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Cenozoic oceanic circulation within the South African gateway: indications from seismic stratigraphy

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The gateway south of South Africa allows the exchange of water masses between the Indian/Pacific Oceans (warm surface water masses) and the Atlantic (cold deep and bottom water masses). This heat transfers maintains the global conveyor belt. Hence the South African continental margin represents an important gateway, whose detailed evolution is not yet fully understood. A compilation of the evolution of the oceanic circulation within the South African gateway since the Early Eocene on the basis of seismic reflection data is put forward and discussed. The effect of a proto-AABW can be found in the southern Cape Basin and south of South Africa as early as Early Eocene-Early Oligocene. In the period Early Oligocene-Middle Miocene a current equivalent to AAIW/Agulhas Retroflection leaves its oldest traces identifiable on the eastern Agulhas Plateau. Indications for the Benguela Current can be found in the Cape Basin in Middle Miocene times. With the onset of NADW in the period Middle Miocene-Early Pliocene the branch of AABW flowing through the Agulhas Passage is weakened and finally deflected to the south in Early Pliocene-Holocene times.