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Geometry of syntectonic sediments associated with double edge fault-propagation folding

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Fault-related folds in thrust wedges are commonly simulated by three end-member classes of geometric models: décollement folding, fault-propagation folding, and fault-bend folding. A given model produces a fold shape that depends on the amount of shortening, fault shape and, eventually, the fault propagation history. The great variety of geometric solutions implies that the final fold shape is, in many cases, inadequate to distinguish among different folding mechanisms. Additional information for constraining the fold kinematics is provided by the growth strata pattern, which passively registers the progressive evolution of substratum. Accordingly, growth strata pattern templates associated to different geometric and kinematic solutions provide an effective tool for inferring the kinematic pathway of thrust-related structures. In this contribution we present the growth strata patterns associate to double-edge fault-propagation folding, a new model of fault-propagation folding. We investigate the influence of the sedimentation rate, the fault shape, and the fault S/P ratio (i.e. slip versus ramp propagation rate) on the growth strata architecture. Geometrical modelling indicates that double-edge fault-propagation anticlines are characterised by growth triangles on both limbs. Their position and geometry relate to the ramp shape and propagation history, and on the sedimentation rate.