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# The Central American Seaway and the Late Neogene ocean conveyor belt

Birgit Schneider (1), Uta Krebs-Kanzow (1), and Wonsun Park (2)

(1) CAU Kiel, Institut f. Geowissenschaften, Marine Klimaforschung, Kiel, Germany (uk@gpi.uni-kiel.de), (2) GEOMAR, Kiel, Germany

'The great ocean conveyor belt' depicts the large scale exchange of water mass properties between today's oceans. Over the past million years the tectonic evolution of ocean passages altered this pan-oceanic communication. The last such tectonic transformation was the closure of the Central American Seaway (CAS) which represented a low latitude gateway between Pacific and Atlantic prior to 4 million years ago. We use a coupled general circulation model and configure the topography for the past. The Central American Seaway modifies the global ocean circulation and the ocean conveyor belt which implies drastic changes in water mass properties and inter basin heat and freshwater transports. Compared to an experiment with modern basin geometry, a 1000-meter deep passage at the location of today's Isthmus of Panama results in a fundamental change in the warm water route of the conveyor belt while the cold path remains qualitatively unchanged. A transport of 10 Sv from Pacific to Atlantic is associated with the meridional transport in the South Atlantic changing from 10Sv northward to 2 Sv southward. Both Indonesian throughflow and export of warm water from the Indian Ocean across 30S are reduced by about 7 Sv. Analysing transports in density classes we are able to propose a sketch of the late Neogene conveyor belt.