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Seminario

The end-Triassic mass extinction and CAMP volcanism: timing, correlation and consequences

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Aula Arduino

Relatore: **Sofie Lindstroem**
GEUS, Copenhagen

Abstract:
The end-Triassic mass extinction (201.56 Ma; Wotzlaw et al. 2014) is generally explained by massive input of CO2 and/or methane to the atmosphere from the Central Atlantic magmatic province (CAMP). Recent advances in high precision U/Pb dating of CAMP intrusives and extrusives have shown that the magmatic activity commenced c. 100.000 years prior to the mass extinction, and that the volcanism occurred in at least four pulses over approximately 600.000 years (Blackburn et al. 2013; Davies et al. 2017; Heimdal et al. 2018). Indeed, both calcareous and organic Î´13C-records across the Triassic-Jurassic boundary (TJB) show that large scale emissions of isotopically light carbon to the atmosphere took place at that time. Physiological responses in terrestrial plant fossils indicate that this lead to intense global warming across the TJB (McElwain et al. 1999), while in the marine realm, ocean acidification from the increased pCO2 is indicated by the loss of calcifying organisms (van de Schootbrugge et al. 2007). Recently, a new correlation of TJB successions, based on a combination of biotic (palynology and ammonites), geochemical (Î´13Corg) and radio-isotopic (U/Pb ages of ash beds) constraints, was proposed, that indicates that the bulk of the hitherto dated CAMP rocks preceded or was contemporaneous to the onset of the mass extinction (LindstrÃ¶m et al. 2017). This talk explores the impact this new correlation has on the causality and temporal development during the end-Triassic event on a global scale..

Proponente: Andrea Marzoli