absorbed by different aspects of geology and geomorphology of a site as well as suitable infrastructure (e.g. specified trails and transport, accommodation), information facilities (e.g. booklets, panels of information, the possibility of promotion via the internet),as well as cultural and historical aspects of the sites.

Qeshm Geopark is the first and the only geopark in the Middle East which had been registered in Gelobal Geoparks Network (GGN) by 2006. Furthermore, Qeshm Geopark enjoys a high level of significance due to its great strategic state in the Persian Gulf, which is located between Asian and European Geoparks. For this reason, we attempt to present and identify geomorphosites in the Qeshm Geopark susing field survey, questionnaire and interview. We finally present a comparison and analysis of their geomorphoturism values base on Kubalíková method (Kubalíková, 2013; Kubalíková & Kirchner, 2015). Kubalíková method was used to quantify the quality of multiple geomorphosites in Qeshm Geopark and specify the important geomorphosites with various advantages.

Literature review

Due to human perception or exploitation, geomorphosites as geomorphological landforms have acquired scientific, cultural/historical, aesthetic and social/economic values. These values were divided into two groups (Reynard, Coratza & Regolini-Bissig, 2009): 1) scientific values; 2) additional values. The scientific values are important for understanding a form, process or evolution. Within the geomorphologic sites, the representativeness of the form and process, uniqueness and palaeogeographical significance of the site are considered as the most important scientific values.

The additional values include cultural (Piacente, 2005), ecological, economic, social (Panizza & Piacente, 2008), and aesthetic values. As the geomorphosites acquire both scientific and an added value, their evaluation is not restricted only to the scientific criteria, but also to the criteria related to cultural, scenic, social, or economic features (e. g. visibility, accessibility, presence of cultural assets), in order to better meet the geotourism requirements (Kubalíková, 2013). The research on geomorphosites was initiated in 2001, when the working group on geomorphosites was established by the International Association of Geomorphologists, which started to deal with definition, methodology, and assessment methods. The working group emphasized interdisciplinary research and cooperation with other geoconservation and geotourism initiatives especially geoparks (Giusti, 2010).

There are some studies that have addressed theoretical aspects of geomorphosites such as Panizza and Piacente (1993) who used geomorphosite word for landforms that earn specific values based on scientific, cultural, historical, aesthetic, and socio-economic criteria. Panizza, (2001) reviewed some fundamental concepts on geosites and particularly on geomorphological assets (geomorphosites) and presented a methodology for their survey and assessment in the Modena. Reynard (2005) proposed a definition for the geomorphosite and mentioned the geomorphosite values. Comanescu, Nedelea and Dobre (2011) classified theories to three classes based on conservation and study of specific sites of geomorphology; 1) the origin and foundation of the ecosystem; 2) as a landscape in the general case; 3) potential of the natural environment.

There are also assessment methods introduced by researchers such as Pralong (2005), who presented a method for assessing tourist and exploitation values of geomorphological sites in a tourist and recreational context. This method was based on the study of geomorphological sites of Chamonix Mont-Blanc (Haute-Savoie, France) and Crans-Montana-Sierre (Valais, Switzerland) areas. Serrano and González Trueba (2005) developed a methodology for assessing geomorphosites in the Cantabrian Range in northern Spain which could be applied to natural protected areas on the local scale. It focused on providing an inventory of geomorphosites as well as a natural and cultural assessment for their management. Pereira, Pereira and Caetano Alves (2007) described an approach to geomorphosite assessment which was developed and applied at the Montesinho Natural Park (MNP) in north-eastern Portugal. Reynard, Fontana, Kozlik and Scapozza (2007) proposed usage of two value sets: a central set dealing with "scientific value" and an additional set taking other possible aspects into consideration such as "cultural", "economic", "aesthetic" and "ecological value" dimensions. Fassoulas, Mouriki, Dimitriou-Nikolakis and George (2011) presented a quantitative methodology for evaluating geotopes which can be used for the sustainable management and conservation of the geological heritage of an area. Vujic, Vasiljevic, Markovic, Hose, Lukic, Hadzic and Janievic (2011) presented a preliminary geosite physical assessment model which has the potential to assist in the sustainable planning and management of natural heritage locations and their transformation into tourism destination.

The geomorphologic issues and tourism have been widely addressed in interdisciplinary studies worldwide. For instance, Pereira et al. (2007) gathered, assessed, and selected geomorphosites especially in terms of educational value in Montesinho Natural Park (Portugal). This work has been the first step to creation of geosites and geoparks. Reynard (2008) analyzed the relationship between geomorphology and tourism. Feuillet and Sourp (2011) proposed an example of the assessment and promotion of geomorphosites on a regional scale in the Pyrenees National Park based on three criteria: scientific, cultural, and use values. Reynard and Coratza (2016) reviewed six reasons for the potential of mountain geosites and concluded that mountain areas are particularly interesting to develop educational programs on three current environmental issues: climate change, natural hazards, and human influence on particularly sensitive geomorphological environments.

Further, many researchers have conducted geomorphotourism studies in Iran. For example, Behniafar, Sepehr and Mansoori (2013) presented a study on the potential of geomorphotourism in Kalat Mountain (Iran) based on its geomorphic landforms and springs. The study established that ecotourism planning in the study area can effective inachieving sustainable development goals in the region which can in turn improve the socioeconomic conditions of the settlements. Yazdi, Foudazi, Dabiri and Faraji (2015) introduced Kavir National Park (Maranjab Desert) geomorphosites, and explored the ways to developing geotourism in this area. Seyedi and Dalfardi (2015) evaluated the geomorphosites of Kerman Province through Prolong approach and field studies. According to their results, Loot desert geosite had the highest score. With regard to the values for exploitation level and quality, Meymand village obtained the highest score requiring more attention from the authorities. Finally, Pourkhosravani and Rahimi (2016) used the Pereira and Reynard models to investigate the geomorphotourism potential of Sirjan desert.

Methodology

There are different methods to assessing geomorphotourism sites in order to identify the most suitable site for geotourism (Kubalíková & Kirchner, 2015) and geomorphotourism. Kubalíková (2013) proposed a methodology for evaluating geomorphosites for geotourism targets. This method is based on analysis of the principles and definitions of geotourism (Dowling & Newsome 2010; Hose, 2012), collecting different evaluation methods (Panizza, 2001; Coratza & Giusti, 2005; Pralong, 2005; Serrano & González Trueba; 2005; Reynard et al., 2007; Pereira & Pereira, 2010), and adding some new indexes of his findings (Table 1).

Table 1
The proposed method for assessing geomorphosites (Kubalíková, 2013)

Scientific and intrinsic values	
Integrity	0 - totally destroyed site, 0.5 - disturbed site, but with visible biotic features, 1 - site without any destruction
Rarity (number of similar sites)	0 - more than 5 sites, 0.5 - 2-5 similar sites, 1 - the only site within the area of interest
Diversity (number of different partial features and processes within the geosite or geomorphosite)	0 - only one visible feature/processes, 0.5 - 2-4 visible features/processes, 1 - more than 5 visible features/processes
Scientific knowledge	0 - unknown site, 0.5 - scientific papers on national level, 1 - high knowledge of the site, monographic studies about the site
Educational values	
Representativeness and visibility/ clarity of the features/ processes	0 - low representativeness/clarity of the form and process, 0.5 - medium representativeness, especially for scientists, 1 - high representativeness of the form and process, also for the laic public
Exemplarity, pedagogical use	0 - very low exemplarity and pedagogical use of the form and process, 0.5 - existing exemplarity, but with limited pedagogical use, 1 - high exemplarity and high potential for pedagogical use, goedidactics and geotourism
Existing educational products	0 - no products, 0.5 - leaflets, maps, web pages, 1 - info panel, information at the site
Actual use of a site for educational purposes (excursions, guided tours)	0 - no educative use of the site, 0.5 - site as a part of specialized excursions (students), 1 - guided tours for public
Economical values	
Accessibility	0 - more than 1000 m from the parking place, 0.5 - less than 1000 m from the parking place, 1 - more than 1000 m from the stop of public transport
Presence of tourist infrastructure	0 - more than 10 km from the site existing tourist facilities, 0.5 - 5 – 10 km tourist facilities, 1 - less than 5 km tourist facilities
Local products	0 - no local products related to a site, 0.5 - some products, 1 - emblematic site for some local products

Table 1 **Continued**

Conservation values	
Actual threats and risks	0 - high both natural and atrophic risks, 0.5 - existing risks that can disturb the site, 1 - low risks and almost no threats
Potential threats and risks	0 - high both natural and anthropical risks, 0.5 - existing risks that can disturb the site, 1 - low risks and almost no threats
Current status of a site	0 - continuing destruction of the site, 0.5 - the site destroyed, but now with management measures for avoid the destruction, 1 - no destruction
Legislative protection	0 - no legislative protection, 0.5 - existing proposal for legislative protection, 1 - existing legislative protection (Natural monument, Natural reservation…)
Added values	
Cultural values: presence of historical/archaeological/ religious aspects related to the site	0 - no cultural features, 0.5 - existing cultural features but without strong relation to a biotic features, 1 - existing cultural features with the strong relations to abiotic features
Ecological values	0 - not important, 0.5 - existing influence but not so important, 1 - important influence of the geomorphologic feature on the ecologic feature
Aesthetic values: number of colors; structure of the space, viewpoints	0 - one color, 0.25 - 2-3 colors, 0.5 - more than 3 colors;
	0 - only one pattern, 0.25 - two or three patterns clearly distinguishable, 0.5 - more than 3 patterns;
	0 - none, 0.25 - 1-2, 0.5 - 3 and more

Accordingly, in this study, the primary data were collected using documentary information and field survey. Table 1 proposes a method for assessing the geosites and geomorphosites. The criteria of this method were divided into five groups covering almost all the features of geotourism.

The first group, "scientific and intrinsic values", was based on the geological principles, integrity, and pristine location as well as definition of geotourism with a geomorphological and geological approach. The second group, "educational values" is based on the fact that all definitions of the geotourism emphasize educational topics and content of environmental education, conservation, and protection of host communities as well as evaluating and interpreting its principles. The third group, "economic value" is based on principles including satisfaction of tourists, benefits to the local communities, diversity, and marketing. The fourth group of criteria "conservation values" involves sustainability, land use planning, conservation, and some protection principles. The last group of criteria, "added values," deal with the fact that geotourism considers both the natural issues in evaluations and aesthetic plus cultural aspects of the place (Kubalíková, 2013).

In addition to geomorphosite assessment, the Tourism Climate Index (TCI) has also been used in Qeshm Geopark. Mieczkowski (1985) developed the Tourism Climate Index (TCI) which merged seven climatic parameters applicable to tourism sightseeing. These include monthly means of maximum daily temperature (Tmax), mean daily temperature (Tmean), minimum daily relative humidity

(RHmin), daily relative humidity (RHmean), precipitation, daily sunshine hours, and wind speed (Perch-Nielsen, Amelung & Knutti, 2010; Amelung & Nicholls, 2014). These seven variables are then combined to form five sub-indices, weighted according to their influence on tourist's well-being (Mieczkowski, 1985). This index was calculated as:

Where, CD is the daytime thermal comfort; CIA represents the average thermal comfort; R shows the total monthly rainfall; S denotes the monthly average sunshine hours; and W is the monthly average wind speed.

Each of the input variables for the model was calculated according to the Qeshm synoptic station. The data were obtained for 15 years and all analyses were performed on this data. These variables were then rated on a scale with W, R and S spanning a scale from 0 (unfavorable) to 5 (optimal), while CA and CD were scaled from -3 to 5 (Mieczkowski, 1985; Perch-Nielsen et al., 2010). The variables were then assigned a weighting for the model, from which they were summed to a final score with a maximum value of 100 (Table 2).

Table 2
Climate variables component of the TCI model

Sub-index	Abbreviation	Climatic variables required	Weight (%)
Daytime thermal comfort	CD	Mean monthly maximum temperature (°C) Mean monthly minimum relative humidity (%)	40
Average thermal comfort	CA	Mean monthly temperature (°C) Mean monthly relative humidity (%)	10
Wind	W	Monthly average wind speed (km/h)	10
Rainfall	R	Total monthly rainfall (mm)	20
Sunshine	S	Daily sunshine (hour)	20

The calculated TCI scores were then classified in terms of the climatic suitability for tourism, ranging from impossible, with scores less than 10, to ideal, for scores greater than 90 (Table 3) (Perch-Nielsen et al., 2010).

Table 3
Rating categories of the tourism climatic index (Mieczkowski, 1985)

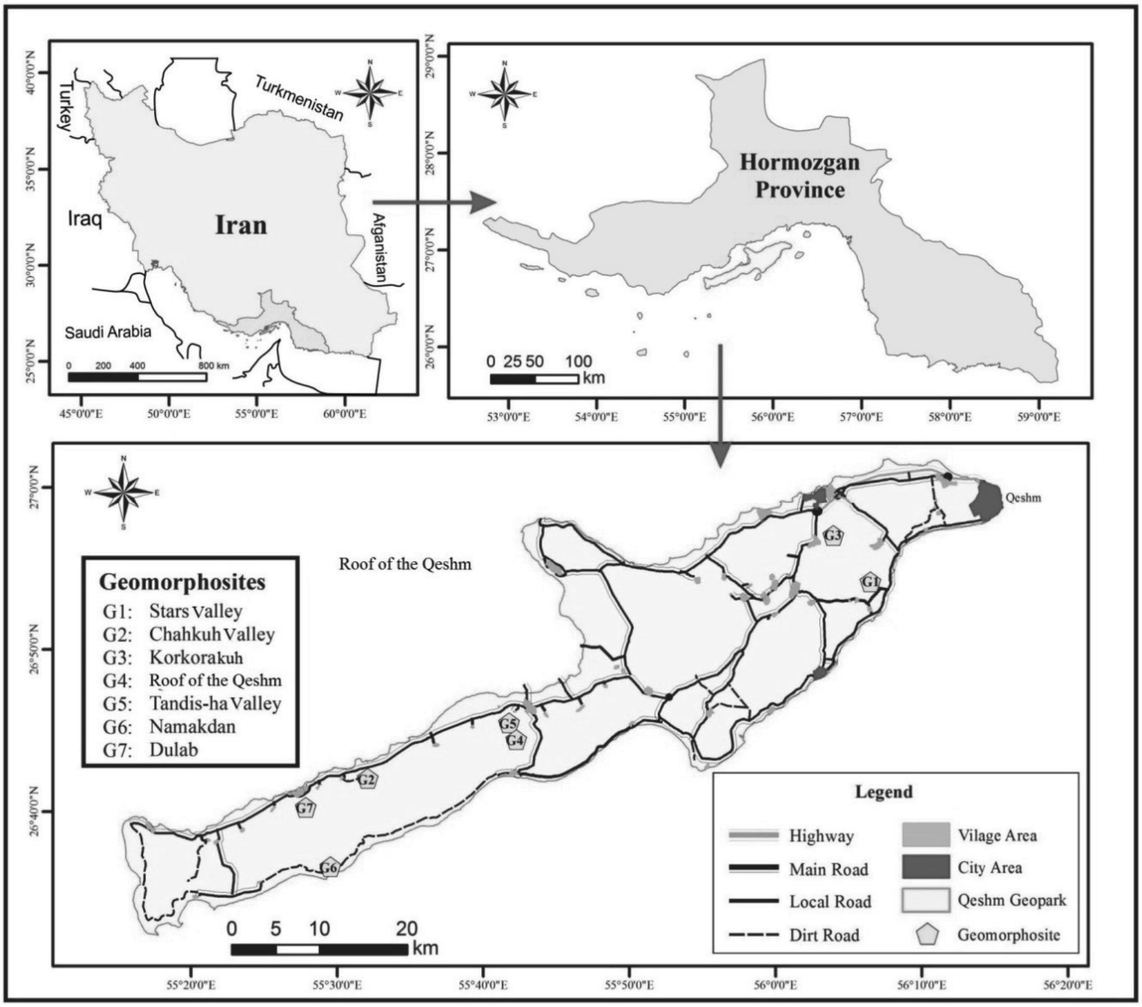
TCI score	Category	Mapping category
90-100	Ideal	Excellent
80-89	Excellent	
70-79	Very good	Very good and good
60-69	Good	
50-59	Acceptable	Acceptable
40-49	Marginal	
30-39	Unfavourable	Unfavourable
20-29	Very unfavourable	
10-19	Extremely unfavourable	
< 10	Impossible	

Study area

Qeshm is the largest Iranian island (1491km^2) in the Persian Gulf region and located in the Strait of Hormuz. Qeshm city is located at the easternmost point of the Island (Figure 1). The Island accommodates

59 towns and villages, with a population of approximately 100000 inhabitants. Qeshm is famous for its wide range of ecotourism attractions such as the Qeshm Geopark and Mangrove marine forest. The Qeshm Geopark is unique in its geological, ecological and archeological features.

Figure 1
Location of the study area



In terms of topography, Qeshm Geopark includes anticlines and synclines with a low height, as well as a salt dome in the west (Ministry of Housing and Urban Development of Hormozgan province, 2006). The maximum elevation of the Island is 395 m while the lowest elevation is zero. The island is the final part of the Zagros Mountains and is formed out of marine deposits, recent deposits, conglomerate and sandstone, Aghajari, Mishan and Hormoz formation (salt dome) (Qeshm Free Zone Organization, 2011).

The Qeshm Geopark has a hot and humid climate because of considerable sources of humidity, low elevation, and low latitude. Precipitation mostly is in the form of rain showers with a high frequency in a year. The average annual temperature is 27°C and the average annual rainfall is 141 mm. There are seasonal and temporary streams in this region flowing simultaneously during the rainfall while reaching the Persian Gulf as well as internal holes and small ponds.

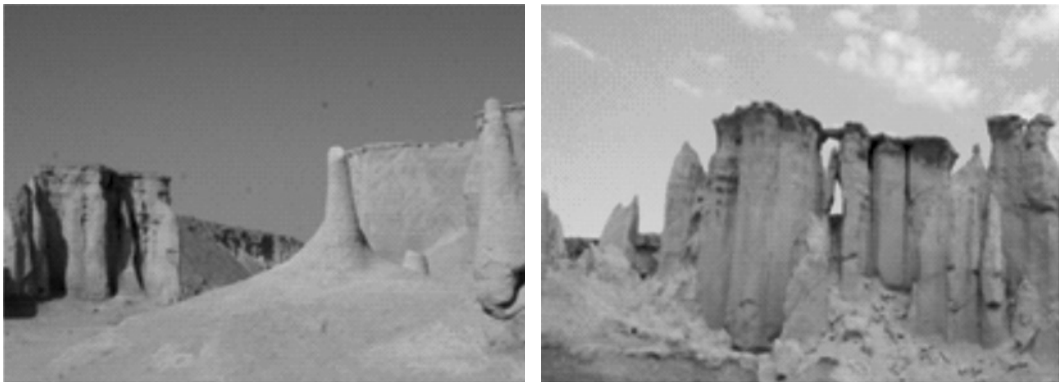
Results and discussion

After visiting and field survey, seven geomorphological and geological important sites were selected to study the Qeshm Geopark.

Geomorphosite 1: Stars Valley

Stars Valley, as one of the main geomorphosites, is located 15 km away from Qeshm City. The Stars Valley which is located in a beautiful area enjoys a peculiar geomorphological structure. It is known as one of the main Geopark sites approved by the UNESCO. This site has been formed by very soft sedimentary and erodible layers made of marl composed of layers of calcareous sandstone. It is a suitable location for studying sedimentary layers, mechanism of erosion on the layers, and their weathering. Additionally, bulks of needle-shaped pillars, vertical rims, and several erosion-made holes make Stars Valley more eye-catching (Figure 2).

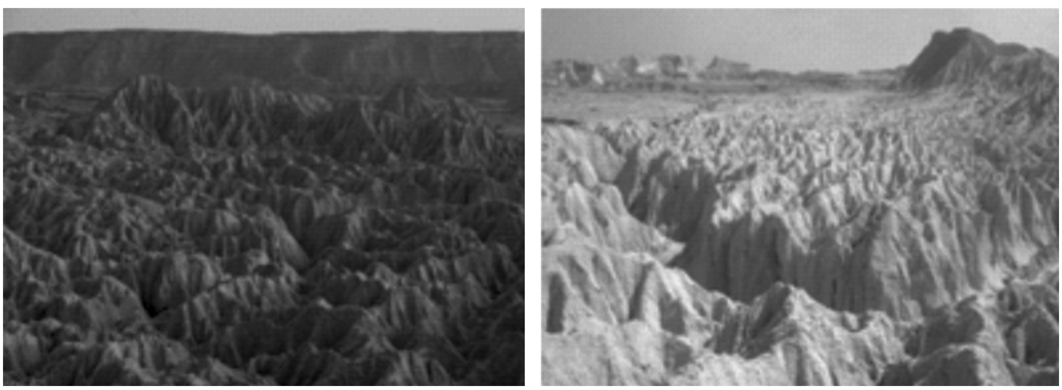
Figure 2
Stars Valley



Geomorphosite 2: Korkorakuh

Korkorakuh is located in the vicinity of Giahdan Village and is 15 km away from Qeshm City. Because of its impressive beauty, it has been approved as a site of Qeshm Island Geomorphosite by UNESCO. The general structures of the site include mounds made of marl. Furthermore, because of erosion, several valleys and canyons have been created between the hills (Figure 3).

Figure 3
Korkorakuh



Geomorphosite 3: Roof of the Qeshm

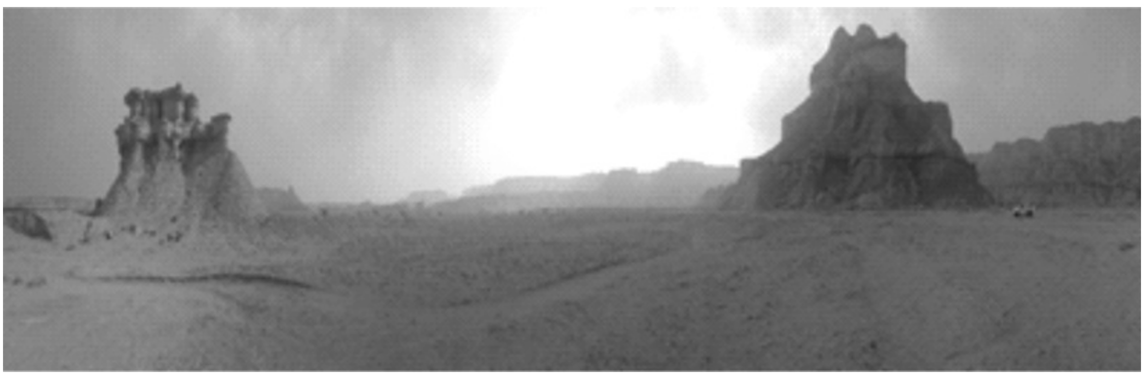
Roof of Qeshm is located in the central part of Qeshm Island (85 km away from Qeshm City), which is 120 meters high. It is a beautiful, large and high flat area from which there is an extraordinary view over the southern and northern coasts of the island. Also, alternative layers of marl and sandstone can be seen on its rim (representing tide-up and tide-down of the sea in different geological periods). The Roof of the Qeshm is not only a geological attraction, but also is known as a scenery attraction (aesthetic). From its top, one can observe several beautiful landscapes and attractions including Mangrove Forest, Tandis Valley (Valley of Statues), and Persian Gulf from the southern and northern parts of the island (Figure 4).

Figure 4
Roof of the Qeshm

Geomorphosite 4: Tandis-ha Valley (Statues Vally)

This valley is located 82 km away from Tabl Village and in the vicinity of Melki Village. Tandis-ha Valley is one of the geomorphosites of Qeshm Geopark, which is covered by muddy cracks with a sedimentary composition. In this valley, statues carved by erosion have created a glorious landscape (Figure 5). Morphologically, it is like Stars Valley. However, unlike Stars Valley, the Tandis-ha Valley has a wider area with more features which are apart from each other in comparison to Stars Valley.

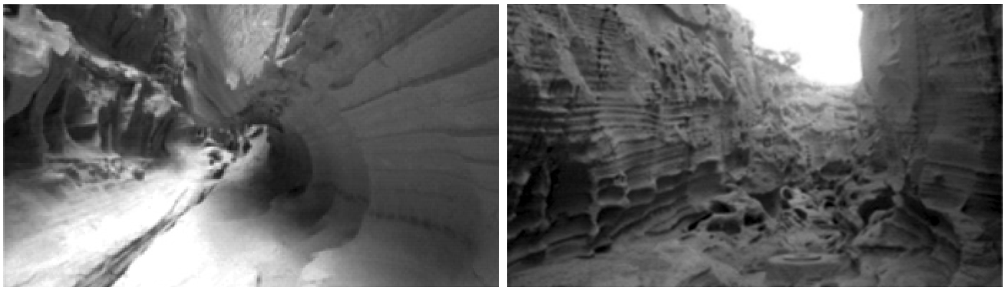
Figure 5
Tandis-haValley (Statues Valley)



Geomorphosite 5: Chahkuh Valley

Chahkuh Valley is located 15 km away from Tabl Village in the southeast of Eastern Chahoo Village. Existence of this valley is due to fault and the erosion by rainstorm, and water has created some really attractive holes and cracks. In this site, there are two canyons stacked on each other vertically. It is a narrow canyon with vertical rims and wonderful formations, which seems to be representing a creative artist's demonstration. In some cases, the width of these rims reaches even as wide as 1 m. This canyon, which has been created in a layer of sand and several beautiful channels, is composed of marl layers, silt and lime and based on their dissolving erosion in holes. Since the floor of the canyon is the place on which water flows after every time of raining, the locals have dug a well (Chah in Persian) on it to make use of water, so the name "Chahkuh' which means "Mount Well" has accordingly been chosen for it (www.geopark.ir) (Figure 6).

Figure 6
Chahkuh Valley



Geomorphosite 6: Namakdan

Namakdan geomorphositeis located in the western part of the Qeshm Island between the villages of Kani, Gambrvn, and Salkh and at a distance of 120 kilometers from Qeshm City considered as one of the attractive sites of the Qeshm Geopark and is a part of the natural-national monuments of Iran. This salt dome has developed due to diapirism phenomenon which has numerous openings and the longest salt cave in the world with a length of 6800 meters. Namakdan salt caves are the most important phenomenon of the subsurface feature of the salty karst, with this cave created by the dissolution of salt deposits in various parts of the dome. There are beautiful crystals of salt as stalactites and stalagmites in Namakdan caves. The caves' floor is dry and has been covered by salty shells or small salty streams. Hematite springs is also seen in the cave. In this area, the sedimentary, metamorphic and igneous rocks can be found (Figure 7).

Figure 7
Namakdan

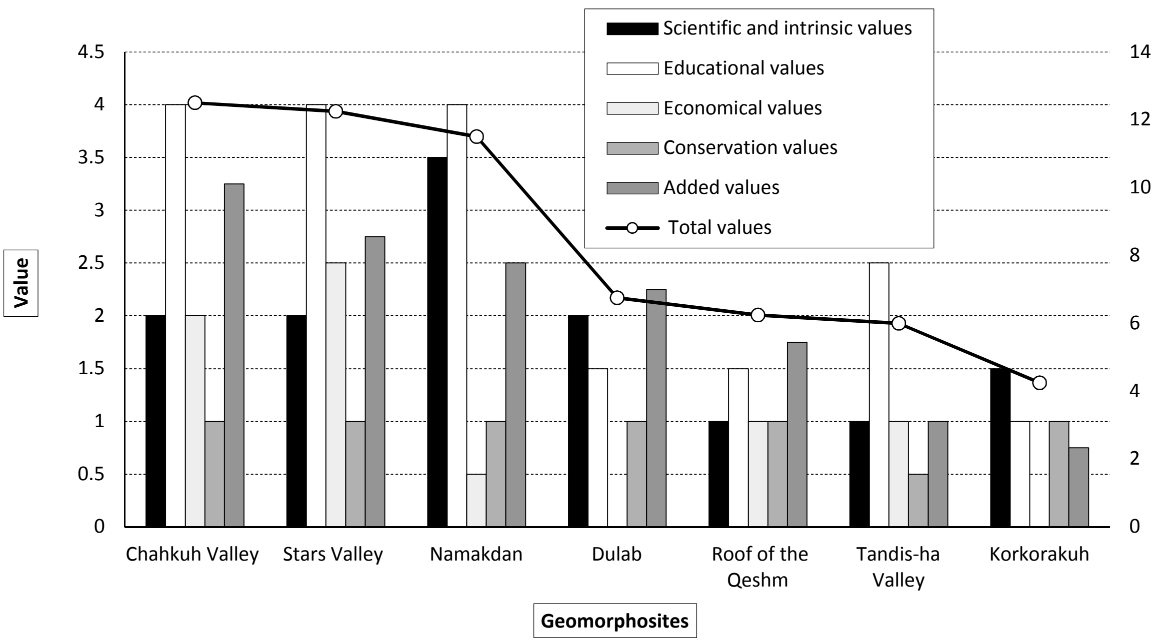
Geomorphosite 7: Dulab

Dulab is a large area at a distance of 100 kilometers away from Qeshm City and southern Dulab Village, most of which contains alluvial sediments and local Dulab conglomerate. In this area, there are several seasonal rivers transferring the rainfall on the salt dome to the northern water body of the island. Therefore, rivers in this area have water only for one or two months. These rivers have been formed on sandy-marl layers, some of which are 10 meters deep. The special lithological feature has caused many holes and tracks in some parts of the river. This drainage system is very complex and nested, so the best time to visit this area is after the rainy time (Figure 8).

Figure 8
Dulab

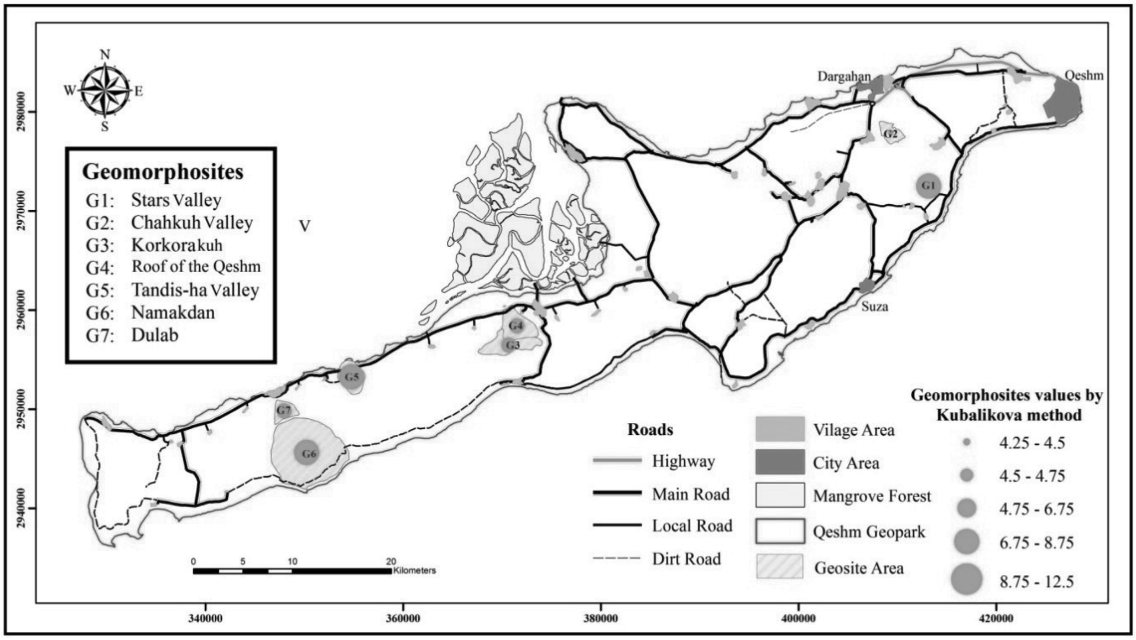
The results of geomorphosite assessment suggest that Chahkuh Valley, Stars Valley and Namakdan have the highest value, while Dulab, Roof of the Qeshm, Tandis-ha valley, and Korkorakuh showed the minimum value respectively (Figure 9).

Figure 9
Evaluation of geomorphosites of Qeshm Geopark



Considering scientific and intrinsic values, Namakdan has a high value because of the rarity and diversity as well as high scientific content. In terms of educational value, Chahkuh Valley, Stars Valley and Namakdan have a high value because of the popularity, uniqueness, as well as educational application and appropriate training. Concerning economic value, Chahkouh Valley followed by Stars valley has a high value because of accessibility, infrastructure, and local products. All of the geomorphosites have low value in terms of the conservation value, because of low legal protection as well as natural and human hazards. Regarding added value, Chahkouh Valley has a high value due to its cultural, ecological and aesthetic features (Figure 9). Figure 10 demonstrates the value of geomorphosites as circles, with the larger circle representing a higher tourism value of the geomorphosite.

Figure 10
Evaluation of the value of Qeshm geomorphosites



Based on TCI index, the best months for Qeshm Geopark tourism are February, December, January, March, November, and April respectively (Table 4).

Table 4
Results of TIC for Qeshm Geopark

Moon	TCI index	Descriptive value	Moon	TCI index	Descriptive value
JAN	89	Excellent	JULY	50	Acceptable
FEB	96	Ideal	AUG	50	Acceptable
MAR	88	Excellent	SEP	40	Low
APR	74	Very good	OCT	52	Acceptable
MAY	52	Acceptable	NOV	80	Excellent
JUNE	40	Low	DEC	94	Ideal

Regarding educational value, Doulab and Korkorakuh should be strengthened in road access, utilities and recreational facilities (accommodation) and selling local products. Namakdan has a high value, but in terms of economic value, its value is weak and all the efforts mentioned above should be also done to improve its economic conditions. Selling local products can enhance the economic value and attract more tourists in Roof of the Qeshm and Tandis-ha Valley. With regard to the conservation value, all of geomorphosites particularly Tandis-ha Valley have a very low value. In this regard, legal protection actions, management efforts, and education of visitors are recommended.

According to TCI index, winter is the best season for tourism in Qeshm Geopark. The remarkable point is that winter is cold or very cold in many parts of Iran but in Qeshm Geopark, winter is the best time for tourism thanks to its pleasant and mild weather.

Finally, the results showed that most of the studies about geotourism have only dealt with the geology and geomorphology. However, in this study, Qeshm Geopark was evaluated in terms of both geology and geomorphology as well as the cultural, educational, conservation, and tourism infrastructure values. For this purpose, geomorphosite assessment introduced by Kubalíková was used for Qeshm Geopark. Some geomorphosite assessment methods have also addressed these issues, but studies by the expert team found that the results of the Kubalíková assessment in Qeshm Geopark were simpler and more understandable.

Conclusion

The Qeshm Geopark enjoys several geomorphosites with various geomorphological landscapes. In this island with a long geological history, geotourism is linked to human and environment.

According to the results and in relation to the scientific and intrinsic value, geological and geomorphological studies should be conducted in Roof of the Qeshm, Tandis-ha Valley, Korkorakuh, Chahkuh Valley, and Dulab. Concerning education value, Tandis-ha Valley and Korkorakuh should be introduced to the public and also educational measures should be taken in Roof of the Qeshm for public recognition. Also, training is necessary in Korkorakuh and Dulabpossibly in the form of designing brochures, maps, and web pages, and installing information boards. Korkorakuh, Dulab, and Roof of the Qeshm should also be strengthened in terms of tourism destination. Finally, the Kubalíková method specified the important geomorphosites with a high advantage which can be introduced to the organizations and authorities of Qeshm Geopark in order to eliminate the barriers against access to the geomorphosites and take appropriate measures.

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