



Geoheritage is coming to town: preservation of geological features in an urban environment with the example of geomorphological mapping on Clermont-Ferrand

Viktor Vereb (1,2), Benjamin van Wyk de Vries (1), and Dávid Karátson (2)

(1) Université Clermont Auvergne , Laboratoire Magmas et Volcans, Aubiere, France (vereb.viktor.622@gmail.com), (2) Eötvös Loránd University, Department of Physical Geography, Budapest, Hungary

Geoheritage and geoconservation are becoming more and more accepted by scientists and the general public as ways of protecting and improving our urban environment. For this a holistic approach of inventorying geological features of the local geological history and presenting them to the greater public is valuable and can be followed up by the required protective measurements and exploitation of the resources.

Significant administrative structures, such as geoparks, cover the protection and sustainable development of strictly delineated areas of geological interest. Rapid urbanisation takes over significant areas of land, which were formerly natural or countryside habitats. This means that geosites become incorporated inside the city limits. Their vulnerability is high due to exposure to construction projects and the tendency to put concrete everywhere. However, they provide a unique chance to create a diverse urban environment that can be exploited by biodiversity as well as the human occupants. Sites can be also used to inform and educate locals about their environment. This helps the locals to remain open to possible natural influences on their lives. Also by proper management, sites can help to create resilience from natural hazards, especially if a more educated populace is involved.

The Limagne fault and Chaîne des Puys, the alignment of 80 volcanoes of a large rift margin is next to the city of Clermont-Ferrand, France. It is a unique geological environment and the non-urban part is currently nominated for natural, geological UNESCO World Heritage title. The ongoing UNESCO project is outside the urban city limits, but diverse and valuable geology also continues below the fault escarpment limit into the city.

We are working to raise attention on the wide variety of geological features inside the metropolitan area, such as lava flows , river channels and sediments, inverted relief, landslides and even travertine with CO₂ vents. Geomorphological maps are a good way to present the significant geological/geomorphological features of an area based on the topography, inventories and urban fieldwork. We aim to present a series of geomorphological maps on the sample area of Chateugay that could be used for presentation to the great public and will be a clear and compact overview of inventory databases created for scientific community. The delineation of features based on a high resolution lidar-based DEM will be also a guideline for the further extension of inventories and pinpoint areas for protection and development. As a further phase of the research, community mapping should be also included to use the knowledge of locals to add more outcrops, geological features that are not necessarily visible clearly on the basemap, the DEM or are hidden amongst the buildings and vegetation.