



## **Middle-to-Upper Miocene climate variations in Central Eurasia (Eastern Paratethys-Taman Peninsula) inferred from biomarkers analysis**

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Middle-to-Upper Miocene climate variations in Central Eurasia (Eastern Paratethys-Taman Peninsula) inferred from biomarkers analysis

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The combined effects of global climate change and drastic modifications in the distribution and connectivity of large basin systems strongly affected Middle to Upper Miocene climate patterns in the Eastern Paratethys, the former sea of Central Eurasia. In order to reconstruct the paleoclimate conditions of this region and implications for the Eurasian paleoclimate we have analyzed biomarkers from a section of Panagia in the Taman Peninsula (Russia). The exposed interval covers the Volhynian, Bessarabian and Khersonian, all substages of the regional Sarmatian s.l. of the Eastern Paratethys, from ~12.5 to 7.5 Ma. Here we focus on the calculation of SSTs and MAATs derived from GDGT's (lipids from marine Thaumarchaeota or terrestrial soil bacteria, respectively). Obtained SST values fluctuate largely around 20 °C for the Bessarabian (~11 to 9.7 Ma) followed by a drop of the SST values of around 15 °C during Khersonian (~9.7 to 7.5 Ma). Remarkable are the higher SST values estimates between 9.7 and 9.6 Ma indicating a sudden warm water input into the Eastern Paratethys. The MAAT values recorded in the lower part during Bessarabian (~11 to 9.6 Ma) vary around 18 °C. During the latest part of the Khersonian, a marked cooling of 4 °C is recorded for the interval between ~9.7 Ma and 8 Ma. The temperatures increase back to 18 °C for the rest of the Khersonian, during the interval between 8 and 7.5 Ma. Our data indicate that the so-called 'Khersonian Great drying' (~8 to 7.6 Ma) was coeval with a warming phase recorded on the continental realm around the Eastern Paratethys, when MAAT values indicate 7 °C warmer condition than today.

Keywords: Taman Peninsula, Miocene, GDGT's, SSTs, MAATs