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# Climate Change in the Carpathian-Balkan Region During Late Pleistocene and Holocene

## Book of abstracts

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## **Elevational variation in the biotic response to repeated climate changes in the Carpathians**

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Alarming predictions and contrasting results regarding species loss consequence of climate change are offered by the coarse-scale vs. fine scale models. In this work fossil records were used to explore patterns of change in vegetation composition, turnover, and diversity along an elevation gradient during the Lateglacial - early Holocene, and to locate the most sensitive elevations to past climate changes. Compositional change appears to be strongest at the Lateglacial/Holocene transition (c. 11,500 cal. yr BP), but significant shifts also occur approximately at ~14,700 cal. yr BP, 13,800 cal yr BP and 12,700 cal. yr BP. Turnover is greater at sequences from mid elevation (730-1100 m) than at low and high elevations. Intervals of greater palynological richness are recorded approximately from 11,500 cal. yr BP, and between 13,800 and 12,500 cal. yr BP; intervals of lower pollen richness occur between 12,900 and 11,500 cal. yr BP, and before 14,000 cal. yr BP. However, given that pollen can travel long distances our results were likely affected by long distance transported pollen. Moisture availability and winter temperature appear to have driven the most sustained compositional changes in the region. Comparison with modelling results reveals that our finding concurs with other palaeoecological and local-scale model studies in reporting the small-scale species survival in microrefugia within larger unsuitable areas, features not captured by wide-scale model predictions. It also demonstrates the need of an integrated approach (palaeo-data, observation, modeling) in order probably better prepare to handle the future impact of climate change.