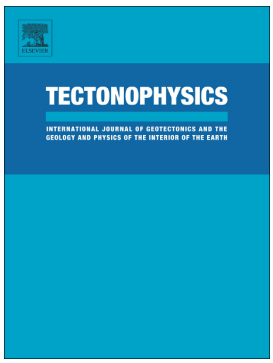

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A low-angle normal fault and basement structures within the Enping Sag, Pearl River Mouth Basin: insights into late Mesozoic to early Cenozoic tectonic evolution of the South China Sea area

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Abstract:

The basement structure of the Cenozoic Enping Sag, within the Pearl River Mouth Basin on the northern margin of South China Sea, is revealed by borehole-constrained high-quality 3D seismic reflection data. Such data suggest that the Enping Sag is bounded in the north by a low-angle normal fault. We interpret this low-angle normal fault to have developed as the result of the reactivation of a pre-existing thrust fault part of a pre-Cenozoic thrust system. This is demonstrated by the selective reactivation of the pre-existing thrust and by diffuse contractional deformation recognized from the accurate analysis of basement reflections. Another significant result of this study is the finding of some residual rift basins within the basement of the Enping Sag. Both the thrust system and the residual basins are interpreted to have developed after the emplacement of continental margin arc-related granitoids (J_3-K_1) that define the basement within the study area. Furthermore, seismic sections show that the pre-existing residual rift basins are offset by the main thrust fault and they are both truncated by the Tg unconformity. These