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Does offshore crustal taper control an onshore topographic displacement gradient in SE Brasil?

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The SE Brasilian Serras da Mantiqueira and do Mar topographic envelopes exhibit coast-parallel displacement gradients typical of linked normal faults in extending terrain. Between southern Curitiba and Cabo Frio, coast-perpendicular profiles show the distance from the maximum escarpment elevation to the likely location of the extended margin's flexural/rheological coupling point (Taper Break, or TB) is inversely correlative to the height of the escarpment. The correlation is similar to previously-published scaling relationships derived from Scandinavian and global datasets. Although Precambrian ductile shear zones guided brittle phase faulting during Mesozoic extension and Cenozoic margin uplift, the primary control governing fault reactivation and source-to-sink evolution of the SE Brasilian rifted margin seems rooted in crustal thinning. We see two lines of interest for petroleum exploration: Preferential reactivation of high angle faults at sharply-tapered margin sectors is expected to guide onshore to offshore sediment routing along margin-parallel corridors, and (should the TB–escarpment correlation be better validated with proposed analyses of high-quality marine geophysical datasets) a partial constraint upon architectural end member interpretations of deep crustal structure may be contemplated.