

Modelling localization during simple shear deformation of the lithosphere

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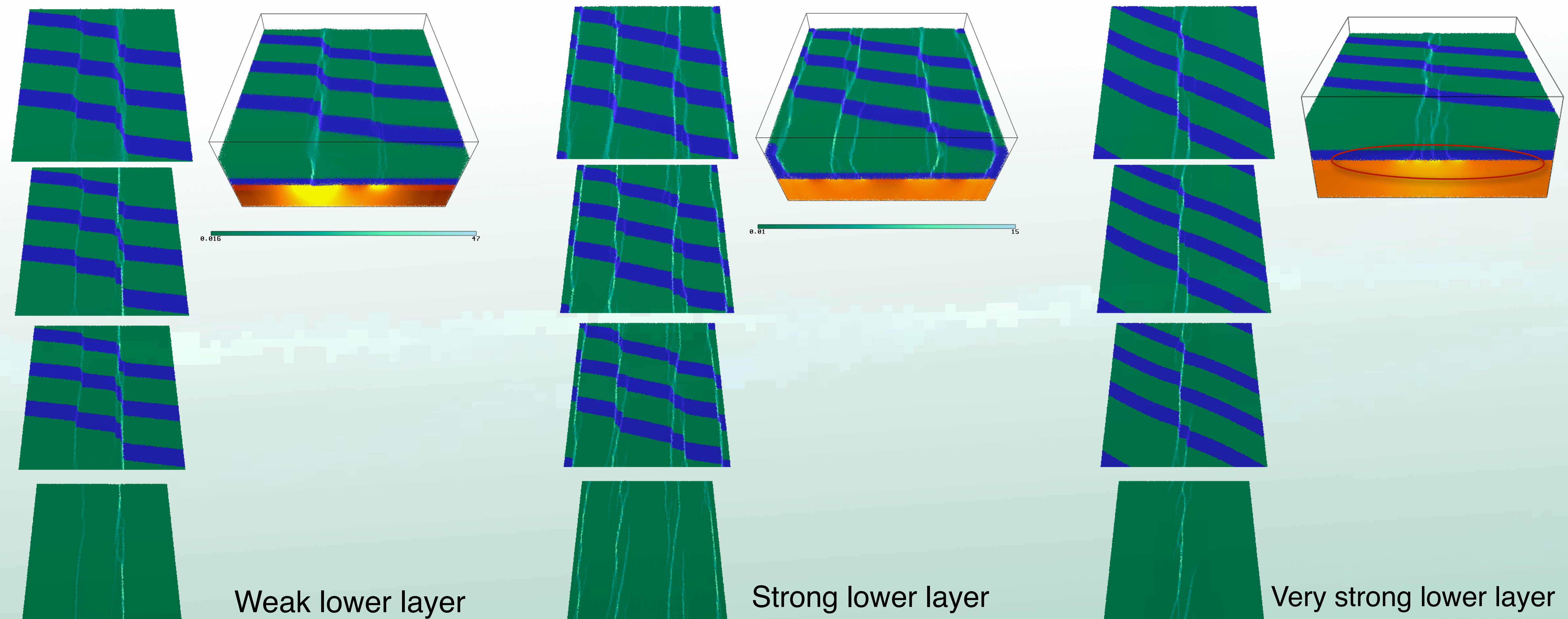
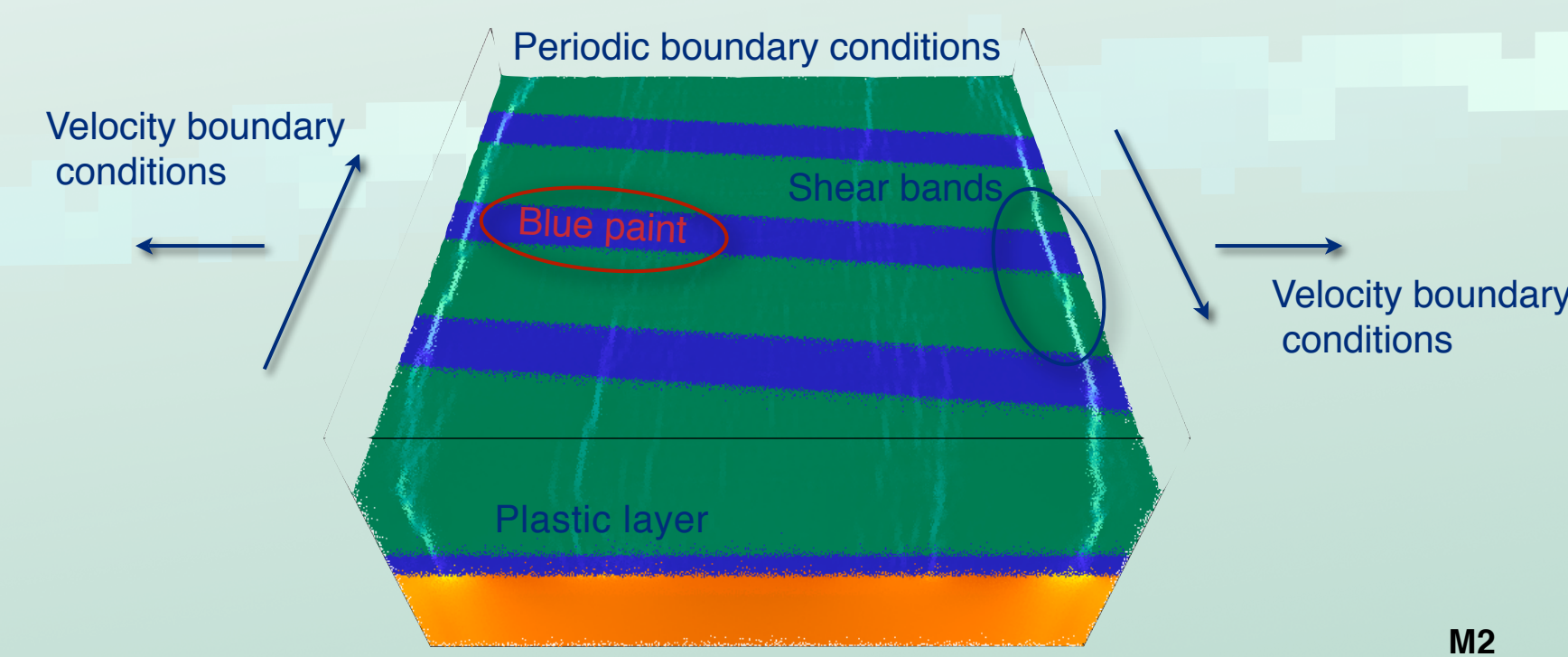
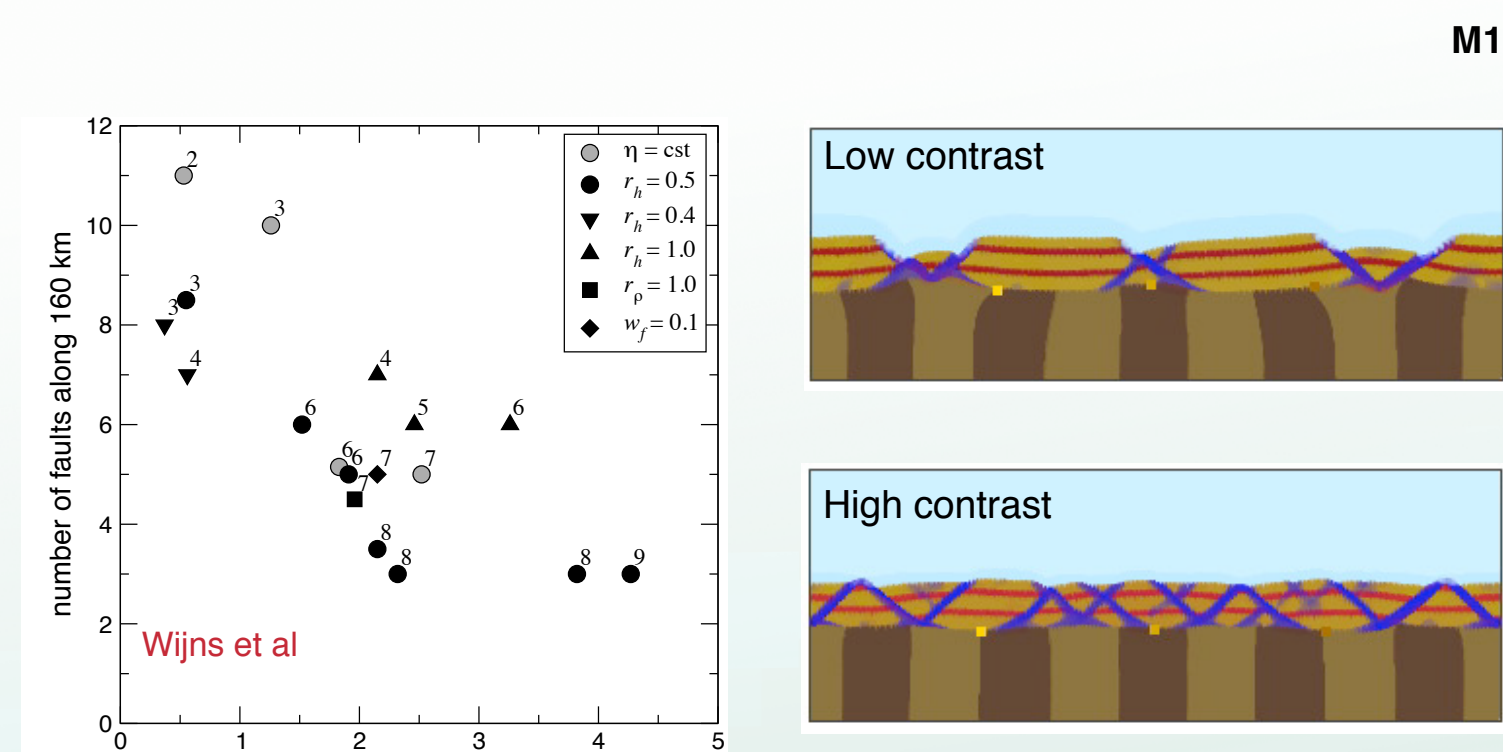
Motivation

We are interested in exploring how the knowledge of shear-band spacing from 2D (and 3D) extension — see figure M1 — models carries over to transform environments.

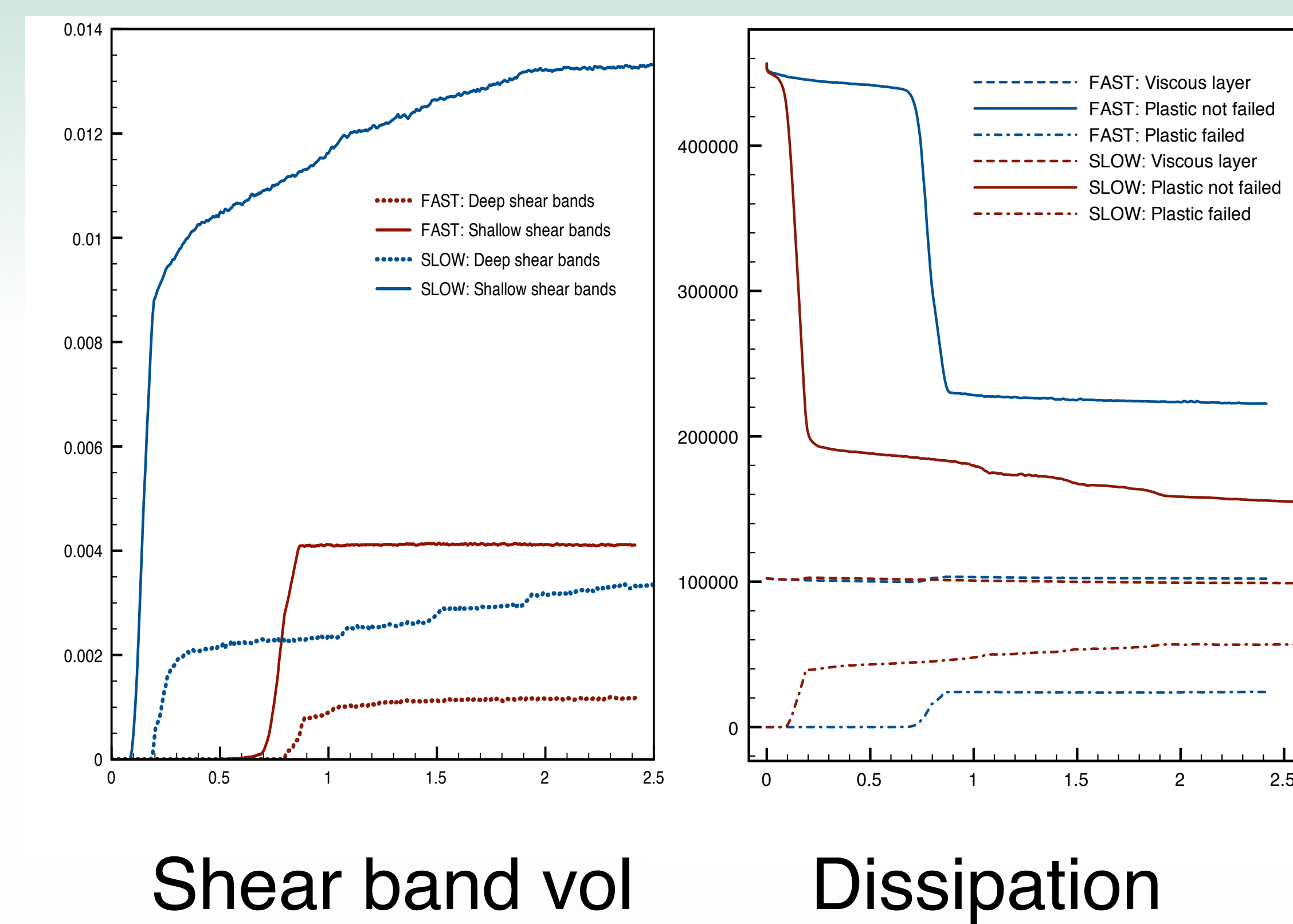
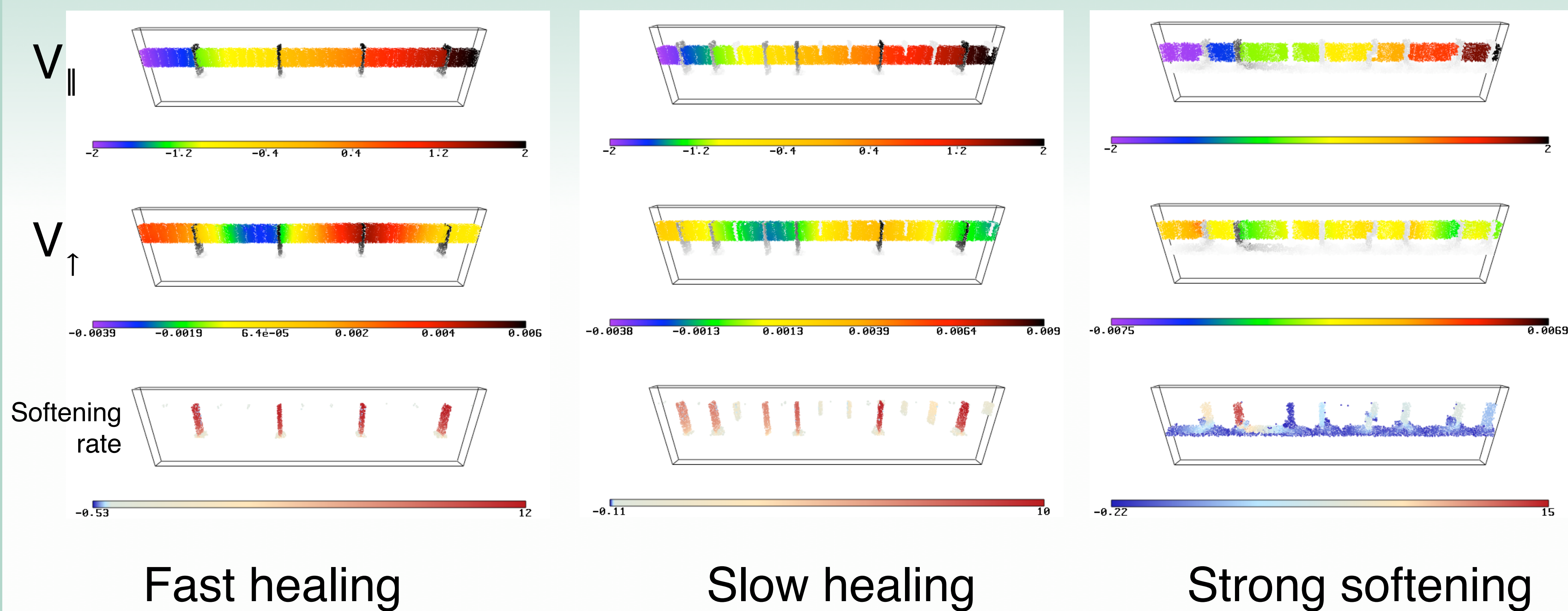
The experimental setup is a simple 2 layer box with plastic material over a viscous substrate — figure M2 — to which simple-shear boundary conditions are applied.

The shear bands that form are relatively stable to further deformation because of the geometry involved and so we can watch how the population of structures evolves knowing that the effects of block rotations are minimal.

We can also look at quasi 2d experiments (thin boxes) to further simplify the analysis of the results.



Quasi 2D problem



3D

