



## A multimedia and interactive approach to teach soil science

D. Badía-Villas, C. Martí-Dalmau, and E. Íñiguez-Remón

University of Zaragoza, Escuela Politécnica Superior, Huesca, Spain (badia@unizar.es)

Soil Science is a discipline concerned with a material that has unique features and behaviours (Churchman, 2010). Thus, teachers of Soil Science need to be experienced with Soil Science practices and must appreciate the complexities and relationships inherent within the discipline (Field et al, 2011). But when soil science had to be taught not by specialists, for instance in the introductory courses of earth and environmental sciences Degrees or in Secondary School, adequate material cannot be found. For this reason, multimedia and interactive programmes have been developed and showed here.

EDAFOS is an e-learning resource that provides a comprehensive review of the fundamental concepts on soil science and reveals it as the living skin of planet Earth (European Commission, 2006). This programme is available via website ([www.cienciadelsuelo.es](http://www.cienciadelsuelo.es)) both in Spanish and, more recently, also in English. Edafos is a programme with different modules, which after outlining the study of soil components goes on to examine the main factors and processes of soil genesis explaining the mechanisms of soil processes. By the use of animations, the vital functions of soil are explained. The program ends with a section of multiple-choice exercises with self-assessment. To complement this program, virtual visits to the field are showed in the program iARASOL ([www.suelosdearagon.es](http://www.suelosdearagon.es)), in a time when field trips are gradually diminishing due to insufficiency in time and budget, as well as safety concerns (Çaliskan, 2011). In this case, the objective of iARASOL is to set out that soil vary from place to place not randomly, but in a systematic way, according to landscape units; therefore, graduates can classify the soils using the WRB system (IUSS, 2007). It presents diverse types of data and images instantly, from a variety of viewpoints, at many different scales and display non-visual information in the field. Both programs provide an additional source of information to supplement lectures, real field visits and other learning activities on soil sciences. The development of these programmes has been sponsored by the Spanish Ministry of Science and Innovation (Fundación Española para la Ciencia y la Tecnología, FECYT) and it has won the "Félix de Azara" Award (2011).

Çaliskan, O. (2011). Virtual field trips in education of earth and environmental sciences. *Procedia Social and Behavioral Sciences*, 15: 3229-3243.

Churchman, G. J. (2010). The philosophical status of soil science. *Geoderma* 157, 214-221.

European Commission (2006). Thematic strategy for soil protection. COM (2006) 231.

Field D.J., A. J. Koppi, L. E. Jarrett, L. K. Abbott, S. R. Cattle, C. D. Grant, A. B. McBratney, N. W. Menzies, A. J. Weatherley (2011). Soil Science teaching principles. *Geoderma*, 167-168: 9-14.

IUSS Working Group WRB (2007). World Reference Base for Soil Resources 2006, first update 2007. World Soil Resources Reports n° 103. FAO. Rome.