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Geomorphosites

Research, protection and education

A Working Group of the International Association of Geomorphologists

Final Report 2009 – 2013



Tsingy, Madagascar, @ Picture, P. Coratza

Lausanne/Modena, August 2013

Summary for the period 2009-2013

9 international workshop and conferences
10 special volumes of journals and proceedings
1 review paper
2 intensive courses for MSc and PhD students

Introduction

The working group *Geomorphological Sites: research, assessment and improvement* was created in September 2001 at the 5th International Conference of Geomorphology held in Tokyo. It was then re-confirmed for a new period (2005-2009) at the International Conference of Geomorphology in Zaragoza and a new one (2009-2013) at the International Conference of Geomorphology in Melbourne. This report summarizes the activities held during this last term (2009-2013).

The WG is chaired by Emmanuel Reynard, University of Lausanne, Switzerland and Paola Coratza, University of Modena and Reggio Emilia, Italy. The Secretary is at the University of Lausanne. Currently, the working group accounts about 200 members of over 30 countries.

Objectives

Three main objectives were proposed for the 4-year period:

- Methodological improvements in the domain of **geoheritage mapping and visualisation** (development of mapping legends, connection with classical geomorphological mapping, use of new communication and visualisation technologies).
- Integration of geoheritage issues in **territorial management** dynamics. Policies concerning geoheritage conservation are very different from one country to the other. It is not the objective of the WG to participate to policy elaboration. Nevertheless, we think that a scientific WG could develop methodologies aimed at better integrate scientific knowledge on geomorphological heritage in the Environmental assessment processes and other territorial management tools.
- **Education** at the University and School level. We planned to continue the existing activity held at the university level and to develop new ways of education at the school level (promotion of education on geomorphology).

Activities by objectives

This section presents the main activities carried out with respect to the objectives:

- **Mapping and visualisation.** Several PhD theses have been carried out within this framework, in particular Géraldine Regolini (University of Lausanne), Simon Martin (University of Lausanne), Luca Ghiraldi

(University of Modena and Reggio Emilia) and Ramon Pellitero Ondicol (University of Valladolid). The University of Savoie organized a specific intensive course and workshop dedicated to this topic, and a special issue of the journal *Geoheritage* is in preparation (publication by the end of 2013).

- **Territorial management.** The activity was quite scarce in this area. Territorial management was one of the key-themes of the ISGM 2011 organized in Chambéry (see below) From 22-23 May 2012, the WG participated to the Green Week, held in Brussels, in collaboration with other geoheritage associations. The objective was to focus on the importance of geoheritage in landscape management. In October 2013, E. Reynard had a meeting with Tim Badman, chief of World Heritage Sites at the IUCN. The objective was to discuss possible synergies between the activities of the WG and IUCN.
- **Education.** Focus has been put, as during the last period, on the organization of intensive courses for PhD and Master students. Two editions were organized in Evian/Haute-Savoie (France) in 2010 and in Lausanne/Val d'Hérens (Switzerland) in 2013. Several members of the WG developed methods and research on education issues in the area of geomorphosites, in particular for school and geotourist publics.

Activities

Workshops and Conferences

At the international level, **9 workshops or symposia** in international conferences were organized by the WG:

- *Conference "Les géosciences au service de la société"*, Lausanne (Switzerland), 24-26.06.2010. The conference, organised by E. Reynard, aimed to work on relationships between geoheritage and geoeducation. The proceedings were published in 2011 in the series *Geovisions* (University of Lausanne).
- *International Conference on Geoheritage and Geotourism*, Lisbon (Portugal), 14-17.10.2010. The conference, organised by Maria Luis Rodrigues, focused on geomorphosites in a context of geotourism. The proceedings were published in 2011 in the journal *GeoJournal of Tourism and Geosites*.
- *International Symposium on Geosite Management*, Savoie – Mont-Blanc, France, 2-5 September 2011. The conference, organised by Fabien Hobléa and Nathalie Cayla, focused on the use of NTIC in geomorphosite studies and the management of geoheritage in natural protected areas. The proceedings are to be published by the end of

2013 as a volume of the series of Laboratory EDYTEM (University of Savoie) and as a special issue of the journal *Geoheritage*.



Field trip in the Estremadura Limestone Massif during the International Conference on Geoheritage and Geotourism held in Lisbon in October 2010. Picture: J.L. Doria.



A view of the audience during the conference *Managing Geosites in the Massif des Bauges Natural Park*. Picture: E. Reynard

- *International Conference on Landscape Conservation, Taipei, 30 September – 8 October 2011*. The conference, organised by Jian-Chuan Lin (National Taiwan University), was aimed at the study of the importance of geoheritage in Landscape studies, in particular in geoparks. The Proceedings of the conference were published before the conference in a special volume of the National Taiwan University.
- *European Geosciences Union (EGU) General Assembly*, Vienna, 22-27 April 2012. Co-organisation (E. Reynard) of the session Geodiversity and geoheritage in university education and research. It is the first time that a session “Geoheritage” was organized within the EGU General Assembly.
- *Conference on Geomorphological processes and geoarchaeology. From Landscape Archaeology to Archaeotourism*, Smolensk (Russia), 27-31 August 2012, organised by Andrei Panin. The conference was supported by the WG.

- *Workshop “Geomorphosites and Mountain Protected Areas”*, Lausanne (Switzerland), 25-27 October 2012. The workshop (on invitation) decided the creation of a Mountain Geomorphosites Network aimed at developing specific research on geomorphological heritage in mountain regions.
- *European Geosciences Union (EGU) General Assembly*, Vienna, 7-12 April 2013. Co-organisation (E. Reynard) of the session “Geodiversity and geoheritage in geoscience research”. A new session is planned for 2014.
- *Session S15B - Geomorphosites (IAG-WG) including geoparks and WHS, 8th International Conference on Geomorphology*, Paris, 27-31 August 2013. Convenors: Emmanuel Reynard, Paola Coratza, Dominique Sellier. 22 oral presentations and 34 posters.

Members of the WG organized also numerous conferences at the national level (e.g. in France, Italy, etc.).

University Courses

Two intensive courses for BSc and PhD students were organised:

- The intensive course *Using numerical technologies for the assessment and the promotion of geosites*, organised by N. Cayla, 5-7 September 2011, in Evian, within the framework of the ISGM (see above). 35 persons attended the course (24 as students and 11 as teachers), three of them with financial support of the IAG: Inès Fuertes-Gutierrez (Spain), Lucie Kubalikova (Czech Republic), Joana Rodrigues (Portugal).
- The *Intensive course on mountain geomorphosites*, organised by E. Reynard, 22-25 August 2013 in Lausanne/Val d'Hérens (Switzerland). 18 students will attend the course, coming from 10 countries, in particular developing countries. 12 students are supported by grants offered by the University of Lausanne.

Courses on geomorphosites are also organised by several members of the working group in the curricula of their universities.

Publications

10 Special issues of international journals or proceedings of conferences were published during the period:

- Coratza P., Panizza M. (eds) (2009). *Geomorphology and Cultural Heritage*, Memorie Descrittive per la Carta Geologica d'Italia, vol. 87, 189 p. More information: http://www.isprambiente.gov.it/site/it-IT/Pubblicazioni/Periodici_tecnici/Memorie_descrittive_della_Carta_Geologica_d%27Italia/Documenti/memoriedescriptive_lxxxvii.html

- Regolini-Bissig G., Reynard E. (eds) (2010). *Mapping Geoheritage*, Lausanne: Institute of Geography, Géovisions n° 35. The digital version is available on the website: <http://www.unil.ch/igul/page83721.html> (*Proceedings of the Mapping Geoheritage seminar, 2008*).
- Giusti C. (ed.) (2010). *From Geosites to Geomorphosites: how to decode the landscape? Geodynamic processes, surficial features and landforms, past present environments*. Géomorphologie: relief, processus, environnement, 2, 121 p. Thematic issue with 9 papers from the Paris conference on geomorphosites (2009).
- Reynard E., Laigne L., Kramar N. (eds) (2011). *Les géosciences au service de la société*, Lausanne: Institute of Geography, Géovisions n° 36. The digital version is available on the website: <http://www.unil.ch/igul/page83721.html>
- *Issue 8/2011 of the GeoJournal of Tourism and Geosites*, with 8 papers (*Proceedings of the International Conference on Geoheritage and Geotourism, Lisbon, 2010*). The digital version is available on the website: <http://gtg.webhost.uoradea.ro/>
- Lin, J.C. (ed.), 2011. *Landscape Conservation*. Proceedings of the International Conference on Landscape Conservation. Taipei, Department of Geography, NTU, 264 p.
- Reynard E., Coratza P., Giusti C. (2011). Geomorphosites and geotourism. Special issue of *Geoheritage*, 3(3), 137 p. 9 papers from the Geomorphosite Conference, Paris 2009, and the session Geomorphosites, Int. Conf. on Geomorphology, Melbourne, 2009.
- Giusti C. (2012). *Geomorphosites 2009. Raising the profile of geomorphological heritage through iconography, inventory and promotion*. Proceedings of the Conference, 368 p. *The proceedings can be downloaded on: <http://docfacilis.paris-sorbonne.fr/6lmjh> (high resolution) and <http://docfacilis.paris-sorbonne.fr/oidwa5a> (low resolution)*.
- Giusti C. (2012). Les sites d'intérêt géomorphologique : un patrimoine invisible ?, *Geocarrefour*, 87(3-4). Special issue on Geomorphosites, with some papers from the Paris Geomorphosites Conference.
- Hobléa F., Cayla N., Reynard E. (to be published in 2013). *Gestion des géosites dans les espaces protégés - Managing Geosites in Protected Areas*. Proceedings ISGM 2011. Chambéry, Collection EDYTEM, 15.
- Reynard E., Cayla N., Hobléa F. (to be published in 2013). *Digital tools for geoheritage management*. Special issue of *Geoheritage*.

The two chairmen of the working group have also published a paper reviewing the activities of the working group during the 2009-2013 period:

- Reynard E., Coratza P. (2013). Scientific research on geomorphosites. A review of the activities of the IAG working group on

geomorphosites over the last twelve years. *Geogr. Fis. Dinam. Quat.*, 36. 159-168.

International contacts and associations

The WG has scientific contacts with the UNESCO (Geoparks initiative, N. Zouros), the European Geoparks Network (N. Zouros), the Italian Association Geologia e Turismo (M. Panizza, P. Coratza), ProGeo (J. Brilha), and the IUCN (T. Badman), Mountain Research Initiative (MRI) (E. Reynard).

Others

- The WG supported the creation of a working group on Geomorphosites in France (French committee on geography) in June 2010. The president of the Working Group is Pr Dominique Sellier (University of Nantes).
- The WG created a specific *Network on Mountain Geomorphosites* during a workshop held in Lausanne in October 2012. The Network aims at developing specific research activities in mountain areas.
- The various activities and reports are available on the IAG website: www.geomorph.org. We thank Prof. Zbigniew Zwolinski, who very kindly organises the information on the website.

Proposals for the period 2013-2017

At the international level, the working group is the only structure dealing specifically to geomorphological heritage issues. Even if important improvements have been made during the last 12 years (see Reynard and Coratza, 2013), we think that new efforts have to be made in various domains:

- focus on geomorphosites as key sites for environmental education (to sustainable development or climate change) for various publics (tourists, school children, in particular) ;
- development of specific activities in developing countries (geomorphosites as tools for local and regional development);
- development of teaching activities for advanced students (MSc, PhD), in particular in developing countries.
- development of research on geomorphosites and geodiversity, in particular on the assessment of geodiversity, relationships of geoheritage assessment and geodiversity assessment, the application of the concept of geodiversity on geotourism.

We ask therefore for a new four-year activity of the WG (see attached letter).

Lausanne/Modena, 15 August 2013

Emmanuel REYNARD, Paola CORATZA