Abstract

Present-day marine biotas are increasingly subject to anthropogenically-forced extinctions. The study of the rapid global mass-extinction event at the Cretaceous-Paleogene (KPg) boundary can improve our understanding of the patterns of selective extinction and survival and the dynamics of ecosystem recovery. Outcrops in the Maastrichtian type area (SE Netherlands - NE Belgium border region) comprise an expanded KPg boundary succession, presenting a unique opportunity to study shallow marine ecosystem recovery within the first thousands of years following the Chicxulub impact event ∼66 Myr ago.

Here, the palynological, micro- and macropaleontological record of this unique succession is studied and reevaluated. Ecosystem changes across the K-Pg boundary in this region are rather limited, showing a general shift from epibenthic filter feeders to shallow-endobenthic deposit feeders. The fauna of the lowermost Paleocene still has many ‘Maastrichtian’ characteristics, a biological assemblage that survived the first hundreds to thousands of years into the earliest Paleocene. The shallow-marine oligotrophic carbonate sea of the Maastrichtian type area was inhabited by starvation-resistant, low nutrient-adapted taxa, that were seemingly less affected by the short-lived detrimental conditions of the K-Pg boundary catastrophe, such as darkness, cooling, food-starvation, ocean acidification, resulting in relatively high survival rates. The high survival rate allowed for a fast recolonization and rapid recovery of marine faunas in the Maastrichtian type area. While the recorded ecological shifts are consistent with a K-Pg collapse of primary productivity, the high survival rates and rapid recovery in the Maastrichtian type area compared to other sites highlight large regional variations in response to global catastrophes.

Author

Johan Vellekoop
Vrije Universiteit Brussel

Authors

Pim Kaskes
Vrije Universiteit Brussel

Jan Smit
Vrije Universiteit Amsterdam

Robert P. Speijer
Katholieke Universiteit Leuven

Philippe Claeys
Vrije Universiteit Brussel
Session


Catherine Ross, University of Texas, Jackson School of Geosciences, Institute for Geophysics and Department of Geological Sciences, Austin, TX and Pim Kaskes, Analytical, Environmental & Geo-Chemistry, Vrije Universiteit Brussel, Brussels, Belgium

📅 Wednesday, October 13, 2021
⏰ 1:30 PM - 5:30 PM
📍 Oregon Convention Center - D139/D140