



Comparative analysis of the Late Cretaceous to Recent post-breakup basin evolution of the South-American and South-African margin of the southern Atlantic

Peter Kukla and Stefan Back

RWTH Aachen University, Geology, Aachen, Germany (kukla@geol.rwth-aachen.de)

Recently, considerable attempts have been made to compare the sedimentary basin evolution and the associated tectonic framework on both sides of the South-Atlantic (e.g. Mohriak et al., 2008, and references therein). Yet there are still unresolved questions. Amongst the most striking observations is that multiple phases of volcanism, uplift and subsidence are recorded after the break-up of the southern South Atlantic margin segment on both sides of the Florianopolis - Walvis Ridge volcanic complex, features that are regarded as atypical when compared to published examples of other post-breakup continental margin successions. However, the tectono-sedimentary and magmatic styles markedly differ from south to north across the volcanic complex. In seismic reflection data, voluminous extrusives are manifested by the occurrence of large wedges of seaward dipping reflector sequences south of the volcanic complex, whilst large volumes of Cretaceous mafic alkaline rocks only occur north of the Florianopolis - Walvis Ridge complex. It can be expected that these differences are of a broad importance for the understanding of both break-up and post-breakup processes.

This presentation focuses on a comparison of the post-breakup stratigraphic development of the South American and South African continental margins that both record thick post-rift sedimentary successions. Basins along the southern African margin are much narrower in comparison to their South American counterparts, constituting a pronounced margin asymmetry across the Atlantic. Adding to the heterogeneity of the system, the northernmost segment of the South Atlantic rift and salt basins is also characterized by a pronounced asymmetry, with the Brazilian margin now comprising narrower and deeper rift basins with less salt than the Congo-Gabon conjugate margin. In general, it seems that in the salt-prone areas both offshore South America and southern Africa, salt-related tectonics are amongst the key parameters controlling differential post-rift margin development, adding significant complexity to the conjugate margin systems.

Mohriak, W., Nemčok M. & Enciso, G. (2008): South Atlantic divergent margin evolution: rift-border uplift and salt tectonics in the basins of SE Brazil. In: Pankhurst R.J., Trouw, R.A.J., Brito Neves, B.B. & De Wit, M.J. (eds) *West Gondwana: pre-cenozoic correlations across the South Atlantic region*. Geological Society, London, Special Publications, 294, 365-398.