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The UGR awards the Teaching Innovation Prize to a laboratory that reproduces the geological movements of the Earth

30.01.2007

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Reproducing geological situations in the Laboratory of Analogical Modelling of the Department of Geodynamics, a newly created laboratory, unique in Spain, is the objective of this project coordinated by teacher Ana Crespo Blanc, of the department of Geodynamics of the University of Granada (Universidad de Granada [http://www.ugr.es]), which was awarded by the UGR [http://www.ugr.es] with the Teaching Innovation Prize.

The project, titled "Analogical modelling: devising of teaching animations in Geological Sciences" is unique in our country. The experiments involve constructing parallelepipeds of sand, with casual insertions of silicone or glass spheres, on a mobile and interchangeable substratum.

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The whole is subjected to compression, extension or sliding with a system of mobile vertical plates with an adjustable movement speed. Deformation thickness and speed are calibrated to simulate suitably the natural phenomenon we want to model.

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The modelling device installed in the laboratory allows to photograph at fixed intervals two of the faces of the parallelepiped while it becomes deformed (plant and one of the profiles), which allows to have a vision in 3D of the progressive deformation. Finite deformation geometry can be obtained at the end of the experiment with vertical cuts in the deformed parallelepiped (solidified with water), cuts recorded with a digital camera. In every experiment, an animation is generated from digital stills. From an about two-hour long experiment, a thirty-second film can be obtained.

According to teacher Ana Crespo, "with such animations, students can appreciate qualitatively how the experiments evolves, and observe the progressive deformation in the profile and/or in the plant. They can see how rocks become deformed and form mountain ranges since, by calibrating the experiments, it can be showed in some seconds what happened in million years.

Cazorla mountain range

They can compare the final results with concrete geological cuts they have studied all through the degree course, particularly those regions located to the north of Granada and in the area of Cazorla, which are very similar to those of the laboratory".

An important aspect of this Project is its application to disclosure in the medium term. Particularly, the management of the Parque de las Ciencias (Science Park) of Granada has shown interest in this type of animations to complete the Geology section in the Biosphere hall.

Antonio Marín Ruiz | Quelle: alphagalileo

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