



## **Linking the timing and tempo of the Deccan traps with the Cretaceous-Paleogene (K-Pg) extinction: evidence from the Neo-Tethys, Turkey**

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The End-Cretaceous is characterized by one of the five major extinction in Earth history by a major crash in the biodiversity associated with a carbon isotope negative excursion. These events are thought to have been triggered by both meteorite impact and Deccan traps activity. The studied sections are located in the Goynuk-Mudurnu basin (Central Turkey), which includes sediments from Jurassic to Paleogene. This basin corresponds to a fore-arc basin located in the northern part of the Tethys ocean. The aim of the study was to reconstruct the paleoenvironmental changes associated with the KPg events, using a multiproxy approach including sedimentological, biostratigraphical, mineralogical and geochemical analysis (bulk rock and clay mineralogy, stable isotopes, mercury and TOC contents, major and trace elements, magnetic susceptibility and thin sections analyses). Three bentonite layers containing zircons were detected in both sections close to the KPg boundary and were sampled for dating by U-Pb geochronology. Sharp negative excursions in  $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$  values point to changes in temperature and productivity through the KPg transition. A strong decrease in carbonate content across the KPg section highlights a decrease in productivity and ocean acidification. The Hg concentration profile is characterized by a gradual increase in the uppermost Maastrichtian (CF1 biozone) culminating at the KPg. All this can be interpreted as the results of increased volcanic activity linked to Deccan Volcanism volcanism which played a key role in increasing atmospheric  $\text{CO}_2$  and  $\text{SO}_2$  levels that resulted in global warming and acidified oceans, increasing biotic stress that predisposed faunas to extinction at the KPg.