ECOLE LEMANIQUE DES SCIENCES DE LA TERRE
DES UNIVERSITES DE GENEVE ET DE LAUSANNE

Master ès Sciences in Earth sciences

Geoheritage and Resilience at Vulcano, Italy

Contact persons: *Prof. Costanza Bonadonna, Dr Corine Frischknecht, Prof. Joel Ruche, Prof. Benjamin van Wyk de Vries*, Prof Andrew Harris* (*Université Clermont Auvergne)*

Context

An important aspect of risk reduction is the identification of strategies that can strengthen community resilience. (i.e. coping capacity of communities to face natural hazards and transform them into opportunities). In particular, geoheritage represents an important component of resilience, by linking fundamental geology to heritage it helps increase awareness of the territory by better valuing, protecting and exploiting the natural heritage. This has been acknowledged within the UNESCO Global Geopark program (e.g. Rinjani, Indonesia, Toya-Usu, Japan) and is also implicit within UNESCO World Heritage. Geoheritage can be used to increase resilience through communication and education, and can also be used to develop a territorial cohesion that allows for a more efficient response to the potential impact. In addition, the procedures necessary to geoheritage studies (mapping and inventories) are very similar to those used for risk mapping.

Objectives and Methods

The project will develop the basic geoheritage structure at Vulcano (one of the 7 Aeolian islands), working closely with a variety of local actors (e.g. civil protection, scientists, tourist operators, residents, tourists). A full basic geoheritage map and inventory (Brilha 2016) will be created using existing literature, and with field / remote geomorphological/ geological mapping. The final output will be the Geoheritage map, the Inventory, and integrated outputs that will included a geoheritage manual, structured walks, guide training, educational materials, each developped to a degree that depends on the state of advancement of the final project.

1. Field geological mapping, and literature analysis of relevant information;
2. Collation of inventory of geological outcrops and geomorphological features;
3. Geographic information systems morphological mapping;
4. Geoheritage mapping with community communication (use of consultative approaches);
5. Data base and inventory preparation, QR code surveying;
6. Geosite analysis (e.g. Brilha 2014, Vereb 2020);
7. Preparation with local actors e.g. *Vulcaniamo,* etc.for the valorisation of the geoheritage inventory.

Literature

- Brilha J., (2016) Inventory and quantitative assessment of geosites and geodiversity sites: a review. Geoheritage 8 (2): 119 134. doi: 10.1007/s12371-014-0139-3
- Dunlop L., Larwood J.G., Burek C.V. (2018) Geodiversity Action Plans – A Method to Facilitate, Structure, Inform and Record Action for Geodiversity. In: Reynard E., Brilha J. (Eds) Geoheritage: Assessment, Protection, and Management. Elsevier, Amsterdam. pp. 53-65. doi: 10.1016/B978-0-12-809531-7.00003-4
- Tomic, N. & Božic, S. (2014). A modified Geosite Assessment Model (M-GAM) and its Applicationon the Lazar Canyon area (Serbia). International Journal of Environmental Research, 8(4), 1041-1052.
- Vereb V., Meirinho P., Lima E., Nunes J.C. (2018) Digitally based monitoring process of geosites in Azores UNESCO Global Geopark: An open-source solution with ODK Collect, XLSForm and Enketo framework In: Abstracts Book, 8th International Conference on UNESCO Global Geoparks : Geoparks and sustainable developement (2018) p. 245.
- Vereb et al. (2020) The urban geoheritage of Clermont-Ferrand: from inventory to management. Pre-print available on EartharXiv, submitted to Questiones Geographicae.

View of the island of Vulcano from Lipari showing the two main volcanic centres: Gran Cratere of the La Fossa Cone and Vulcanello.

This area is a World Heritage site, and is the object for this geoheritage mapping and inventory project to develop a geoheritage action plan, integrated with risk management.

Sites WEB

https://www.unige.ch/sciences/terre/en/research/physical-volcanology-and-geological-risk/

http://www.geopoderes.com

http://lmv.uca.fr

Choice of orientation : Geological Risks

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