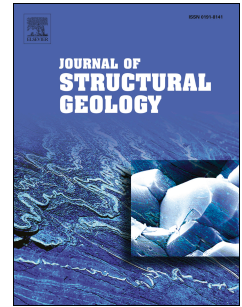


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Enigmatic structures within salt walls of the Santos Basin—Part 2: Mechanical explanation from physical modeling

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1 **Enigmatic structures within salt walls of the Santos Basin—Part 2:**
2 **Mechanical explanation from physical modeling**

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20
21 **Abstract**

22
23 Jackson et al. (*this volume*) used 3D seismic reflection data to describe intrasalt deformation in salt walls
24 in the Santos Basin. They focused on the origin of enigmatic allochthonous salt sheets of older evaporites
25 (A1 unit) emplaced above overlying stratified evaporites (A2–A4 units). Their kinematic model
26 incorporates: (i) initial inward flow and thickening of A1 salt within the rising wall, and arching of A2–
27 A4 overburden; (ii) breaching of the arched overburden, ascent of mobile A1 evaporites along single or
28 multiple feeders, and emplacement of upper-wall sheets or canopies; and (iii) a component of regional
29 shortening within the salt. This companion paper uses physical modeling to explain how and why these
30 structures occur and proposes a mechanical basis for the kinematic model. Our first two models simulated
31 salt having uniform internal density, with walls growing by (i) initially symmetric differential loading and
32 (ii) initially symmetric differential loading plus shortening. These models reproduced anticlines and
33 injection folds seen in the simpler deformed walls in the Santos Basin. However, neither model

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