



## **Dating and Recognition of Major Glaciations Events - Evidence from Unglaciased Continental Margins**

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Dating the multiple glacial episodes on Antarctic interior basins and margins can be very difficult as erosional events can be profound, and useful fossils for dating are missing in most of the depositional sequences. However, some episodes can be recognized in certain basins located along the paths of the currents generated or intensified by major climatic changes, as observed in southern Brazilian continental margin.

At least two major pulses indicative of intense transport of sediments can be recognized in southern Brazilian continental margin sequences during the Oligo-Miocene. Interlayered in finer sediments, a widespread occurrence of sand waves and submarine dunes of Late-Miocene age has been mapped. This coarse grained stratigraphic interval was identified using 3D seismic surveys and dated using the muddy intervals above and below, sampled in several exploratory wells. The flow along the slope was towards the north.

Another interval affected by intense bottom currents was identified in Oligocene-age rocks. An erosive event occurred along the entire Brazilian margin, just after the deposition of anomalous *Braarudosphaera*-chalks (*Braarudosphaera*-rich layers that record recurrent specific coccolithophorid blooms) at 28.5 Ma. Palaeoceanographic evidence suggests that both events were triggered by glacial events in Antarctica.

An intensification of bottom currents marked by a major regional unconformity eroded at about 28.5 Ma and intense reworking at the Late Miocene can be correlated with major glacial events recorded in the Antarctic continental sequences. Detailed studies using available seismic and drilled material could recognize events of smaller magnitude.