

“CON PASSO SICURO”

STATO DELL'ARTE E NUOVE PROPOSTE
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La Via Geoalpina

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"Via Geoalpina" è uno dei principali progetti dell'Anno Internazionale del Pianeta Terra. Austria, Francia, Germania, Italia, Slovenia e Svizzera hanno lavorato insieme per offrire la possibilità di conoscere le origini antiche e profonde delle aree più affascinanti in tutta la catena Alpina, accompagnando turisti ed escursionisti di ogni età alla scoperta dei segreti della Terra. L'idea comune è quella di offrire un modo alternativo e consapevole di entrare in contatto con Scienze della Terra (geologia, geofisica, geomorfologia, pedologia, paleontologia, idrogeologia, la climatologia, ecc) attrezzando percorsi geologici che attraversano le Alpi. Tutti i paesi della catena alpina si sono uniti in questo grande progetto condividendone strategie e strumenti. Le descrizioni dei sentieri possono essere consultati e scaricati dal sito web ufficiale "Via Geoalpina" (www.viageoalpina.org) o sono disponibili presso gli uffici turistici dei partner come Parchi, Geoparchi, ecc . Inoltre, i pannelli esplicativi permanenti lungo i sentieri offrono informazioni culturali e geologiche permettendo al visitatore di godere autonomamente dell'itinerario senza la necessità di una guida. Anche Beigua Geopark ha aderito alla proposta internazionale sviluppando il proprio itinerario articolato in due giornate.

I due percorsi attrezzati si muovono attraverso una delle zone più importanti e suggestive del Geoparco. Questo territorio, a cavallo delle province di Genova e Savona, presenta un patrimonio geologico ricco e diversificato fondamentale per la ricostruzione della storia geologica d'Italia e per comprendere l'evoluzione della catena Alpina.

La zona è caratterizzata da una vasta estensione di ofioliti (pietre verdi) che rappresentano un frammento di un originario bacino oceanico giurassico che raramente emerge in modo così diffuso nelle Alpi. Il primo percorso consiste in un percorso circolare che mostra la forte connessione tra geodiversità e biodiversità all'interno del Geoparco. Il secondo percorso si sviluppa in gran parte lungo l'Alta Via dei Monti Liguri ed è particolarmente importante per le caratteristiche

geomorfologiche del versante sud del massiccio del Beigua.

INTRODUCTION

In March 2005, the Beigua Park territory joined the European Geoparks Network and the Global Geoparks Network supported by UNESCO. Such recognition has officially crowned admission of the Beigua territory among the international Geoparks, thanks both to the geological and geomorphological features of the Park and its sustainable development strategies, which include natural resource conservation activities, projects aimed at promoting environmental awareness, tourist promotion and leisure activities, educational programs, rural development and incentives for typical local production (Zouros & Martini, 2003; Zouros et al., 2004; Bradley *et al.*, 2008; Burlando *et al.*, 2008a,b).

Thanks to the partnership and operative collaboration with geoscientist, local authorities and tourism organizations, the Beigua Geopark management board planned around its territory a structured network of trails, interpretation facilities and info-points to promote the knowledge of the local geological, biological, cultural and historical heritage.

Among these trails, particular importance has the "Via Geoalpina" created in the framework of the International Year of Planet Earth (IYPE). This project was launched by the National Committees of the countries adjoining the Alps. Based on the "Via Alpina" network of hiking trails that reaches from Trieste across the Alps to Monaco, the project aims to spread news of special geological features found in the Alps (Panizza, 2010; www.viageoalpina.org).

Beigua Geopark immediately follow the opportunity to join the international proposal and contributed to develop the "Via GeoAlpina" project fitting out two geological trails. The two equipped trails go through one of the most important and impressive area of the Geopark. This territory, riding astride the provinces of Genoa and Savona, presents a rich and motley coloured

geological heritage, well representing the different Earth Science subjects and mostly resulting to be significant with respect to the reconstruction of Italy's geological history and in understanding the evolution of the Alpine chain.

STUDY AREA

The Beigua Geopark, located in Liguria region (NW Italy), covers an area of about 40000 ha and includes the territory of seven municipalities within the extent of the "Regional Nature Park of Beigua". The Via GeoAlpina trail develops along the highest part of the Beigua territory.

This area of park encloses prairies and valuable wet areas at a high altitude, thick forests of beech, oak and chestnut trees, cluster pine woods and strips of Mediterranean plants. This is indeed a mosaic of surroundings making the Beigua mountain group one of Liguria's richest zones in geodiversity and biodiversity (Vacchi *et al.*, 2009). Studies carried out on the rocks of the geopark and their position have made it possible to understand palaeogeographic evolution in time, to identify their areas of origin (palaeogeographic domains) and the processes forming and transforming them. Part of the Park lies in the more western part of the Ligurian Alps whose borders, in geological terms, are situated from the French frontier to Sestri Voltaggio area (Chiesa *et al.*, 1977).

The Alpine orogenesis has taken place in the Ligurian Alps sector, starting from about 90 million years ago, because of the closure of the oceanic basin (Ligure-Piemontese domain) and of the collision of the two palaeo-continent. The subduction has spread to the West, also involving continental sectors, close to the collision area (suture). The ocean lithosphere, nearly fully swallowed by the mantle, during subduction and starting from the Eocene, has been partly brought back to the surface. Different tectonic units, coming from different domains, and dug out again from subduction, have thus been translated towards the foreland (external zones), reciprocally piled up in an East-West transportation direction, structuring themselves as the Voltri Group Ophiolites in the area under review and in the Sestri Voltaggio area. The route thus leads to the discovery of different types of rocks which had originated on old ocean depths affording an opportunity to notice rocks at the surface which are usually found hundreds of kilometres within Earth's bowels (Chiesa *et al.*, 1975; Chiesa *et al.*, 1977; Rellini *et al.*, 2009).

THE "VIA GEOALPINA" TRAIL IN THE BEIGUA GEOPARK

The route develops along an approximate SW-NE direction at a constant altitude of about 1000 m a few km away from the Ligurian Sea. It is organised in 2 walk-days, for a total trail of about 20 Km. The itinerary could be easily covered by both expert and amateur hikers especially during spring. The itinerary presents some more difficulties in the winter season because of the ice and the snow.

All along the path several information panels were positioned. On this panel both geological and biological heritage of the area was explained. The starting point of both walk-days is located in Pratorotondo, where an informative point, the Bruno Bacoccoli Information Center, hosts a small exposition focused on the geological features of this part of the protected area.

In Pratorotondo it is also possible to spend the night hosted in the "Pra-riundo" shelter that already started a positive collaboration with the Beigua.

The "Pratorotondo" trail

The path start with a wide dirt track, recently adapted for use even by wheelchairs up to the Casa Miniera Shelter. The path here precisely coincides with the Ligure-Padano watersheds. It concerns a place which is altogether specific, characterised by the fact that the watersheds are found at a distance of about 5-6 km from the sea as the crow flies, being the least distance recorded in Liguria. The stop along the trail are often characterised by interpretative panels. The most impressive geological attraction of the path is represented by the "blockfields" and the "blockstream" of Pian Fretto and Torbiera del Laione. Presently, similar deposits are formed at high latitudes, in periglacial environment (Firpo *et al.*, 2006; Rellini *et al.*, 2009). In these climatic conditions the formation of the "blockfield" occurs by ice fraction (water and snow penetrating into rock fractures and freezing inside there, thus increasing the volume and causing a widening). The path, crossing the central plane area of Pian del Fretto, go through the blockfield front, which is the point from where they could observe the sizes of the huge angular masses constituting them and their reciprocal position, being often piled up and "verticalised".

Pratorotondo-Passo del Faiallo

The geological peculiarities of the area are connected with the imposing emergences of serpentinites, metamorphic rocks derived from the earth mantle in connection with the phenomena

leading to the formation and subsequent closure of the Ligurian-Piedmontese Ocean during the Alpine orogenesis.

The path allow to appreciate the complex geological structure of the Tyrrhenian slope, more specifically, of the valley parallel to the sea which develops from the dwelling area of Sciarborasca to the W up to that of Arenzano to the E .

The morphology is linked with a rigid tectonic stretch which, starting from the Pliocene, is of specific interest for the whole Tyrrhenian margin and leads to the sinking of the Gulf of Liguria. The collapse happened with the formation of horst and graben structures.

Furthermore, the Faiallo area is important from a mineralogical point of view, specifically for its garnets. These minerals having a red brown and a generally rhombododecaedric habit, are easily noticed in the several lenses of rodingites scattered around this area.

CONCLUSION AND NEW PERSPECTIVES

The common idea of the Via Geoalpina project is to offer an alternative and conscious way to get in touch with Earth Sciences across the Alps. All the countries of the Alpine chain have joined together in this great project, sharing strategies and tools. The trail descriptions can be accessed and downloaded from the "Via GeoAlpina" website (www.viageoalpina.org) or are available at the partners' tourism offices, parks, geoparks, etc. Permanent interpretation structures along the trails provide cultural and geological information and allow the visitors to autonomously enjoy the itinerary without the need for a guide. Beigua Geopark has been a main actor of the Via Geoalpina project being always present in the coordination committee and organizing particular events related to the launch of the new itineraries.

Moreover, its geographical position, on the boundary between the Alpine and Appenninic chains, makes the Beigua Geopark one of the main actor in the future project of the Via GeoAppenninica that will allow to create an unique network of geological trail linking southern and central Europe.

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