

UNESCO Global Geopark MONT S D'ARDÈCHE

REVALIDATION REPORT

Figure 1 Rendez-vous
géologique at Géosite Suc
de Breysse



Organisation
des Nations Unies
pour l'éducation,
la science et la culture



Monts d'Ardèche
Géoparc
mondial
UNESCO



Parc
naturel
régional
des Monts d'Ardèche

Name of UNESCO Global Geopark (UGGp) :

Monts d'Ardèche UNESCO Global Geopark

Country : France

Person(s) responsible for the report : Nicolas Klee – Marc Lutz

A. General information

Surface (km ²)	2442.5km ²
Population	78 391
Year of acceptance as UNESCO Global Geopark	2015
Year of membership in the Global Geoparks Network (before the establishment of the UGGp label in 2015)	2014
Previous revalidation date(s) and name(s) of previous evaluator(s)	Evaluators for validation in 2014 : Dan Grigorescu, Margaret Patzak
Contact person (name, position, e-mail)	Nicolas Klee Tourism technical office Geopark project leader nklee@parc-monts-ardeche.fr Marc Lutz Head of Department Biodiversity and spatial planning Geo-scientist mlutz@parc-monts-ardeche.fr
Website (please provide URL)	www.geopark-monts-ardeche.fr
Social media (please provide list of all channels used)	https://www.facebook.com/parc.desmontsardèche/ https://twitter.com/PNR_MA https://www.youtube.com/channel/UC8X69PVH-MnILkQN00DT0-w https://www.instagram.com/parc_monts_ardeche/

B. List of documents and annexes

- Strategy for Monts d'Ardèche UNESCO global Geopark
- List of Geosites
- Map of Geosites
- Map of Geopark achievements 2014-2018
- List of geocultural sites
- Annex detailing responses to the self-assessment
- Letter of UNESCO recommendations following 2014 visit

C. Cohesion of the area

The responsible entity for the Geopark project is Syndicat mixte du Parc naturel régional des Monts d'Ardèche, which was created in 2001¹. Thus, the Geopark area is exactly the same as the one of Parc naturel régional des Monts d'Ardèche, which was defined through a decree of the Prime minister. The Geopark area includes 150 municipalities that are clearly identified as forming the Park. By joining the Park, they join the Geopark.

In 2018, 5 new municipalities will join the Park and therefore the Geopark, under a new legal provision of the Biodiversity act. This

will lead to an increase in the Geopark's surface area of + 162.5 km² or + 3.5%. This will also facilitate the management of the territory by limiting enclaves and appendices. The consolidated timetable for their integration is not known yet as it depends on national and regional validations over which the Geopark has no control.

The perimeter of Monts d'Ardèche GG also corresponds to a coherent and a culturally well-identified territory.

¹ The legal entity managing the Geopark is Syndicat mixte du Parc naturel régional des Monts d'Ardèche. For more clarity, the terminology, Monts d'Ardèche GG will be used to designate both the territory and the managing entity in the following text.

D. Improvements made on previous recommendations

Monts d'Ardèche GG's responses to the auditors were as follows (for further details, see corresponding annex) :

RECOMMENDATION 1

The Geopark website now lists all partners : <http://www.geopark-monts-ardeche.fr/education-et-geologie-geopark/les-acteurs-de-la-geologie-geopark.html>

construction while avoiding duplication. Monts d'Ardèche GG is therefore not dependent on staff from universities. Cooperation with all these partners allows a regular, almost permanent, presence of geologists in the field, which is considered satisfactory by all.

which conduct research or training courses in the Geopark (e.g. Université de Nancy, Université de Nice, Université de Lyon), in order to strengthen links and to improve mutual contributions.

RECOMMENDATION 2

Monts d'Ardèche GG has deliberately chosen not to recruit a geologist but to favour local partnerships with structures that have in-house geologists (e.g. Société Géologique de l'Ardèche (SGA), Associations Clapas, Paléodécouvertes, Centre permanent d'initiatives pour l'environnement du Velay (CPIE), les Amis du Mézenc). This allows to benefit from an interesting quantitative panel, including many disciplines needed with respect to the diversity of the geological features present in the Geopark. In this way, the Geopark promotes cooperation and co-

RECOMMENDATION 3

Monts d'Ardèche GG has taken note of this recommendation and has made it a major focus of its work by building partnerships with two universities (Université de Bourgogne and Université de Clermont-Auvergne) and by funding research projects in its territory. The Geopark ichnology study mobilized three Masters Courses (Szewczyk, 2016; Szewczyk, 2017; Dubied, 2017) which produced detailed reports (see Annex 1). The Geopark will also undertake an awareness-raising campaign among non-partner universities



Figure 3 - Scientific investigations at the reptiles footprints site in Ucel (Trias & Permien cévenol)



Figure 2 - Field course for tourism sector professionals in Jaujac

RECOMMENDATION 4

Monts d'Ardèche GG has integrated a new sedimentary site (Miocène), Vallée des Tuiliers in Mariac as a geosite. It has also added research on the Triassic and Permian sites in the study entrusted to Université de Bourgogne on footprints of reptiles and amphibians. An extension over the Carboniferous period is envisaged for the next labeling period 2018-2022.

RECOMMANDATION 5

Monts d'Ardèche GG continued to improve knowledge on this paleontological site considered as a priority by the Geopark

Scientific Committee. It entrusted Université de Bourgogne with an in-depth study. A partnership has been set up with municipality of Ucel for its valorization. The project will start in 2018, and will

aim at providing visitors with a unique approach to this major palaeontological heritage.

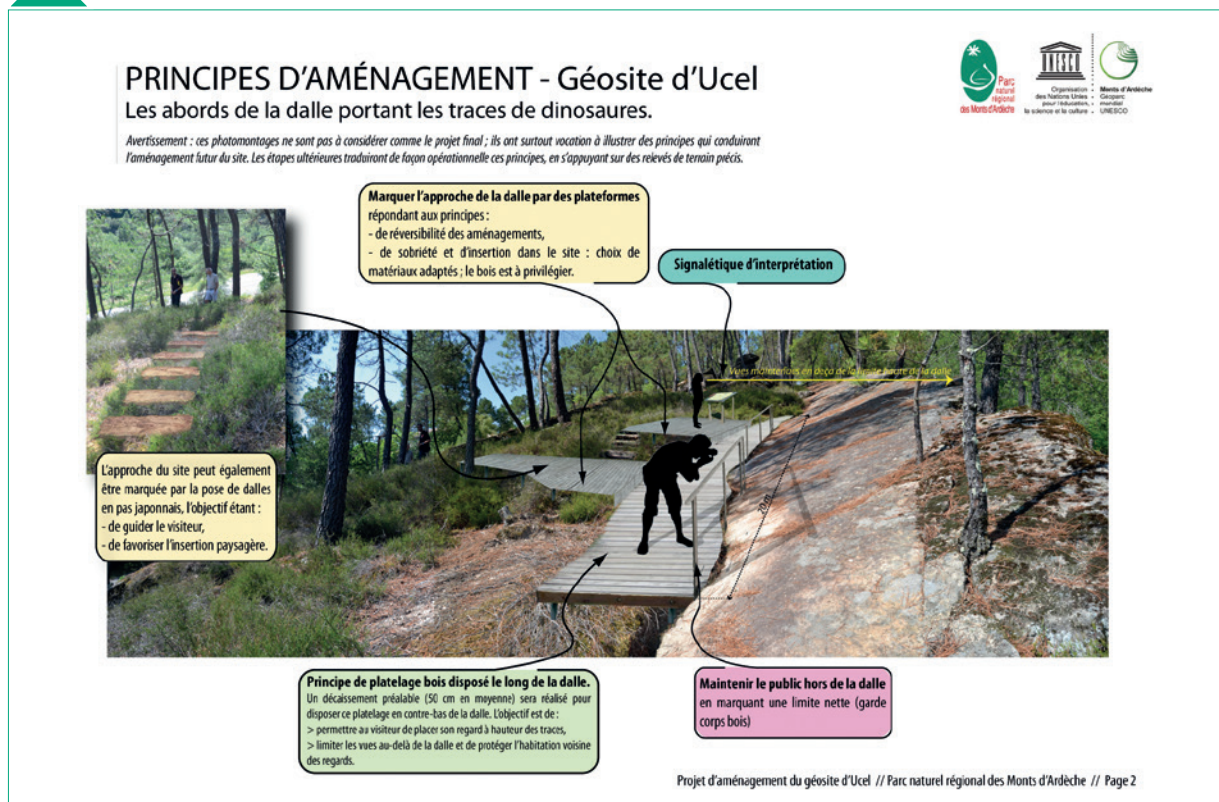


Figure 4 - Future design and equipment at the reptile's footprints site in Ucel

RECOMMANDATION 6

Signs and panels at the entrances of the geosites sites clearly mention the GGN logo - and the UNESCO logo for the latest ones. All texts of the panels have been translated

into English. Geopark road signs are under construction and will be installed in 2018. The map and booklet «all about Monts d'Ardèche Global Geopark» have also been translated into English, which is spoken by the majority of foreign visitors.

RECOMMANDATION 7

In accordance with this recommendation, Monts d'Ardèche GG created or renewed interpretive trails that combine geodiversity, biodiversity and cultural heritage. These include notably:

- **The trail "entre mer et montagne" [between sea and mountains]** in Saint-Etienne-de Boulogne (around Roche de Gourdon), which evokes history, fauna and flora, in addition to geological history ;
- **The path of Rocher de Brion** which evokes landscapes, history and flora ;
- **The path at Mont Signon** which evokes the geological history and the history of the phonolite quarry

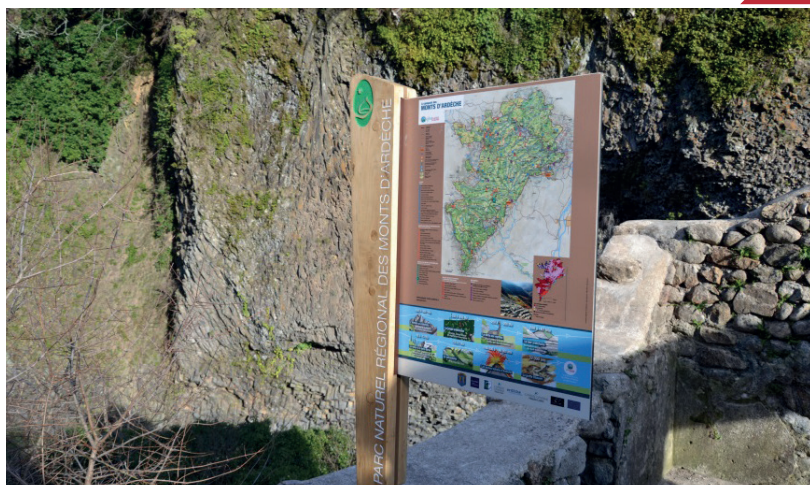


Figure 5 - Géototem at the basaltic lava flow geosite in Jaujac

RECOMMANDATION 8

Number of sites (e.g. belvedere des coulées in Fabras, Coupe de Jaujac...) have been managed with special attention to vegetalization problems, and the first specific logging actions have been conducted there. However, Monts d'Ardèche GG is fully aware of the problem, and systematic actions to clean up the lava flows will be planned in the next program.

RECOMMANDATION 9

Since the certification, Monts d'Ardèche GG has implemented two new activities for schoolchildren and educational partners :

- The Geopark school competition, which aims to encourage classes to produce an innovative project over the volcanoes of Monts d'Ardèche, with the possibility to win an end-of-year trip.
- Monts d'Ardèche GG is building in 2017-2018 new pedagogical mediation tools for and with educational stakeholders, to promote the use of local concepts and heritages in pedagogical activities. One of the aims of this action is also to build a network of Geopark ambassadors.



Figure 6 - Volcano model created for the Volcano school competition

- Monts d'Ardèche GG is member of the association «Passerelles Patrimoines» which aims to develop learning trips in Ardèche. A packaged trip «From earth to heaven: volcanism and astronomical energies» was thus built. For further information : <http://passerelles-patrimoines-ardeche.com/sejours/de-la-terre-au-ciel-volcanisme-energies-astronomie>

- Following actions of Association Pôle Haroun Tazieff (PHTVV), the operator of St Julien-Boutières basalt quarry is developing infrastructures to welcome school groups, in connection with Monts d'Ardèche GG's activities.

- A «dinosaur» learning trip is also currently under development.

RECOMMANDATION 10

This issue has been resolved with the partner in question. In the application form for the use of the «Geopark Partners» logo, it is specified that any partner undertakes not to sell geological objects.



RECOMMANDATION 11

Paléodécouvertes, one of Monts d'Ardèche GG's partner association, is not the owner of the evoked collection, which belongs to M. Bernard Riou, who is an employee of the said association. He welcomed the auditors in 2014.

Bernard Riou and Paléodécouvertes continue to collaborate with scientific research. B. riou is an associate of Muséum de l'Ardèche, created in 2016

and which is presenting its collection to the public. He is a member of the Regional Geological Heritage Commission which will host, in cooperation with the Geopark, an internship dealing with the valorization of geology through itinerancy.

RECOMMANDATION 12

Monts d'Ardèche GG has developed new tools for the valorization of mineral waters: a video promoting mineral waters and a water bar, including geological explanations. A specific exhibition on mineral and thermal waters will be held between 2018 and 2022. In addition, thermal baths and spas are currently being renovated and extended, especially in Vals les bains with a major extension and renovation work.

RECOMMANDATION 13

The association Ecole du vent and Monts d'Ardèche GG are currently developing an interpretive trail about the basaltic lava flows of Saint-Clément, the main thread being "l'envol" [the flight], which will include pterosaurs stories.

RECOMMANDATION 14

Monts d'Ardèche GG actively participated in all GGN meetings and promoted the GGN.

E. Verification of UGGp criteria

E.1 Territory

E.1.1 GEOLOGICAL HERITAGE AND CONSERVATION

Monts d'Ardèche GG displays a remarkable slice of the geological history of a large part of Europe since 550 Mo years, i. e. from the Paleozoic (Primary era) to present days, including that of its two great orogenesis: the variscan (or hercynian) cycle and the alpine cycle.

1. Metamorphic and plutonic rocks make up the bulk of the geological formations in the Geopark. They correspond to the deep roots of the variscan chain, an incredible mountainous chain with peaks reaching more than 6000 m high, barring the Pangea at the end of the Paleozoic :

In the south of the Geopark, Cevenol schists correspond to sediments deposited on the northern margin of Gondwana, at the Cambro-Ordovician age. Their structuring is developed with Carboniferous (340 Mo years).

The metamorphic and granitic rocks of Vivarais and Velay, in the centre and north of the Geopark, represent the deep roots of the inner zone of the variscan chain. They result from a stacking of slicks formed during the major phase of continental collision at the Devonian (360 Mo years), which is accompanied by a catazonal metamorphism. Following this collision, an episode of distension affected the area with medium carboniferous material (320 to 300 Mo years), and was accompanied by a bulging and melting of the deep crust that generates the «Velay dome»: a vast group of anatexic granites

and migmatites on the roof of which remain panels of metamorphic rocks (mainly gneiss).

These crystalline rocks, melted at several tens of km deep before rising to the surface, form the southern edge of the largest French granite complex.

2. The sedimentary cover of the old variscan bedrock, which is found on the southern edge of the Geopark, reflects two contexts and two generations of sediments :

- The continental erosion sediments from this ancient chain constitute a wide sandstone platform on the southeast edge of the park, deposited from Carboniferous to Triassic;
- Marine sediments, deposited during the invasion of the Tethys Sea (Alpine Sea), partially covered the roots of the planed and sagged variscan base. On the south-eastern facade of the Geopark, the posterior alpine folding has left corrugated and tilted jurassic marl and limestone panels.

3. The spectacular volcanic eruptions in the Geopark territory have appeared as a result of the repercussions of the surrection of the Alps at the Cenozoic (Tertiary and Quaternary eras), raising then fracturing the base of Massif central, thus reactivating ancient faults of the variscan base, and generating the diversified volcanism of Ardèche :

- “Pays des sucs du Velay”, the largest phonolitic package in Europe (made of the so-called «stones that ring»), exposes these unique landscapes of domes, pitons and other very varied forms.
- The «land of the young volcanoes of Vivarais», whose very long flows (up to 21 km) which sometimes go up the valleys (Thueyts), superimpose themselves (Pont de Labeaume), or draw imposing basaltic colonnades, which are sometimes jointed.

In these two sectors, the territory also presents numerous phreatomagmatic volcanoes (maars). As they form wide depressions, these are easily visible in the landscape, and are now home to lakes or peat bogs.

Paleomagnetic studies conducted on the volcanoes of Bas Vivarais (Rochette et al, 1993), make it possible to affirm that this volcanism is less than 780,000 years old and is divided into 3 very short phases of activity (each phase lasting for one century at most) separated by rest intervals of 33,000 to 50,000 years (based on previous TL and 14C dating coupled with morpho-stratigraphic observations). The volcanoes of each of these 3 phases are grouped together along 3 axes, failed N145°, and staggered from the north (the oldest episode) to the south (the most recent one).

The latest thermoluminescence dating data (Guérin and Gillot, 2007) confirm these three phases and place them at 166,000 +/- 15,000 years, 78,000 +/- 5,300 years and 45,400 +/- 3,200 years.

The most recent work (Nomade et al, 2014; Sasco, 2015; Nomade et al, 2016) based on the application of the 40Ar/39Ar method lead to the distinction between an old northern sector (buildings dated between 206,000 +/- 13,000 and 170,000 +/- 23,000 years) and a younger southern sector (buildings dated between 40,000 +/- 6,000 and 15,000 +/- 11,000 years).

Given the margins of error and differences between dating methods, further investigations need to be conducted.

Old reactivated faults favour the emergence of mineral springs (often gaseous) and thermal springs (exploited for their medicinal properties).

4. Glaciations and men complete the picture

The Plio-quaternary digging of the valleys has been influenced by 1) the rise of the Cevennes edge, 2) the Messinian crisis which momentarily but significantly lowered the level of the Mediterranean, 3) the gradual cooling of the climate, then the inter-glacial/glacial alternation

of the Quaternary, and finally by 4) volcanism which may have disrupted the encroachment and led to localized changes of the tracing of rivers. This erosion also took advantage of the many lithological contrasts to create an original relief, revealing many volcanic structures initially buried in the underlying substrate. Quaternary cold periods achieved the work by leaving on the slopes many remarkable formations such as the scree that surrounds "sucs" or the amazing «rivers of stones» of the Mezenc massif.

During the last alternation of glacial-interglacial episodes, humans began to leave their mark on the Geopark's natural landscapes: shelters under rocks or caves, dry stone terraces, lauze quarries, irrigation, clearing and reforestation, mining activities... Near the Geopark, the painted cave at Pont d' Arc - Ardèche is home to the oldest cave paintings of humanity known to date. Assumptions are currently being made about the representation of volcanic eruptions (taking place in the Geopark) in the frescoes of Chauvet Cave.

The numerous peat bogs of the massif constitute remarkable natural environments (often managed in the frame of EU - Natura 2000 network) and palaeoenvironmental archives that bear witness to the human-nature relations since the Holocene. Their potential is still largely untapped.

Sites of international geological importance :

Monts d'Ardèche GG has several sites of international geological interest.

Examples are the following :

- **Lava flows of Saint-Clément**, where 12 basaltic flows superimpose ;

- **Ray-Pic** waterfall and its 21km lava flow, one of the longest in Europe, is particularly spectacular;

- **The whole massif du Mezenc-Gerbier**, made up of ca. 10 geosites, which is the largest phonolitic massif in Europe

- **Mofette de Neyrac**, one of the rare European examples of mofette ;

- **Maar of Vestide du Pal**, the largest phreatomagmatic crater in Europe.

Conservation measures :

With the exception of fossil sites, geosites of Monts d'Ardèche are rarely in danger and require little protection.

In France, sites rarely benefit from legal protection for their geological or geomorphological interests. However, nine geological sites within the Geopark are protected by law. Listed as «sites inscrits» or «sites classés», with respect to their geological or landscape heritage value and their quality as «natural monuments». These sites cut across geosites in the Geopark:

The five "sites classés" :

- Basalt flows of Pont du Diable in Thueyts;
- Massif du Mezenc;
- Mont Gerbier de Jonc;
- Rocher du Fromage in Antraigues;
- Ray Pic cascade;

The four «sites inscrits» :

- Jaubernie cave;
- Basaltic flows in Antraigues
- Rocher de Gourdon
- Pourcheyrolles Castle

In addition, a (geotope protection order) is currently being elaborated for Ucel geosite. The same type of protection measure may also be implemented at Cirque de Naves, after consultation with local communities.

Geosite management in Monts d'Ardèche mainly concerns municipalities and private landowners. Therefore the Geopark endeavors to coordinate efforts to develop geosites in order to better take into account the protection aspects and harmonize the communication/awareness raising tools used on the territory. Agreements have been signed with concerned municipalities for the maintenance of roads and information devices.

However, Monts d'Ardèche GG gives

a particular attention to the geosite of Jaujac volcano (Coupe de Jaujac), which is directly managed by the Geopark team.

The Geopark team also completed the management plan for the Mont-Gerbier-de-Jonc geosite, one of the Geopark's main geosites, with a specific aim at reconciling development and nature protection.

On geosites of Arcens and Soutron, the partner associations of the Geopark (Arcens Amitié développement (ARCADE) and PHTVV) and the municipalities have actively undertaken the restoration of the volcanic stone buildings.

On other geosites, protection measures have been taken to protect fauna (example of the valorization of the geosite of the Chalencon quarry, the interpretation equipment is removable and is removed during the nesting period of the peregrine falcon that nests there). Overall, 9 geosites are managed either through Natura 2000 or *Espaces naturels sensibles* policy.

New geological sites within the UGGP and integrated in the protection and management plan

Since 2014 certification, two new geological sites have been integrated as geosites: Vallée des Tuiliers in Mariac, on which an interpretive trail telling the geological and human history of this valley is currently being constructed, and Rocher de Soutron, which was designed for public attendance in 2017. These two sites combine geological heritage and a very striking human history.

E.1.2 BOUNDARIES

The perimeter of the Geopark is clearly defined in all communication tools edited by Monts d'Ardèche GG and its partners. All municipalities belonging to Parc naturel régional have an entrance panel indicating that they belong to the Park. On the roads entering the Geopark, a road sign, in accordance with national traffic regulations, informs drivers that they enter the Parc naturel régional des Monts d'Ardèche. In 2018, this sign will be doubled with a specific Geopark sign.

E.1.3 VISIBILITY

Each year, Monts d'Ardèche GG publishes a discovery map presenting touristic sites on the front, and geosites on the back. A discovery guide is also published every two years with a specific Geopark section. Overall, the logo is used on all of the Park's communication tools aimed at the general public and tourists. The Park regularly holds fairs and participates in events promoting its territory in which it systematically mentions the Geopark.

Geopark logos are used on all panels and interpretation tables on all geosites accessible to the public.

E.1.4 FACILITIES AND INFRASTRUCTURES

The creation and improvement of new infrastructures for discovering the territory has been the main focus of Geopark's work over the last 4 years. The objective was to enable as many visitors as possible to discover most of the major geological sites with the best security standards. Of the 53 geosites identified by the Geopark, 49 are now permanently accessible to the public.

These 49 sites are identified by 54 geototems located at the entry points of the sites. These geototems briefly present the site and its geological history in French and English on the front, and a map of all the geosites as well as a geological timeline on the back. According to mobile phone network possibilities, an NFC chip allows access to real-time tourist information.

In addition to signs and trail marking equipment, the Geopark and its partners have also developed new interpretation equipment for geosites.

En 2015 :

- The landscape interpretation table at the lava flows of Jaujac,
- Replacement of Croix de Boutières interpretation table,



Figure 8 - Implementation of a belvedere at Lava flow Geosite in Jaujac



Figure 7 - Welcoming the GEOLE national meeting, mediation section of Société géologique de France, at the new pathway at Roche de Gourdon

En 2016 :

- Geological path of Rocher de Gourdon,
- Renovation of equipment at Rocher de Brion geosite,
- Development of an educational path at Bois du Four site in Vernoux, with schoolchildren of the secondary school,
- Site design of the Chalencon quarry.

En 2017 :

- Trail "Sentier des Tétines" at Vernon,
- Vineyard trail in Rosières,
- Welcome panels on the Craux geosite,
- Renovation of the Mont Signon trail,
- Replacement of the Roche de Cuzet interpretation table,
- Implementation of a new orientation table at cirque de la Croix de Boutières

En 2018 :

- Interpretation trail of Coulées de Saint-Clément,
- "Vallée des tuiliers" trail in Mariac,
- Interpretive trail of Cirque de Naves,
- Renovation of the orientation table at Volcan du Don geosite,
- Belvederes at Rocher of Borée and at Mount Mezenc.

The artistic path «Le Partage des eaux»

The watershed line between the Mediterranean and the Atlantic crosses the Geopark over 120 km. It intertwines with the national hiking trail GR7, which crosses France from the Vosges to the Eastern Pyrenees. This symbolic and geological line has inspired six artists, a designer and three landscape architects. The itinerary includes admirable geological sites (Mont Gerbier-de-Jonc) and emblematic heritage buildings (Chartreuse de Bonnefoy, Abbaye de Mazan, Tour de Borne, Abbaye de Notre-Dame des Neiges), that host contemporary artworks created by internationally renowned artists, who love to work outside spaces devoted to art, with their own unique disproportion.



Figure 9 - La Tour à eau, artistic artwork included in Partage des eaux project

Thus, at Chartreuse de Bonnefoy, artist Stéphane Thidet imagined an artwork that fits in smoothly with the 18th century facade, playing on transparency and reflection of the passage of time and of seasons. At Borne, on the GR7 ridge



Figure 10 - Le Phare, artistic artwork in Partage des eaux project

line, artist Gloria Friedmann imagined a lighthouse between the Atlantic and the Mediterranean. The remains of the Cistercian Abbey of Mazan host an anamorphosis of Felice Varini. At Abbaye Notre-Dame des Neiges, artist Huang Yong Ping calls the imagination of the first

caravels that crossed the Atlantic Ocean. The «planetary gardener» Gilles Clément imagined a water tower built of phonoliths, the volcanic rock present at Mont Gerbier. Finally, since summer 2016, a first part of Olivier Leroi's work, installed near the Gerbier-de-Jonc site house, can also be

discovered.

The power of attraction and fascination of the watershed is also the starting point for Gilles Clément's proposed filigree work, in partnership with IL Y A's landscapers who help reveal the watershed line with "mires". Hikers and mountain bikers who cross the Park following or crossing this line will find on their route original outdoor furniture designed by Eric Benqué and made of local natural resources (chestnut timber) and with local know-how. As for motorists and cyclists, the collective of artists Toplamak has designed a GPS (GeoPoéticSociety) to accompany travelers from one site to another while telling them about the landscape through space and time.



Figure 11 et 12 - New equipment : How to read and understand the landscape ? - watershed - Partage des eaux project

Mont Gerbier interpretation centre (Maison de site du Gerbier)

This new equipment was completed during summer 2017. Maison de site du Gerbier, at the foot of the most famous geosite of Monts d'Ardèche, welcomes the public and explains this unique place. Through models, slideshows and films, geology, volcanism, the birth of the sources of the Loire and the creation of the watershed are explained. At a turn of the museographic itinerary, three excursions are proposed: «To the mysterious sources», «On a unique mountain» and «In the heart of surprising landscapes». The interpretation center is open from spring to autumn and is free of charge. It also houses a «Welcome Area» of Department de l'Ardèche which aims to give information about the whole territory.

Les Vans Museum

Founded nearly 150 years ago, the museum shelters various collections in geology, archaeology and ethnography in order to document and exhibit the region's natural and cultural heritage.

According to the program adopted in 2014, the museum's team has reached the following targets :

- drawing up the inventory of collection ;
- setting up of a public service dealing about communication, mediation and organization of events ;
- elaboration of a scientific and cultural project including the restoration of the building and a new design of the permanent exhibitions

The museum is now seen as an active and living cultural institution. A cultural program is proposed with temporary exhibitions (frequently in cooperation with Monts d'Ardèche GG), workshops for children and cultural events (concert, reading, theatre...).

However, the museum needs to reinvent itself and to achieve a true metamorphosis to further develop and evolve.

The museum's renovation project identifies the notion of «landscape entity» as the guiding thread of the exhibitions and

intends to promote it through scientific and artistic approaches. As a territory museum, Musée des Vans will offer its visitors an interdisciplinary approach to regional heritage.

Next development steps are the following :

- Implement the renovation of the building and scenography (including fund raising activities);
- Conduct scientific research based on the available collections, to increase, refine and communicate knowledge to the general public;
- Pursue and disseminate the cultural and pedagogical program of the museum.

Ucel geosite: conservation and valorization of reptile's footprints

The inventory of sites with traces of dinosaurs was notably planned to select a site that could be used for public awareness activities, with complete safety for both visitors and the fossil heritage. On the basis of the inventory and the specific characteristics of each site, the Ucel site was selected to be valued. It is a private site, but municipality of Ucel is currently offering to buy the plot. Design of equipment and management options have been validated by scientists, the municipality of Ucel and Monts d'Ardèche GG. Equipment should be installed by the second half of 2018.

Ferme de Lagas

This site was visited during the audit 2014. Ferme de Lagas in Borée is gradually becoming a new interesting place for cultural activities in the Massif. A series of conferences animated by Les Amis du Mézenc are organized on the spot, together with a permanent exhibition entitled «Au jardin des phonolites - Les géosites de la commune de Borée». New equipment will complete the Farm in 2018 to make conferences more comfortable.

E.1.5 INFORMATION, EDUCATION AND RESEARCH

Information

Journal du Parc is published every six months and provides the public with various information on the Park's activities and its heritage. In each issue, activities related to the Geopark label are presented and each issue also features a geosite walk.

Les pieds dans l'parc is a video and radio news magazine developed with local radio stations and a local film association. This magazine deals with many topics highlighting local initiatives and heritages. Three issues in particular have been devoted to the Geopark: in 2015: dinosaur's footprints and the geosite of Cascade de Baumicou, in 2016: Neck de Craux and the settlement of farmers on the volcano, and in 2017: Rendez-vous géologiques – public awareness program.

As a general rule, the Geopark systematically communicates to the press all the news in which it is engaged and carries out a selective press review.

Promotion

Monts d'Ardèche GG publishes every year various promotional tools for promoting the territory and the Geopark label, e.g. the map of the Park composed on the front of a classic tourist information map, and on the back of the map geosites. Every 2 years a discovery guide is also published. It presents all the partners' offers, a large part of which being devoted to the Geopark label.



Figure 13 - Exhibition : Les 7 couleurs du temps at Ferme de Bourlatier exhibition centre

Exhibitions

2014 : Realisation of the exhibition «Les 07 couleurs du temps» [The 07 colours of time] (installed for 3 years at Maison du Parc and Ferme de Bourlatier). This exhibition welcomed more than 12 000 visitors and is now available in a mobile and lighter version.

2014 : Creation of the exhibition «Geobiodiversité dans les Monts d'Ardèche»: This exhibitions mixes the geological heritage and the emblematic species (fauna and flora) of the territory, with photographs by local artist Simon Bugnon.

2016 : Exhibition «Au jardin des phonolites - Géosites de la commune de Borée» organized by the association Les amis du Mezenc, with support from Monts d'Ardèche GG and municipality of Borée.

2017 : Exhibition "De part et d'autres "[On both sides]: exhibition of photographs of landscapes of the watershed, by photograph François Lacour with an introduction by members of the Geopark Scientific Committee.

2017 : *All you need to know about Monts d'Ardèche global geopark*: mobile exhibition presenting the label, the territory and its geological history.

Edition

2014 : new edition of *Guide géologique de l'Ardèche* (ed. Omniscience)

2016 : edition of Topoguide « *Tour des Cévennes et de la Montagne ardéchoise* » (ed. FFRP)

Printemps 2017 : édition of the booklet « *Tout savoir sur le Geopark des Monts d'Ardèche* », french version, edited by Monts d'Ardèche GG

Automne 2017 : edition of the booklet « *Learn all about The Monts d'Ardèche UNESCO Global Geopark* », english version, ed. Monts d'Ardèche GG

2018 : *Les plus belles balades du Parc des Monts d'Ardèche*. Ed. Glénat.



Figure 14 : Brochure *Tout savoir sur le Geopark UNESCO des Monts d'Ardèche* and *Geopark hiking guide*

Awareness raising

Since 2014, Monts d'Ardèche GG has set up program of events around its geological heritage called «*Les rendez-vous géologiques*», which has brought together **2619 participants out of 58 events** since their launch. These meetings are generally led by local geologists and sometimes by speakers from outside the territory. The aim is to raise awareness of the general public about the interest and knowledge of the geological heritage of the Geopark and its associated heritages.

These events are regularly co-organized with communes and communities of communes.

Since 2017, programming has had a thematic focus. In 2017, it dealt with the concept of the watershed and crossed the viewpoints of geologists and artists in the same territory.

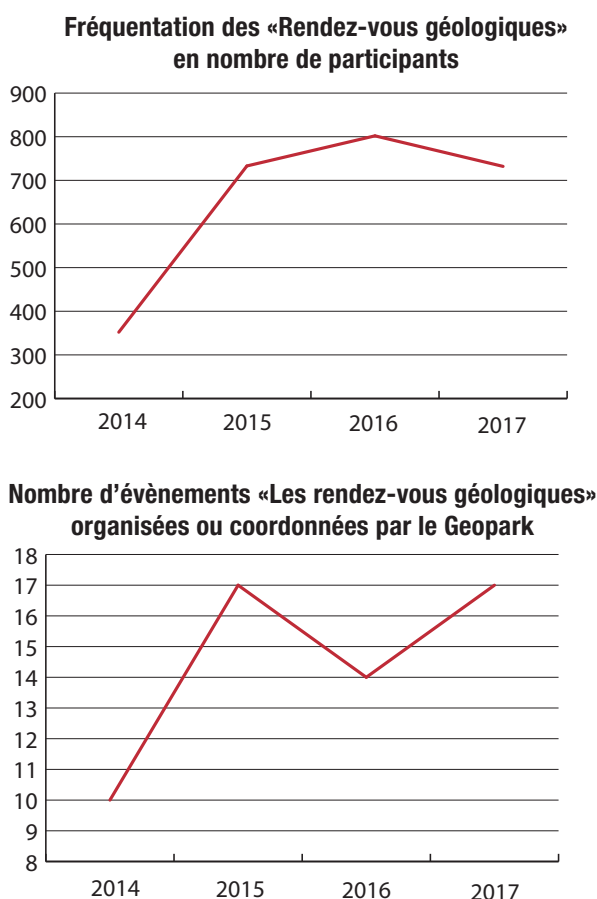


Figure 15 - Evolution of *Rendez-vous géologiques* (number of events organized and number of participants)



Figure 16 - Brochures « *Les rendez-vous géologiques* »

Research

Since the UNESCO GG certification and in accordance with the recommendations of the auditors, Monts d'Ardèche GG undertook to develop research activities by both local and university students.

The Geopark signed partnership agreements with Université de Bourgogne - Franche-Comté and with Université de Clermont-Ferrand – Auvergne, and financed research activities in its territory around two major themes: geoarchaeological research and the inventory of sites with traces of dinosaurs and other reptiles.

Geoarchaeological research

Geomorphological and geoarchaeological research carried out in the upper Loire basin (by Université de Clermont-Auvergne) has been supported since 2016 by Monts d'Ardèche GG. They develop along two complementary axes.

Axis 1 « *Derrière une chaussée de géants, les archives des climats de notre Préhistoire. Etude géoarchéologique pluridisciplinaire* » [Behind a giant's causeway, the archives of climates of our Prehistory. Multidisciplinary geoarchaeological study], aims at exploiting the sedimentary archives of recent volcanic dams in the Lower Vivarais

to reconstruct the paleoenvironmental and tephrostratigraphic micro-regional context of the Upper Pleistocene.

Axis 2 « *Recherches géoarchéologiques dans le très haut bassin de la Loire* » [Geo-archaeological research in the very high upper part of Loire basin] focuses on the morphological and hydro-sedimentary evolution of basin heads at the Holocene scale under the influence of natural and anthropogenic pressures in the context of medium mountains.

Inventory of reptile's footprints

The region covered by the Geopark has an exceptional paleontological heritage, notably with footprints of dinosaurs and other large reptiles of the Triassic Period, which have been studied since the 1960s by the Biogeosciences Laboratory of University de Bourgogne. The partnership consists of drawing up a detailed inventory of footprint's sites, carrying out a scientific analysis of the recently discovered tracks, conserving this geo-heritage, enhancing the value of suitable sites on a long-term basis and disseminating the scientific results to the general public (awareness raising activities, exhibitions, conferences).

After a year and a half of work, about fifteen sites have been referenced, with more than 600 fingerprints inventoried.

300 of them have been modeled using a 3D numerical modeling, and about ten moulds have been made. One of the sites will undergo geotourism development. This work was accompanied by 3 Master student's internships and the setting up of an active working group involving local stakeholders. The Geopark and Université de Bourgogne have also developed a PhD project about the inventory and digital valuation of dinosaur footprints, but so far no funding could be made available for this project.

The Museomix experience « Ardèche mix Camp »

In 2016, Monts d'Ardèche GG organized with partners a so-called «Museomix», a creative marathon locally named «Ardèchemixcamp». Ardèchemixcamp was a collaborative and participative event, with an objective to design prototypes of digital mediation that would allow to see a landscape or a territory differently. Scheduled from November 25 to 27 at Le Pradel University campus (Mirabel), it allowed the realization of an augmented reality prototype of the site with traces of dinosaurs in Ucel. The Geopark is currently seeking funding to turn further develop this prototype into reality.



Figure 17- The Museomix experience : a virtual reality prototype developed for Ucel gesosite

E.2 Other heritage

E.2.1 NATURAL HERITAGE

Monts d'Ardèche shelter a very rich natural heritage. The strong physical constraints (steep slopes, steep-sided valleys) have in fact preserved it from certain human activities with negative impacts for nature conservation: intensive agriculture, strong urbanization, development of large infrastructures, etc....

In this context, natural and semi-natural areas habitats occupy large areas and host a great diversity of environments and species. The cover is concerned by 2 biogeographical domains (continental, Mediterranean). Thus the environment is subject to various climatic influences (mountainous, Atlantic, continental and Mediterranean) with a high altitudinal gradient (from 170 m to 1 753 m) and a wide variety of geological contexts (plutonic, metamorphic, sedimentary, volcanic rocks). This situation has resulted in a high level of biodiversity: 40 types of natural habitats of EU Community interest have been identified, 1,400 plant species, including 30 protected or endemic (only to be found in Cevennes or Massif Central) and 50 remarkable animal species.

The Park has identified more than 26,000 ha of outstanding natural areas, corresponding to ca. 68 sites. 194 plant communities have been described, of which 38 are recognized as being of Community interest, 7 of them being considered as EU priority habitats.

The Park has 1,489 species of indigenous or assimilated native vascular plants, including 180 rare and/or protected species and nearly 400 bryophytes, 29 of which are remarkable. With 69 species of dragonflies, 145 species of diurnal butterflies and 70 orthopteran, more than 180 species of birds, 170 mammals including 27 bats and 26 small mammals, with 25 species of fish, 13 amphibians and 18 reptiles, the animal diversity within the Geopark is remarkable.

The geological diversity of the territory has thus created very different ecosystems :

- **Peat bogs**, mainly present in the mountainous area and formed on acidic soils and sometimes in the heart of maars. These rare and localized habitats are home to typical species such as *Drosera* (small carnivorous plant) or *Phengaris alcon* (small blue butterfly) or *Somatochlora arctica* (dragonfly).

- **Grassland and subalpine moorlands**, present on the summits of Sucs, they shelter a particular flora which is present in the Alps or the Pyrenees. *Saxifraga prostii* is for exemple present in certain scree, and it is also possible to find *Lycopodium alpinum*, *Rosa pendulina*, *Arctostaphylos uva-ursi* or *Jacobaea leucophylla*. The blue rock trush *Monticola saxatilis* and Apollo butterfly *Parnassius apollo* are also present in these environments.

- **Rivers and their canyons**, where several heritage species live in mineral environments. These include the white-clawed crayfish *Austropotamobius pallipes*, the common otter *Lutra lutra* or

the yellow-bellied toad *Bombina variegata*

- **The cliffs**, present all over the territory and of different geological origins, allow the presence of the peregrine falcon *Falco peregrinus*, the golden eagle *Aquila chrysaetos* and the owl *Bubo bubo* to nest in a particularly adapted biotope

The territory is also covered by 6 areas classified as Espace naturel sensible (ENS). Actions to preserve the most remarkable natural sites have been undertaken by the Park and its partners in recent years (see LIFE programs on Mont Mezenc, Tanargue and Plateau de Montselgues, Natura 2000 sites, Biological Reserves, ENS sites). Monts d'Ardèche GG is currently applying for a Life project for the conservation of aquatic habitats and species.

The current forest cover in Monts d'Ardèche is ca. 60% with more than 110,000 ha of forest. This makes Monts d'Ardèche one of the 10 most wooded natural parks in France. The Park gathers about 45% of all forests of Ardèche, and shelters a greater proportion of public forest (14% against 10%, i. e. 14,500 ha), and also the majority of State forests in Ardèche) (10,500 ha, i. e. about 75% of them).

E.2.2 CULTURAL HERITAGE

The territory of Monts d'Ardèche shelters cultural heritages that make it unique and famous :

- The chestnut grove, which profoundly marks the landscape and the life of this territory. It is one of the most visible and transversal elements of the culture shared by inhabitants of Monts d'Ardèche;
- Dry stone terraces built by men to enable cultivation and life on the slopes, which are «permanent» in both time and space;
- Water that is omnipresent in the territory, with nearly 3000 km of watercourses and the emblematic sites of the sources of Loire and Ardèche rivers. It has shaped landscapes and played an important role in the agricultural and industrial history of the territory. It still plays an essential role today as it contributes to maintain activities (agriculture, industry, tourism);

• A remarkable built heritage, with forms and materials highlighting an incredible capacity of human communities to adapt to the relief, the climate, and to use a singular geology: traditional habitat, hydraulic heritage (water channels, mills...)...., castles dominating valleys, industrial buildings ("moulinages") or "calades" (traditional pavements, bridges...) all contributing to a strong and common identity of the territory;

• Agricultural, handcraft and industrial know-how, which has been perpetuated over decades and which allows this territory, for example, to benefit from four protected origin labeling (Fin gras du Mézenc, Picodon, Chestnut of Ardèche, green lentils of Le Puy).

For all these heritages, Monts d'Ardèche GG supports museums as part of its network (Castanée, Espace Découverte

de la châtaigne d'Ardèche, Maison du chataignier, Maison du Fin Gras, Musée du Vivarais protestant, Ardelaine, les Fermes de la montagne, the 3 "moulinages" open to the public...). Monts d'Ardèche GG also coordinates and supports the cultural and agricultural events that set the pace in these areas, e.g. Castagnades festival (35,000 visitors), Fête du Fin gras (5,000 visitors), marché de la myrtille (3,000 visitors)

Near the Park in its southern part, the so-called Chauvet Cave, near Pont d'Arc on the Ardèche River is the oldest painted cave known to date. Beside this exceptional heritage, Monts d'Ardèche GG implemented the Artistic project "Partage des eaux", which highlights contemporary creation as an echo to Palaeolithic creation.

E.2.3 INTANGIBLE HERITAGE

A strong rural culture

This culture is primarily due to the essential role played by agriculture, particularly in the hillside and mountainous areas. This medium mountain territory was designed and built by the hand of man. Beyond the landscapes, agriculture has shaped the local economy and mentalities. It is at the heart of a peasant tradition in which the notions of mutual aid, solidarity and exchange have always been prevalent.

The «civilization of the chestnut tree» has greatly contributed to this collective reality. This culture is promoted in various sites open to the public (28).

A land of innovation since always

Inhabitants of Monts d'Ardèche have adapted to a complex territory with real constraints. They have always been

able to develop a creative and ingenious spirit. In this sense, they have often been «pionniers» in the technical (example of agricultural know-how...), economic (example of the textile sector), or societal (example of peasant-workers or the "return to the land" of the 1970s). This land has been nourished by various influences, thus Monts d'Ardèche have benefited from many exchanges, leading to a perpetual evolution.

E.2.4 INVOLVEMENT IN TOPICS RELATED TO CLIMATE CHANGE AND NATURAL HAZARDS

Monts d'Ardèche GG is engaged in the combat against climate change, with one staff dedicated to specific actions carried out by the Geopark's team, and as part of its Territorial Climate Plan. Number of actions are organized to help reduce greenhouse gas emissions (e.g. organized hitchhiking, support to green energy development, strategic studies for better public transports, thermal renovation programs, etc.).

The territory of the Geopark does not belong to a volcanic zone active today,

although its last volcanic activity is very recent. Seismic hazard, on the other hand, is low (low to moderate intensity: III to IV). Consequently, although the seismic risk is low to negligible depending on the municipalities, it is nonetheless effective and taken into account in the French legislation and regulations.

On the other hand, the region may be exposed to a volcanic hazard coming from regions outside its territory like Italy or Iceland, as underlined by recent events in the last decades.

However, the territory is affected by flooding and erosion risks in the Cévennes part. For several years now, water management organizations have integrated this problem into spatial planning activities (in partnership with municipalities) and in educational activities they carry out with schools. Monts d'Ardèche GG contributes to disseminate these elements through spatial planning training sessions targeting decision-makers.

E.3 Management

The structure hosting the Global Geopark label is Parc naturel régional des Monts d'Ardèche, which is a public institution (syndicat mixte) officially created on April 9, 2001. This structure is made up of a technical team which is in charge of managing the label. The Global Geopark label is assumed by the whole team of the Park, but positions in bold in the following list are more directly concerned by the implementation of actions related to the label.

The Park's technical team :

To define and implement actions proposed by the board, the Park relies on a technical team of 27 employees, including 17 permanent mission managers with different and complementary skills. It is organized under the management of a director and 4 heads of department in 4 main departments and 4 cross-cutting missions :

DEPARTMENT OF CULTURE AND SUSTAINABLE ECONOMY

- Culture and heritage
- Artistic projects
- Industrial heritage (PhD student)
- Tourism and Geopark
- Support to local businesses and partners
- Education and public awareness
- Touristic roaming and nature sports
- Agriculture
- Chestnut grove project

DEPARTEMENT OF BIODIVERSITY AND SPATIAL PLANNING

- Architecture, spatial planning and landscapes
- Energy and climate
- Forests
- Biodiversity
- Natura 2000-ENS(x3)

LEADER PROG. UNIFIED SERVICE

- Project management
- Thematic coordination : spatial planning, economy, agriculture, change in practices, youth

DEPARTMENT OF RESSOURCES

- Reception
- Accounting, finance, legal affairs
- Human resources
- Logistic, computer equipment support staff

TRANSVERSAL TASKS

- Communication/Média
- Events at Maison du Parc
- Programing and monitoring
- Territorial proximity

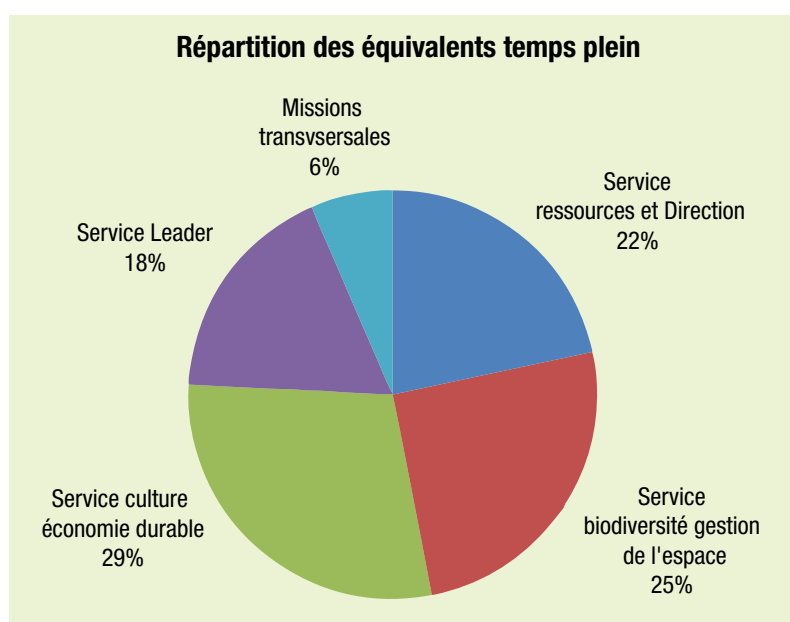


Figure 18 - The team of Monts d'Ardèche GG

Position	Number	F	M	Full-time equivalent (FTE)
Director	1	1		1
Head of department	4	2	2	4
Task officer	17	8	9	15,5
Adm. managers	2	2		2
Support staff	2	2		2
Technical support staff	1		1	1
Total	27	15	12	25,5

Positions are occupied by 59% of women, including the position of director and two out of four head of department.

Governance

Parc naturel régional is administered by an assembly which brings together representatives of local communities of the territory of Parc naturel régional.

There are 147 representatives of communes, 9 representatives of Auvergne Rhône Alpes Region, 20 representatives of Département de l'Ardèche and Département de Haute Loire and 9 representatives of communautés de communes. These members have voting rights.

The assembly also include members with only an advisory capacity, who represent the consular chambers, the Economic and Social Council of the Auvergne Rhône Alpes Region, the National Forestry Service (ONF), Centre national de la Propriété Forestière Auvergne Rhône Alpes, and the neighboring Parc national des Cévennes.

The Scientific Council of the Park, which brings together researchers and academics working on the Park's thematic field of work, is also associated to the board. Association Les amis du Parc [Friends of the Park], voluntarily promotes and participates in the Park's activities.

Management plan, budget and financial result

The financial management of Monts d'Ardèche GG is organised in two parts, which make up the overall budget of the Park : the statutory part and the part devoted to the program of actions. Their aims and means of financing are set out in the Park's statutes.

The statutory part allows the functioning of the structure. It mainly corresponds to expenses related to the Park's technical team (17.3 FTEs out of 24.7 FTEs) and to Maison du Parc site (buildings, heating, electricity, vehicles, etc.). It represents 1.5Mo€ or 27% of the total budget expenditure in 2017.

Statutory expenses, which are fixed in the statutes, are mainly financed by

contributions of members.

The program of action section consists of actions committed each year during a new programming period and the balance of expenditure and revenue remaining from previous programming.

The actions carried out by the Park are mainly financed by public subsidies.

Since its creation, Monts d'Ardèche GG has been supported by local authorities

such as Region Auvergne-Rhône Alpes, Département de l'Ardèche and Département de Haute-Loire, or the French State in its annual programming for the implementation of the Charter.

In addition, the Park also seeks other funding for specific operations or calls for projects; Leader program, Natura 2000, Espaces naturels sensibles, state funds, private partners or foundations.

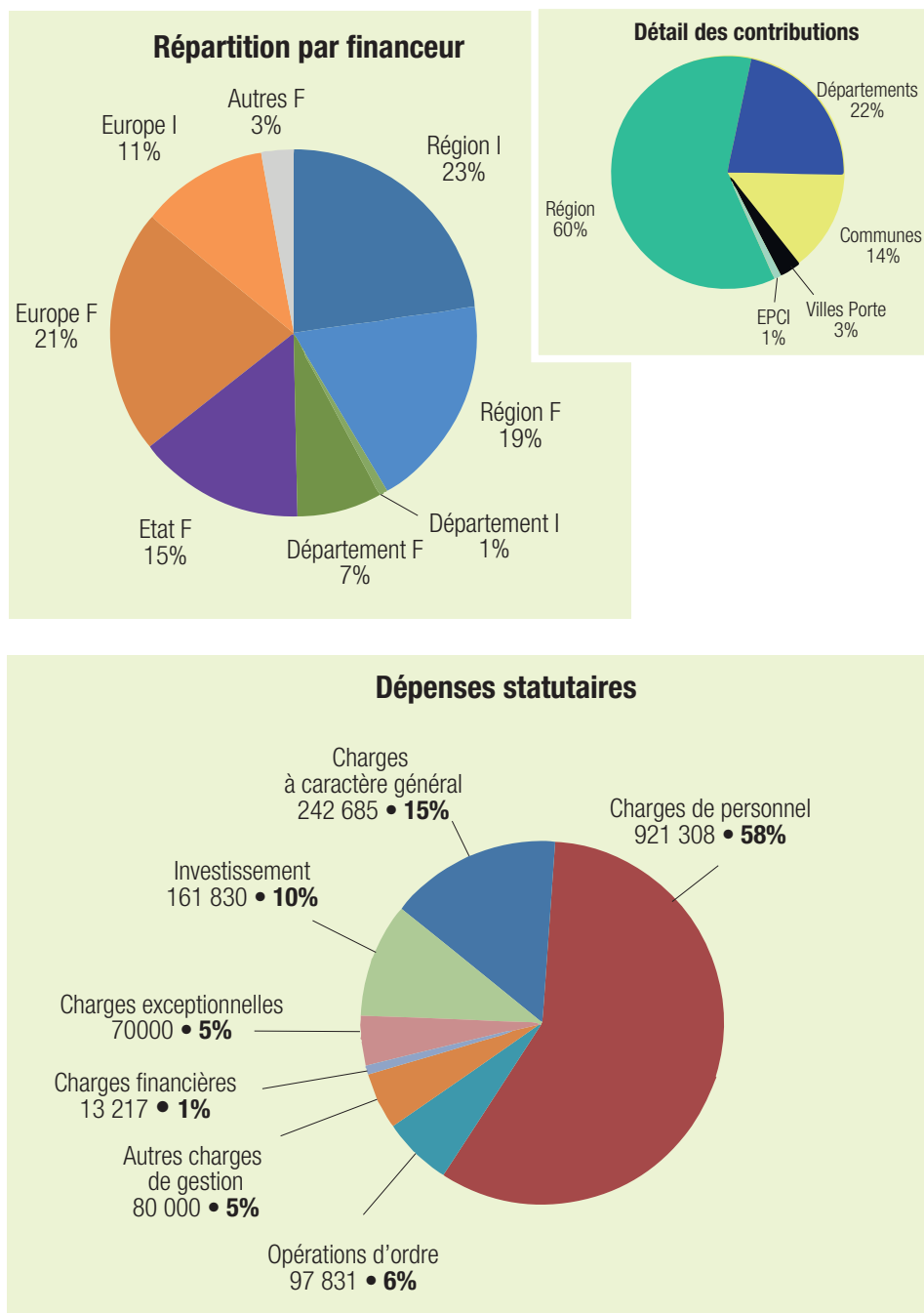


Figure 19 - Monts d'Ardèche GG's financial breakdown

Results for the financial year including the two parts of the budget, functioning and investment sections taken together, are the following :

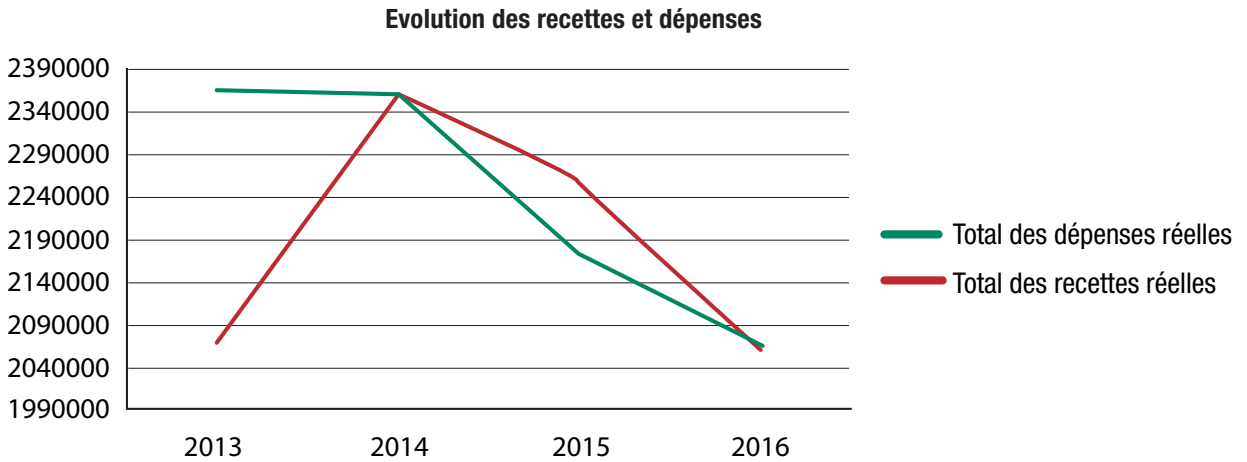


Figure 20 - Evolution of expenditure and income since the first certification (lower spending and incomes corresponding to the end of major investment phase - Partage des eaux project, equipment of geosites)

For a better efficiency, a specific project team composed of the technical officers responsible for the environment, education, natural heritage, culture, outdoor activities and communication, has been set up to manage in particular the Geopark label projects. Coordination is ensured by the tourism technical officer.

The head of the Biodiversity – spatial planning department is the team’s geoscientist. He ensures the scientific coordination of the label by relying in particular on a scientific committee

composed of local experts and academics. Since last year, he has also been an associate professor at University of Lyon.

The Park’s team is made up almost equally of men and women. Ms Chenot is the President, and the position of Director and two out of four Heads of departments are headed by women.

Monts d’Ardèche GG is a local public structure composed of representatives of municipalities, Departments of Ardèche and Haute-Loire and Region

Auvergne-Rhône-Alpes. It also involves as many representatives of economic and associative actors as possible. As part of the management of the Geopark label and the actions stemming from it, a steering committee is set up which brings together all the private and associative stakeholders working on the subject of geology, education, development and tourism. It meets twice a year and has been in charge of drafting and monitoring the action plan.

Figure 21- Rendez-vous géologique at Jaubernie cave



E.4 Overlapping

Monts d'Ardèche GG does not overlap with other UNESCO sites but is located close to the UNESCO World Heritage Site of the painted cave, at Pont d'Arc, known as Chauvet Cave with which technical exchanges take place on a very regular basis.

The UNESCO labelization of the cave helped Monts d'Ardèche territory to become a key-player involved in the two major projects of the territory that cross heritage conservation and tourism: the UNESCO global Geopark label and the artistic project "Partage des eaux".

Monts d'Ardèche GG covers exactly the perimeter of the Monts d'Ardèche Parc naturel régional which manages the UNESCO GG label. Within this perimeter are

also several sites with special protection status (e.g. Natura 2000 and Espaces naturels sensibles). Monts d'Ardèche GG is a partner or manager of these sites according to agreements made with the State or other local authorities.

E.5 Educational activities

1/ Volcano school competition

This competition aims to highlight a Geopark theme currently in the spotlight, through an artistic approach. The selected themes were «volcanoes and volcanism» on the one hand and «geology and biodiversity» on the other hand. Primary school students and their teachers were invited to make a plastic work. (Painting, collage, sculpture, installation, etc.). They competed in whole class each and for a single work. High school students and their teachers were invited to create a multi-media work. For example: poster, video, slideshow photography, etc. Students competed in small groups of 2 to 4 students.

More than twenty productions were presented to a jury composed for the occasion:

Either (year 1): from the sponsors: Christine Hainaut and Frédéric Lavachery, Ms Chenot President of the Park, a local representative of the ministry of education, a member of the Geopark Scientific Council, a school Director, the President of Association Les Amis du Parc, the President of Société Géologique d'Ardèche, the President of Association Clapas, a high school teacher working in partnership with the Museum, several other teachers working with Monts

d'Ardèche GG, technical officers from the Parc (tourism, education).

Year 2: Members of the association Géole, a French national association for the popularization and dissemination of earth sciences.

The analysis criteria were as follows :

Subjectivity and aesthetics : Does the artwork create an emotion? Does it offer pleasant colours, is it harmonious in its shape ?

Objectivity and technique: Are the techniques used mastered ?

Theme and communication : Does the production refer to one or more Geosites of Monts d'Ardèche Geopark ? Are the messages easy to understand ?

Lessons Learned : Based on the information collected, what did the pupils learn? What kind of lessons has the work lead to? (knowledge / know-how / know how to be)

Jury's bonus : originality of the production, love at first sight, etc.

The first year all participants were invited to discover Vulcania (an earth-science theme park) in Auvergne and the second year the site of Arche des Métiers in Ardèche.

2/ Park outdoor classes

An educational stay/outdoor class of 3 to 5 days was developed in collaboration with educational partners and local host companies. This allows to discover the geological richness of the Sucs region. The stay is marketed by a partner structure: Passerelles Patrimoines.

3/ Call for projects

Since Monts d'Ardèche got the Geopark label, the park's assistance system for project development has highlighted geology as a major theme. About ten projects were supported each year, representing nearly 200 participating students each time.

4/ Discovery booklet

A discovery booklet has been specially created to help visitors discover the Jaujac volcano at Maison du Parc estate. It was printed in twenty-five copies on synthetic paper and made available at Maison du Parc. It is also available for downloading on the e-education portal.

E.6 Sustainable tourism

In 2016, Monts d'Ardèche GG conducted a major customer survey which enabled it to know precisely the tourist activity on its territory. An average 6.6 million trips are carried out each year on the Geopark, which corresponds to about 1.1 million visitors. This represents 225 million euros in economic spinoffs each year on the territory and supports 2,500 people.

Visitors are mainly French (78%) and European (Dutch, Belgian, German, Swiss, British and Danish). Nearly 60% of visitors choose Monts d'Ardèche to come and enjoy the natural sites and landscapes. Finally, 20% of them know the UNESCO Global Geopark label.

More specifically, Monts d'Ardèche GG and its partners have set up counters on a few géosites to analyse attendance :

Géosites :

Gerbier de Jonc :	400 000 visitors
Pont du diable :	120 000 visitors
Ray-Pic :	100 000 visitors
Mont Mézenc :	80 000 visitors
Coupe de Jaujac :	20 000 visitors

Museums

(dealing with geoheritage)

(2017):

Maison de site du Gerbier:	33 496 visitors
Maison du Parc:	3 458 visitors
Maison du Gerboul	18 000 visitors
Ferme de Bourlatier	5 969 visitors
Musée des Vans	1853 visitors
Ecole du vent	8000 visitors



Figure 22 - Rendez-vous géologique at Vestide du Pal

In 2016, Monts d'Ardèche GG, in cooperation with Syndicat de la Montagne Ardéchoise, successfully responded to an ambitious call for project : stations vallées et pôle de nature. This provides the territory with a substantial financial envelope to implement and reinforce its sustainable tourism policy with the following axes: equipping geological sites, renovation and development of trails, renovating museums...

More than one million euros are mobilized until 2020 to develop these major projects.

In 2017, Monts d'Ardèche GG drew up a new tourism development strategy for the Geopark with the following major axes:

1) Develop a network of itineraries to capture a wider audience.

2) Create new sectors linked to the identity of the territory, with an international outreach

- Contemporary art and discovery of cultural heritage,
- Nature sports together with an offer based on geotourism and on the observation of fauna and flora,
- Farm tourism around identity-based productions which cannot be found elsewhere

3) Structuring tourism supply and key-actors

E.7 Sustainable development and partnership

E.7.1 SUSTAINABLE DEVELOPMENT POLICY

As a Parc naturel régional, Monts d'Ardèche GG aims to protect and develop its territory through innovative economic, social and cultural actions. All major objectives and actions are set out in the Park Charter 2013-2025, which forms a sound territorial project.

The 2013-2025 territorial project is built around six founding values, which set out the general «state of mind» of the Charter:

- be responsible,
- produce in a sustainable manner,
- show solidarity,
- be welcoming,
- be open,
- be innovative and imaginative.

2.2 Three main vocations, which define the Park's strategic choices in its fields of intervention:

- A remarkable territory, to be preserved.
- A productive territory that values its resources sustainably.
- An attractive and united territory.

2.3 Thirteen thematic orientations, which can be summarized as follows:

BIODIVERSITY

Diversity and quality of the natural environments are a sign of a healthy ecosystem. This is why the Geopark focuses on raising awareness and informing elected officials, inhabitants, farmers, foresters, tourism professionals, etc. At the same time, the Geopark has continued programs for conserving and managing specific areas and endangered species such as bats, raptors, owls, reptiles or amphibians. In addition, the Park also worked for the conservation of «common nature», which contribute to ecological continuity by protecting natural spaces in urban planning documents, and by proposing specific driving regulations for certain sections of roads to reduce the impacts of motor sports.

WATER

To contribute to the implementation of water management policy, the Geopark brings its wider vision at the scale of the Monts d'Ardèche and mobilizes all its partners to address issues of water saving, pollution control, preservation and restoration of wetlands and rivers. In particular, the Park is applying for an EU-funded Life project for the conservation of aquatic habitats and species, which will help restoring ecological continuity.

CULTURAL HERITAGE

A «Cultural Heritage Observatory» was created to centralize and disseminate data on heritage, stakeholders and initiatives. Local architecture (traditional houses and farms, lauze and broom roofs...), agricultural heritage (terraces, «clèdes», traditional irrigation channels, springs, etc.) have been the object of particular attention with a specific support from Monts d'Ardèche GG for their restoration. An inventory of the industrial heritage (buildings and know-how relating to textiles, jewelry, stationery, use of tannin, etc.) is currently under way with the recruitment of a PhD student to work on the subject.

LANDSCAPES

The Geopark supports local authorities in landscapes conservation projects : village silhouettes and remarkable terraces, agricultural, natural and geological landscapes, exceptional points of view... Therefore it offers training and strategic tools (landscape «charters»), support for regulations (Local Urban Planning Plans) or proposes practical guidelines and recommendations.

SPATIAL PLANNING

Monts d'Ardèche GG provides technical and financial support for actions aimed at developing land use planning in a relevant and economical way: i. e. in terms of socio-economic trends, housing needs, activities, transport, etc., while reducing the consumption of agricultural land and preserving natural resources (water, soil, forests, etc.).

SUSTAINABLE ECONOMY

Monts d'Ardèche GG has been working for ten years now to support businesses in the territory, whether in the agricultural, forestry, tourism, craft or industrial sectors. The aim is to encourage the change in practices, so that production and economic viability can go hand-in-hand with environmental and social compatibility, particularly through the «Parc naturel régional» brand, which is now awarded to more than 150 «eco-responsible» companies. In addition, the principle of banning the cultivation of genetically modified organisms in the Park's territory is now enshrined in the Charter, a first at the national level.

LOCAL ECONOMY AND QUALITY

The «Parc naturel régional» brand is also awarded to companies that value a product and/or a know-how which are emblematic of the territory, such as products derived from chestnut, blueberry, honey, wine (Chatus), mineral waters, or tourist services. The interest is to diversify and enhance the value of products and services, while focusing on a quality approach.

RESPONSIBLE CONSUMPTION

The Park promotes short-circuit approaches, raise awareness and supports local authorities towards a «responsible» supply policy (e.g. quality & local supply for canteen, etc.). It also supports and promotes actions and experiments to reduce and recycle waste, including waste such as those from buildings and agriculture...

MAINTAINING AND CREATING JOBS

- Intensify the policy of maintaining and welcoming activities and jobs

This policy has been in place for ten years. Today, the Park places particular emphasis on welcoming and maintaining farmers and works together with municipalities on the following topics: land management, access to housing, adaptation of standards and regulatory thresholds to changes in agricultural activity (as an experimental test), development of local committees, etc.

- To the installation...

The Park also contributes to the identification and creation of activities and jobs linked to the specificities of the territory: ecotourism, environmental jobs, green waste, eco-construction, woodworking, artistic craft, service to individuals, teleworking, social and solidarity economy, health professions...

THE PARK AND ITS INHABITANTS

Monts d'Ardèche GG is strengthening its communication activities, its presence on social networks, its links with local media (local community radio stations, press, TV...). It commissions «ambassadors» among elected officials, inhabitants and voluntary groups to relay information from the public to the Park, and from the Park to the public. At the same time, it is changing its educational mission: to make young people the «eco-citizens of tomorrow», it develops pedagogy through actions and proposes «Park classes». Education is also aimed at adults, for example through heritage site restoration participatory works.

ENERGY AND CLIMATE

Monts d'Ardèche GG animates a local debate on how best to optimize consumption (public lighting, etc.), relocate energy production, while preserving the quality of landscapes and the environment. It supports collective projects, such as photovoltaic solar power plants in villages, or the carrying out of energy diagnoses on public buildings.

LOGEMENTS ET SERVICES

Monts d'Ardèche GG is a partner member of the «energy & renovation platform» whose objective is to support individuals in renovation that reduces energy consumption of their homes, by providing a more complete and integrated service between stakeholders, from design to energy performance monitoring – through reinforcing local skills about renovation of private housing.

<https://renofute.wordpress.com/>

CULTURE

The Park supports cultural action and artistic creation in all its forms (writing, sculpture, painting, photography, cinematography, storytelling, living arts...) and particularly promotes its diffusion in the remote areas, thanks to events like «Cinema in the village», residencies of artists... It also accompanies communities of communes in the acquisition of a cultural competence.

E.7.2 PARTNERSHIPS

The Geopark has been developing for many years the National brand «Valeurs du Parc» [Values of the Park] which identifies accommodation, products and services that meet the criteria for the development of a more ethical and ecological quality tourism. In 2017, this brand was awarded to 99 hosts, 26 museums, 9 nature guides, 3 farm tourist service providers and 26 producers. Since 2015, providers who have

been trained and who wish to highlight their membership of the Geopark and their capacity to mediate in earth sciences can use the name «Partners or products of Monts d'Ardèche UNESCO Global Geopark». Recent and still underdeveloped, it will be strengthened.



Figure 23 - UNESCO Global Geopark Logo for partners

E.7.3 FULL AND EFFECTIVE PARTICIPATION OF LOCAL COMMUNITIES AND INDIGENOUS PEOPLES

There are no particular or indigenous local communities in the Geopark des Monts d'Ardèche. Monts d'Ardèche GG tries to involve inhabitants as much as possible in the decisions taken about the development of the territory. In 2017, for example, a wider debate was organized (so-called "les assises du territoire"), inviting inhabitants to express themselves on the future they would like and the actions they would like to see carried out in this very rural territory.

Monts d'Ardèche GG organizes the consultation within a steering committee that brings together numerous

associative stakeholders. Associations are very well structured on the Eyrieux valley and on the Massif du Mézenc, (e.g. association Arcade, Amis du Mézenc and Pôle Haroun Tazieff en Vivarais). For these associations, the Global Geopark label was the trigger for a new dynamism and a new way of perceiving, understanding and telling about the territory.

In the Eyrieux valley, numerous cultural events (concerts of world music, training courses, artistic residences...), or events linked with heritage (dry-stone workshop and training course), tourism (hiking and itinerancy accompanied on

and between geosites) and scientific events (conferences, international symposiums...) were organized between 2015 and 2017 : 29 conferences, 21 field trips, 29 cultural activities and heritage restoration sessions.

In the Eyrieux valley and on massif du Mezenc, the appropriation of the Geopark label and the Geopark approach has made it possible to systematize the organization of public events for European Geopark weeks since 2015.



Figure 24 - «La Fabrique des Monts d'Ardèche», a participatory debate held in 2017

E.8 Networking

Even before its labeling in 2014, Monts d'Ardèche GG has participated in all the meetings of the European and global networks of Geoparks, most often giving presentations.

Monts d'Ardèche GG is also an active member of Geoparks de France National Committee, for example, and coordinated the layout and production of the presentation brochure of Geoparks de France.

At the national level, the Geopark is very active in promoting the label and supporting the territories being nominated. He took part in the Geopark label's forum in Beaujolais (2014), the national

Geotourism meetings held in Vulcania volcanic theme-park (2015), hosted a delegation of representatives from Haut-Languedoc interested in the process (2016), hosted the Geole days (national network about geological mediation) and participated in 2017 in the organization of the Educour Géotourisme des Ardennes, a candidate territory for the label in 2017.

In 2017, numerous and regular contacts were made with Maeztrago Global Geopark to concretize a cooperation on the digitization and digital valorization of dinosaur fossils, with support of the Université de Bourgogne. The loss of the label for Maeztrago led to the end of this

cooperation.

Despite the firm determination of Monts d'Ardèche GG to establish international cooperation with other Geopark and despite the fact that a certain number of contacts have been made (Terras de Cavaleiros, Swabian Alps,...), these contacts have not yet resulted in a real partnership, particularly because of the administrative calendar of Leader program in Monts d'Ardèche. This will be a priority for the next four years.

Participation in international meetings :

2014	6th international conference on UNESCO global geoparks	Stonehammer Geopark, Canada	Lorraine Chenot Marc Lutz Jean-Daniel Balayn Nicolas Klee
2015	35th Meeting of the coordination com.	UNESCO, Paris, France	Lorraine Chenot Marc Lutz
2015	36th Meeting of the coordination com.	Rokua Geopark Finland	Lorraine Chenot Marc Lutz
2015	13th international conference on UNESCO global geoparks in Europe	Rokua Geopark Finland	Lorraine Chenot Marc Lutz Jean-Daniel Balayn Nicolas Klee
2016	37th Meeting of the coordination com.	Basque Coast Geopark, Pais Vasco, Espagne	Lorraine Chenot Marc Lutz
2016	38th Meeting of the coordination com.	English Riviera Geopark, UK	Lorraine Chenot Marc Lutz
2016	7th international conference on UNESCO global geoparks	English Riviera Geopark, Angleterre, UK	Lorraine Chenot Marc Lutz Jean-Daniel Balayn Nicolas Klee
2017	39th Meeting of the coordination com	Ireland, Burren and Cliffs of Moher global Geopark	Marc Lutz
2017	14th international conference on UNESCO global geoparks in Europe	Azores Geopark Portugal	Lorraine Chenot Marc Lutz Jean-Daniel Balayn Nicolas Klee

Presentations and publications :

Various publications and presentations were released during the last four years :

- Lutz, M., Klee, N., Cocatre, D., et Dupieux, N., 2014.
Mainstreaming the geoheritage into conservation policies: first steps and achievements in the aspiring Geopark des Monts d'Ardèche (France). Communication orale. 6th International UNESCO conference on global geoparks. Saint John, Canada, 19-22 septembre 2014.
- Lutz, M., Naud, G., Demené, C., Klee, N., Bonin, R., et Chifflet, F., 2014.
The Ardèche chestnut civilization: from geological « constraints » to a regional wealth. Communication orale. 6th International UNESCO conference on global geoparks. Saint John, Canada, 19-22 septembre 2014.
- Klee, N. 2015. Le Geopark des Monts d'Ardèche.
Bulletin de la Société géologique d'Ardèche spécial Geopark (8), avril 2015.
- Lutz, M., 2015.
Biodiversité et géologie au sein du Geopark des Monts d'Ardèche. Bulletin de la Société géologique d'Ardèche spécial Geopark (8), avril 2015.
- Aymes M.
Geologie du geopark des Monts d'Ardèche : socle hercynien et volcanisme. Bulletin de la Société géologique d'Ardèche spécial Geopark (8), avril 2015.
- Naud G.
La bordure sud-est du Geopark : une partie de l'Ardèche sédimentaire. Bulletin de la Société géologique d'Ardèche spécial Geopark (8), avril 2015.
- Lutz, M., Klee, N., Naud, G., 2015.
When water rises from the depths: a sparkling geology for the benefit of local communities. Communication orale. 13th EGN Conference. Rokua, Finlande, 3-6 septembre 2015.
- Lutz, M., 2016.
Monts d'Ardèche Geopark, a mainstreaming approach to the conservation and enhancement of the geoheritage. Pp. 205-214. In Cornée et al. (Eds), 2016. Actes du colloque international "Les inventaires du géopatrimoine", 22-26 septembre 2015, Toulouse. Mémoires hors-série de la Société géologique de France, 16, 368 p.
- N. Klee, M. Lutz, E. Jacquiau-Chamska, M.F. Perret, 2016.
The artistic path "Partage des eaux", a new approach to develop cultural and. geological tourism in Monts d'Ardeche UNESCO global Geopark. Oral presentation. 7th international conference on UNESCO global geoparks. 27-30 September 2016. English Riviera Global Geopark.
- Lutz, M. 2016.
Geopark des Monts d'Ardèche, une démarche intégrée pour la conservation et la mise en valeur du patrimoine géologique. Présentation orale aux journées anniversaire des 40 ans de la Société géologique de l'Ardèche. Jaujac, 12 novembre 2016.
- Justice, S., Legal S., Lutz, M., Lansigu, C., Sarre, T., 2016.
L'intérêt des Géoparcs mondiaux UNESCO démontré aux acteurs du territoire. Poster. 25ième Réunion des sciences de la terre. Caen, 24-28 octobre 2016.

In addition to these presentations, which are available in the abstracts of the conferences, numerous oral presentations and powerpoint presentations were given to different audiences during these 4 years, especially in Jaujac at the Park's headquarters.

Figure 25 : Field course for tourism sector professionals about Mezenc-Gerbier volcanism



E.9 Selling of geological material

All geosites are equipped with panels inviting visitors to respect the site and not to take samples. This is also indicated on the Geopark website. With the exception of fossil sites, geosites have little fear of damage caused by removal of stones. For fossil sites, no indications about the precise location (GPS coordinates) of the

sites are communicated to the public and the layout of the sites allows visitors to be channeled to specific locations only.

Monts d'Ardèche GG is vigilant on the fact that there is no sale of fossils or minerals to the public from the territory's resources.

Through the partnership with Université de Bourgogne, the digitization of fossil footprints and moulds of the most interesting tracks make it possible to ensure the preservation of data and their valorization.

F. Any other issues

Since 2014, numerous actions have been carried out by the Geopark team, municipalities association of municipalities, and partners following the recommendations of the Geopark auditors in 2014 and in accordance with the Park's Charter. The Geopark strategy and action plan, drawn up in consultation with all the stakeholders of Monts d'Ardèche, has enabled to provide guidance and to

better structure the actions, the last of which will be carried out in 2018 and the first half of 2019.

During 2018, a new Geopark strategy and action program for 2018-2022 will enable to continue working on an holistic approach to the geological heritage, integrating the issue of protection, valorization, public appropriation, cooperation and education,

and aiming to better understand, develop and transmit our "geopatriotism" both in the Geopark and at an international scale.

Figure 26 - Animation about paleontologic fauna for the general public at Bois du four geosite in Vernoux





Figure 27 - One of the four UNESCO Global Geopark Poster edited by Monts d'Ardèche GG

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