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ROCKS UNDER THE MICROSCOPE - A VIRTUAL APPROACH

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Polarizing microscopes are expensive instruments and therefore are almost non-existent in portuguese secondary schools. This situation means that students do not often have contact with this basic tool to observe and characterize geological materials. To get around this problem, multimedia contents in the portuguese language were developed in order to distribute them using on- and off-line technologies. The multimedia application uses virtual reality techniques, which allow the simulation of real orthoscopic observations (including stage rotation with one polarizer and with crossed polars). The observation of thin-sections under polarizing microscopes is a dynamic activity (different characteristics observed with stage rotation, analyser insertion for crossed polars observations, etc.). The electronic media presents great advantages when compared to traditional media where rocks observations are only represented in still images.

The application has four main entries:

1. An introduction to polarizing microscopes with description of their components and functions;
2. An explanation about the procedures to make thin-sections from rock samples;
3. Observation of portuguese rocks which can be selected according to their geographical location or genetic type (magmatic, metamorphic and sedimentary);
4. Feedback page with contacts and list of bibliographical references.

Each sample is described according to its mineralogical composition, textural characteristics and classification.

The simulation of real orthoscopic observations is created with QuickTime VR Authoring Studio (www.apple.com/quicktime) software, which produces files easily read by any browser (installed with QuickTime plug-in).

The development of multimedia contents is one of the ways to improve the quality of Geosciences teaching-learning, enhancing the scientific culture of the students and increasing their awareness to geological subjects.