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Are models becoming more sensitive to Pliocene boundary conditions?

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The nature and dynamics of Pliocene climate has been a focus of intense study for many years. This is because the Pliocene has a unique potential to inform science/society about how the Earth system responds to forcing of direct relevance to future climate change. We examine large-scale climate features derived from the second phase of the Pliocene Model Intercomparison Project. PlioMIP2 is composed of simulations derived from sixteen coupled atmosphere-ocean and Earth System Models of a variety of vintages (IPCC AR3/4 to 6). This represents one of the largest ensembles of models ever assembled to represent a particular interval in Earth history. Each model has been set up to include the very latest Pliocene boundary conditions provided by the U.S. Geological Survey Pliocene Research Interpretation and Synoptic Mapping Project (PRISM4). As well as examining large-scale features of the PlioMIP2 model ensemble we further examine trends in model sensitivity versus model age in order to ascertain if newer versions of models are becoming more sensitive to Pliocene boundary conditions. We examine this across the PlioMIP2 ensemble as a whole and within individual model families, and examine what this implies in terms of the potential for individual models, or families of models, to represent patterns of surface temperature change reconstructed from geological proxies.