Communicating geochemical threats to local and regional authorities: The Guadiana pit lake experience

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Like many other scientists from different research fields, and despite the fact that much of our work may have an important field-based component, geochemists are often absorbed in our scientific activity, dealing with geochemical reactions and processes, theoretical models, or experimental work, and usually unconnected with the local communities inhabiting near our field sites. Under certain circumstances, however, the results of our research may have serious and potentially important consequences for these communities, so that communicating the science we make and transferring our knowledge and progress becomes an important task we must face. Contrary to what one might think, this is not an easy endeavor, since it requires a certain informative capacity to present scientific (e.g., geochemical) concepts in a friendly and easy way for the general public, which may include managers, policy makers, journalists, or local inhabitants. Identifying appropriate discussion forums where to transmit the core messages and recommendations becomes crucial. Contacting with local associations is usually a good practice and may help linking scientific teams with local communities.

We will discuss the main conclusions obtained and lessons learnt during a recent experience in a gas-charged pit lake in SW Spain, where water/rock interaction (e.g., carbonate dissolution under confined pressure) led to an important accumulation of carbon dioxide (CO_2) which required treatment options and remediation initiatives to be made [1,2]. A lack of fluent communication with local and regional authorities, along with misinterpretation of expressions and erroneous selection of headlines in mass media by scientifically unskilled journalists, initially led to an unnecessary and unjustified sense of panic among the local population. The close collaboration with local actors intensely involved in culture dissemination was a successful strategy not only to redirect the situation, but also to involve local and regional authorities in decision making.

[1] Sánchez-España et al., *Environ. Sci. Technol.* (2014), **48(8),** 4273–4281.
[2] Boehrer et al., *Sci. Total Environm.* (2016), **563-564,** 468-477.