Warm extremes: Marine Isotope Stage 5e and its relevance for the future

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The QUIGS working group (pastglobalchanges.org/quigs) aims to understand climate and environmental changes during quaternary interglacials, by integrating paleoclimatic records and climate model simulations.

This workshop (pastglobalchanges.org/calendar/2019/127-pages/1910) kicked off QUIGS’ second phase (2019-2021), where improved datasets and new model experiments are being used to address research questions and knowledge gaps identified during QUIGS’ first phase (2015-2017). The meeting focused mainly on the Last Interglacial (LIG, known in the marine record as Marine Isotope Stage (MIS) 5e) and its relevance for understanding Earth-system responses to ongoing and future climate change, although other past warm periods were also considered.

A total of 40 delegates from 12 countries participated. The first day was dedicated to discussing the latest results of the new PMIP4 climate simulations. Experiments on the LIG and mid Holocene (MH) based on the Tier 1 PMIP4 protocol are complete, ongoing, or planned for most models, and include transects of different ice sheets, vegetation, and freshwater fluxes. Results will be analyzed by adopting the fixed-angular celestial calendar, essential to understanding Earth-system responses to ongoing and future climate change, although other past warm periods were also considered.

Values at 127 kyr BP
Reference: Pre-industrial

A short-term key goal was established for the QUIGS community to strive to publish relevant LIG science in time to contribute to the forthcoming 6th Assessment Report of the IPCC (AR6). In the longer term, focus will be placed on unraveling specific mechanisms, such as interactions between ice sheets, ocean, climate, and vegetation, and on comparing simulations of the LIG to those of the MH, and PMIP4 to PMIP3 and other CMIP simulations.

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