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Climate variations in the late Miocene – early Pliocene in the Black Sea region (Taman peninsula) inferred from palynological analyses.

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A palynological study of Neogene sediments from the cape “Zhelezny Rog” (Taman peninsula, the Black Sea area) was carried out as part of integrated micropaleontological, lithological and paleomagnetic research. The Neogene section of the cape “Zhelezny Rog” (the Zhelezny Rog section) is one of the most representative Upper Miocene to Lower Pliocene succession of Eastern Paratethys. The section covers the Sarmatian, Maeotian, Pontian (upper Miocene) and Kimmerian (lower Pliocene) local stages.
One hundred and eighteen samples were selected from the Zhelezny rog section for quantitative palynological analysis. Using PCA analysis and additional proxy such as “steppe index”, art/chen and poa/ast ratios the regional climate history was reconstructed. The Early Maeotian is characterized by a warm, warm-temperate climate on the background of relatively high humidity. During the Late Maeotian it became colder and dryer. The coldest and driest conditions during the Maeotian correspond to the middle part of the Late Maeotian. There were a high number of steppe elements (as Artemisia) and low amount of thermophilous ones. Climate of the end of the Maeotian was characterized by warmer and wetter conditions. In the beginning of the Pontian there was a cooling trend, as evidenced by the decreasing thermophilous elements and the increasing high-latitude trees. Most significant changes were found within the Pontian-Kimmerian boundary beds. This level is characterized by decreasing of thermophilous elements, increasing of cool-temperate pollen and Sphagnum spores that are considered as an evidence of a temperature decrease in the background of high humidity conditions. The results will be discussed and correlated to Neogene global climate trends.