

## **Structural controls on the evolution of the southeast Brazilian continental margin**

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The onshore region adjacent to the Santos basin (southeast Brazil) consists of northeast-southwest trending Neoproterozoic mobile belts formed during the Brasiliano orogeny. The region was rifted, first during the Cretaceous, forming the offshore basin, and later during the Cenozoic, forming a series of onshore rifted basins and mountains. The first rift stage, formed during the early Cretaceous is expressed onshore as a series of dyke swarms and associated fractures. Many of these are oriented parallel to basement trends, leading to the idea that basement reactivation plays a role in the origin of the offshore rift. Understanding the controls on the development of these dykes and fractures onshore, as well as later faults, is therefore crucial in order to understand the development of the offshore basin - an important hydrocarbon province.

Structural mapping of dykes and faults exposed in the Florianopolis region to the west of the basin has shown that: whilst the main structural trend of the Florianopolis dyke swarm is north-south, fractures measured are consistent in orientation and kinematics with transtensional structures across the region, suggesting a larger scale control on their generation than reactivation of basement structures. Analysis of spectacularly exposed dykes in the region suggests that pre-existing brittle structures, rather than ductile structures may play a role in the development of these features.

In addition to shedding further light on the controls on basin structure, this fieldwork has highlighted the need for further study into the interplay between igneous intrusion and brittle tectonics at 'passive' continental margins.