



Radioactive minerals - Multimedias strategies for their divulgation

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The region corresponding to Sortelha-Penalobo - Bendada, located deep in the transition zone between the Hesperian massif and the Cova da Beira in the central part of Portugal, more specifically in the Mountainous region of the province of Beira Alta, county Sabugal. This region is characterized by great mineral wealth combined with geomorphology of recognized landscape value. Under the scientific point of view, this region is the origin of the mineral sabugalite ($\text{HA}1(\text{UO}_2)_4(\text{PO}_4)_4 \cdot 16\text{H}_2\text{O}$) that was described by the famous American mineralogist Clifford Frondel (1907–2002) in the fifties of the 20th century. Uranium minerals of Sabugal region were also associated with the radioactivity studies made by the well-known French physicist Marie Curie (1867–1934). In 2007, U. Kolitsch et al described the Bendadaite ($\text{Fe}(\text{AsO}_4)_2(\text{OH})_2 \cdot 4\text{H}_2\text{O}$), which corresponds to a new mineral from the group arthurite. The mineral wealth of this region is responsible for a rich history of mining and to highlight the importance until the 1990s the extraction of uranium minerals. The main uranium minerals extracted were the tobernite ($\text{Cu}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 12\text{H}_2\text{O}$), the metatobernite ($\text{Cu}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$), the autonite ($\text{Ca}(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 12\text{H}_2\text{O}$) and sabugalite ($\text{HA}1(\text{UO}_2)_4(\text{PO}_4)_4 \cdot 16\text{H}_2\text{O}$). Due to the high radioactivity of these minerals, their handling becomes infeasible for disclosure purposes. An integrated and multidisciplinary museological strategy aims to access 3D images by QR codes, using multitouch as the primary means of interaction with the user, and can handle even the virtual samples, access various magnifications and enjoy explanations supplied by a mascot, in a fun way. All this framework and geological environment becomes an asset for the scientific, educational and economic development of the region. On the other hand, it has a vital importance in the context of a strategy of forming a geological park, in the point of view of tourism, research and interpretation.