

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: **Detailed evolution of accumulated and active deformation during the thinning and hyperextension-exhumation phases.** Animation showing the evolution of the model in Fig. 2-5 at increments of 100,000 years. As in Fig. 4 and 5, each frame shows the logarithmic strain-rate and plastic strain on top of the background compositional field.