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ABSTRACTS BOOK



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Theme 12. Stratigraphic markers and archives**Special Session 12.1.** Understanding major paleoenvironmental and paleontological crises during the Mesozoic by exploring shallow water carbonates geological archives

Oral presentation

Sedimentary mercury as a proxy for volcanism in the Tethyan carbonate platforms during OAE-2

Sahara Maria Cardelli¹, Thierry Adatte², Brahimsamba Bomou², Jeroen Sonke³, Gianluca Frijia¹¹University of Ferrara, Department of Physics and Earth Science, Ferrara, Italy²Institute of Earth Sciences, University of Lausanne, Lausanne, Switzerland³Geosciences Environnement Toulouse, CNRS/IRD/Université Paul Sabatier, Toulouse, Francecrdsrm@unife.it

The Cenomanian–Turonian Oceanic Anoxic Event 2 (OAE-2) was one of the major perturbations recorded in the global carbon cycle during the Cretaceous, associated with a worldwide deposition of organic-carbon rich sediments (black shales) in the oceanic basins. Numerous studies have linked large-scale volcanism, associated with large igneous province (LIPs) emplacement, to OAEs. Volcanoes are a primary source of mercury (Hg) to the global oceanic–atmospheric system. Accordingly, analyses of sedimentary mercury anomalies recorded in carbonate platform could be used as a chemostratigraphic proxy for large volcanic eruptions during intervals of severe paleoclimatic changes including OAEs. In addition, the use of stable isotope systematics of Hg are useful to clarify the origin of Hg sedimentary spikes. Up to date, the Hg record throughout the OAE-2 has been derived from deep water carbonate successions. Preliminary data have been used to corroborate the hypotheses of a coincidence between volcanic activity associated to LIPs, and the severe environmental perturbation linked to the OAE-2. On the contrary, the shallow-water carbonate counterparts have been less investigated for their Hg content making the understanding of the Hg record during the OAE-2 largely incomplete. Here, we present new Hg concentration and Hg isotope data used as proxies for increased volcanic inputs, together with sedimentological and geochemical data, from well exposed shallow water carbonate series cropping out in the Tethyan realm, across the OAE-2. Biostratigraphy and carbon-isotope stratigraphy have been used to establish a precise stratigraphic framework and for high-resolution correlations. Results suggest that during the OAE-2, all platforms underwent important Hg fluctuations which are well correlated across the study locations. However stable isotope systematics of Hg suggest that not all Hg spikes could be directly related to volcanism. Finally the high resolution stratigraphic framework established in this study could allow correlating the shallow water Hg record to that of the deep water carbonate deposits which is an important step to understand if and how volcanic activity have modulated the OAE-2 at global scale.