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Experimental teaching in Geosciences

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An initiative to integrate Meteorology, Oceanography and related environmental contents in schools has been undertaken in Portugal within the framework of teaching general knowledge, all through the different school grades.

This work provides a review of the development and implementation of several educational and interdisciplinary projects supervised by scientists of the University of Trás-os-Montes and Alto Douro, in the Northeast of Portugal, with teachers and students from nearby public schools. The ongoing projects ('Water in the Environment' and 'Meteorology and CIT in Physics teaching') aim at encouraging the development of experimental activities in school by exploring the different components of the Hydrological Cycle, including the installation and maintenance of Automatic Weather Stations (AWS) in the participant schools and carrying out an environmental characterization of the local Corgo River.

These initiatives are more and more important when, in general, few students in the early levels of scholarship have the opportunity of making experimental and laboratory studies of the processes analysed and discussed in the classroom. Furthermore, these activities are quite often performed by the teachers, being the students mere observers.

Some technical tasks are developed through the encouragement of collaborative efforts. In addition, fieldwork is promoted and teachers are encouraged to lead students in the learning processes in order to enhance their own problem solving skills. More-

over, within the time-frame of an academic school year, students will be fully involved in measuring processes, data collection, analysis, discussion of the obtained results and dissemination of the main outcomes by using Communication and Information Technologies (CIT).

These interdisciplinary activities follow the syllabus defined for each school grade in the area of the Earth Sciences in order to consolidate primary scientific concepts and to develop students' curiosity and awareness in studying natural phenomena. Furthermore, such projects provide clear examples of how scientific understanding is moving forward and introduce students to some of the main scientific processes underlying Geosciences. Therefore, it is intended that all of these scientific activities yield an overall increase in scientific literacy that might ultimately strengthen students' interest in Science and Technology.

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