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Links between ocean dynamics, CO_2 and global climate across the Pleistocene

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The precise links between changes in ocean circulation and atmospheric CO_2 may be various and multifaceted, but it is widely thought that they play a fundamental role in global climate change on a range of timescales. Here we will summarize what we think we know and don't know about the interplay between ocean and carbon cycle dynamics throughout the Pleistocene. Topics covered will range from millennial-scale events and how these might influence changes on multi-millennial (orbital) timescales (including glacial development and termination) to the mysterious Mid-Pleistocene Transition, during which enhanced ocean storage of CO_2 during glacial periods may have contributed to larger and longer-lived continental ice sheets. Examples of key proxy constraints will be highlighted and future research targets outlined that should improve understanding of this complex dynamical system.