(a) Camera 1 Camera 2
Rail guide
Linear actuator
Fixed wall
Moving wall

(b) Model layering
Upper crust (sand + ES)
Lower crust (PDMS + PI + IF)
Lithospheric mantle (PDMS + PI + IF)
Asthenosphere (glucose)

Direction of extension and shortening
Approximate position of pre-existing cut in LM
(models R2 and R5)

(c) Simplified strength profile of thick lithosphere

Brittle crust
Ductile crust
Thickened crust after thermal relaxation
Lithospheric mantle

30-40 km
50-60 km

(d) Influence of strain rate on strength of ductile layers
UC
LC
LM
Low γ
High γ

(e) Model strength profiles

σ₁-σ₃ [Pa]

σ₁-σ₃ [Pa]

σ₁-σ₃ [Pa]

Depth [cm]

Depth [cm]