

Glacial climate stability and the oceanic pathway in the North Pacific

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Abrupt climate transitions, such as the Dansgaard-Oeschger events and the Heinrich events, occurred frequently during the last glacial period specifically from 80 - 11 thousand years before present. However these abrupt climate transitions were nearly absent during interglacial periods, and also in the early stages of glacial periods when major ice-sheets were still forming. Here for the first time, by using a high-resolution fully coupled state-of-art climate model, we found that the shoaling of the Bering Strait due to the buildup of land based ice and the reducing of its throughflow between Pacific and Arctic during the glacial time lead to the emergence of much stronger hysteresis behavior of the ocean conveyor belt circulation, thus creating conditions that are more conducive to triggering abrupt climate transitions.