Academic Year: 2019/2020

Course: Applied Karst Geomorphology

Coordinator: Maria Luísa Rodrigues

Teaching Staff: Maria Luísa Rodrigues

ECTS: 6 **Weekly Hours: 2,5h** **Typology: TP**

Contents

1. General principals of karst geomorphology
1.1. Dissolution in limestone areas
1.2. Main factors interacting with the solution rates
1.3. Surficial and underground karst morphology

2. The activity and susceptibility of karst aquifers
2.1. The underground karst hydrology
2.2. Pollution susceptibility and different types of pollution
2.3. Karst hydrologic heritage
2.4. Applied examples

3. Instability processes in karst areas and its consequences
3.1. Instability linked with slope movements
3.2. Vertical movements: subsidence and collapses
3.3. Susceptibility due to resources use
3.4. Applied examples

4. Nature Tourism, Geoheritage and Geotourism in karst areas
4.1. Concepts of geodiversity, geoheritage and geosites
4.2. Geomorphological heritage and geomorphosites
4.3. Potentialities related with the Geoheritage and Geotourism
4.4. Applied examples

Objectives and skills

Objectives:

- Provide the basic concepts about karst geomorphology, hydrology, instability and geotourism potentialities.
- Understanding the karst environment dynamics, both surficial and underground ones.
- Recognize the resources in karst environment namely linked with lithology and hydrology.
- Evaluate the karst geoheritage potentialities to foster the sustainable development of those areas through Geotourism.

Skills:

- Develop scientific methodologies and practice.
- Ability to access the karst areas fragility and to propose sustainable actions for the karst landscapes use and contemplation.
- Develop the capacity for group work, expression of results and applied research.

References

Ford D & Williams P (2007). *Karst Hydrogeology and Geomorphology*. Wiley, Chichester.

Reynard E, Fontana G, Kozlik L & Scapozza C (2007). A method for assessing «scientific» and «additional values» of geomorphosites. *Geographica Helvetica*, Jg. 62, 2007 (3): 148-158.

Rodrigues ML (1998). *Evolução geomorfológica quaternária e dinâmica actual. Aplicações ao ordenamento do território. Exemplos no Maciço Calcário Estremenho*. Diss. Doutoramento em Geografia Física, ULisboa.

Rodrigues ML, Cunha L, Ramos C, Pereira AR, Teles V & Dimuccio L (2006). *Glossário Ilustrado de Termos Cársicos* (ML Rodrigues, ed.), Ed. Colibri, Lisboa.

Rodrigues ML (2009). Geodiversidade, Património Geomorfológico e Geoturismo. CEG (IGOT), TERRiTUR e GEOPAGE, Lisboa.

Rodrigues ML & Fonseca A (2010). Geoheritage assessment based on large-scale geomorphological mapping. *Géomorphologie: relief, processus, environ.*, 2010 (2): 189-198.

Rodrigues ML (2012). Classificação e tipologia dos lapiás. Um contributo para uma terminologia das formas cársicas. *Finisterra, Revista Portuguesa de Geografia*, XLVII (93): 147-158.

Knowledge evaluation methods and their partial grades

Normal Regime: 1 group TP, with **oral apresentation (20%)** and **written final report** (**70%**): theoretical part (**35%**), case study (**35%**). **Presence and participation in the classes** (**10%**).

Special Regime: 1 individual practical work (50%) + 1 test (50%)