

Abstract title

ROCKS, MINERALS, AND MICROSCOPES: A MULTIMEDIA APPLICATION

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Abstract

During the last two decades of the 20th century the boom of the Information Society changed the usual way of teaching and learning. Computers contributed to better classes allowing teachers to make high-quality presentations and eliminating old transparencies and slide collections. The use of multimedia resources, downloaded from the Internet or based on CD-ROM, constitutes a major advantage for the educational system. Unfortunately, many teachers were not able to take advantage of this technological advance due to several factors, namely: bad conditions in schools, resistance to/afraid of using computers, high cost of equipments, and deficient lifelong formation. Geology teaching can be improved by using multimedia materials because geological processes can be better understood as factors like time and scale can be easily simulated. The edition of educational CD-ROMs dedicated to Earth Sciences triggered in the beginning of the nineties. Nevertheless, during the last couple of years, the number of new educational geology-dedicated CD-ROMs decreased. The diversity of subjects is also rather limited. In 2003 the present authors published in a new CD-ROM designated for pre-university teachers and students entitled "Rocks and Minerals from Portugal under the Microscope". This CD-ROM followed a previous on-line version (very simplified and available at http://www.dct.uminho.pt/eng/rpmic_eng/index.html). The CD-ROM helps the visualization of thin sections of rocks and minerals in the lack of polarizing microscopes in classrooms. It also allows self-studying and teachers presentations during classes. This multimedia application describes the preparation of thin sections and the main characteristics of polarizing microscopes by using video support. The observation of thin sections uses QuickTime? technology simulating true microscopical observations in rotating stages viewed with crossed and parallel polars. Each rock specimen is presented with its main characteristics: name, mineralogical composition, texture, structure, place of sampling, and photographs of a hand sample and of the outcrop. The simulation of minerals observation is complemented with information regarding name, chemical composition, crystalline system, cleavage, hardness, color, and industrial applications. Taking advantage of the interactivity and multimedia resources, this CD-ROM can increase the interest of students in the study of rocks and minerals and hence raising awareness of geology.

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