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How to generate experimentally the spontaneous formation of strike-slip, transpressional, or transtensional structures above a viscous layer (with no basal velocity discontinuity)

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In the literature, nearly all the experiments that simulated the formation of strike-slip structures implied the use of a basal discontinuity under a fully or partly brittle model. However, in nature, whether one focuses on lithospheric scale or on a salt and sedimentary overburden, but in nature, there is no real equivalent of a rigid basal plate at depth. Instead, the deepest part is viscous (lower continental crust, asthenosphere, or salt) , which has a much lower strength than the brittle overlying series.
In this work, we illustrate that it can be relatively easy to model such structures without forcefully transmitting discontinuities from the bottom up, but by initially creating weak zone (e.g., pre-existing sedimentary basins or areas where the brittle crust, because, for example, of abnormal thermal conditions, or where the sedimentary overburden is thinner than normal, that have a lateral, rather than basal, influence on the spontaneous formation of large and long wrench zones under a regional compressional setting. These weak zones are located at each end of the models and consist of areas where the strongest, brittle, overlying layer is thinner, hence weaker, than elsewhere, and these weak zones are initially laterally offset.
If pre-existing weak zones are present, the response to compression could vary, depending on the width and strength of the weak zones, the thickness of the overburden, and the length of the model: from a mechanical point of view, it may be easier to just form thrust faults. But, if the conditions are right, it can be easier to generate a long wrench zone linking the two weak zones. In that case, several parameters have a crucial influence: the position and width of the weak zones and the boundary conditions (laterally confined or not) in determining the geometry and evolution of the wrench zone.
We will be presenting examples of experiments, in which no basal velocity was used, and where we managed to generate pure strike-slip, transpressional, and transtensional deformation above an entirely basal viscous layer.