

# *Molecular Records of Cenozoic Terrestrial Climate Change on Antarctica*

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## **Abstract.**

The initiation and intensification of polar glaciation is one of the major climate transitions of the Cenozoic. Antarctica played a key role in this transition with the development of mountain glaciers during the Eocene, a large ice sheet at the Eocene-Oligocene boundary and a major ice sheet during the mid-Miocene. Much of our knowledge about this transition comes from globally distributed marine isotope records and detailed stratigraphy from the Antarctic margin. Less is known about the evolution of terrestrial Antarctic climate during this period. The goal of this proposal is to evaluate the record of continental climate preserved in the molecular biomarker composition of marine sediments on the Antarctic shelf. Results from these untapped sediment archives could provide estimates for ocean temperature, land surface temperature and the hydrogen isotopic composition of precipitation, potentially constraining the sensitivity of Antarctic climate over the Cenozoic to declining CO<sub>2</sub> concentrations and the transport of moisture to the continent.