



South Atlantic SST patterns during the Mid-Pliocene warm period

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The Mid-Pliocene Warm Period (MPWP, 3.3-3.0 Ma) was characterized by a warmer climate, higher CO₂ atmospheric concentrations (~400 ppmv), and a decreased ice sheets cover when compared to pre-industrial conditions. Warmer past climates may be used for a better understanding of present-day climate, and projecting future climate changes. In this sense, the MPWP suits as a key-period to evaluate climate responses to a global warming scenario. We analyzed South Atlantic sea surface temperatures (SST) patterns during the MPWP using monthly SST outputs derived from the Community Climate System Model version 4 (CCSM4) experiment for the Pliocene Model Intercomparison Project (PlioMIP). The Paleoclimate Modeling Intercomparison Project version 3 (PMIP3) Pre-industrial experiment was considered as the control experiment. South Atlantic SST variability was analyzed via the South Atlantic Ocean Dipole (SAOD) and the South Atlantic subtropical dipole (SASD) indices, using present-day domains. Preliminary results show that South Atlantic SST spatial patterns during MPWP were similar to pre-industrial modes, and both SAOD and SASD were identified. The SAOD pattern reflects both equatorial and subtropical features, while the SASD corresponds to subtropical variability. However, the structure of the SST dipoles during MPWP differed from pre-industrial conditions, as the variability of their seasonal cycle peaked in different periods of the year. Next step consists in identifying the relationship between the dipolar modes with the precipitation regimes in South America during the MPWP.