



Styles of extension and oceanization: Examples from the South Atlantic margins

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Along the margins of the South Atlantic from the Camamu/Gabao to the North Santos/South Kwanza conjugate margin, rift architecture changes considerably. On the Brazilian side, from North to South, the margin width increases, syn-rift subsidence decreases and the degree of conjugate margin asymmetry varies. Here we suggest that these changes in architectural styles can be explained with a combination of extensional modes: core-complex, wide and narrow rift modes with sequential faulting mode, which arises at the last stages of extension and accounting for conjugate margin asymmetry. The prevalence of any of these modes during extension depends on the strength of the lower crust at the start of rifting and during extension. Melting and serpentinisation are also strongly linked with lower crustal rheology, with weaker rheologies leading to less coupling between lithospheric layers and a slower mantle uplift, hence relatively less melting and serpentinisation. Here we show how likely changes in crustal strength and lithospheric configuration from the northern San Francisco craton to the southern Ribeira belt, may have led to the rich variety in extensional and oceanization styles observed in this margin sector.