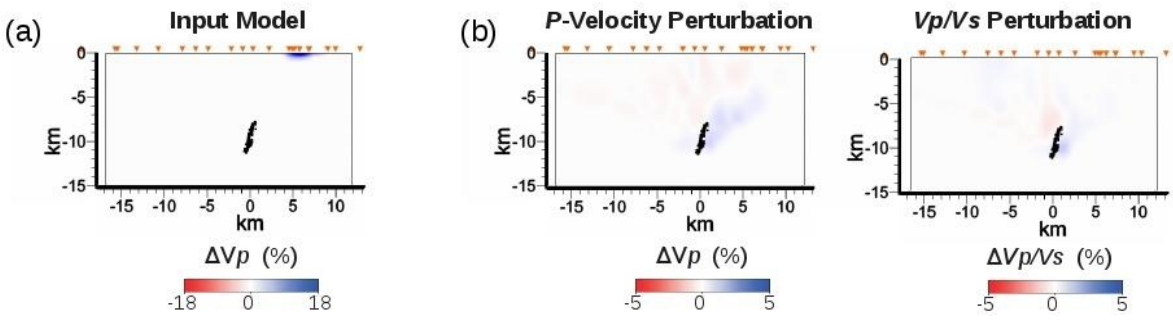
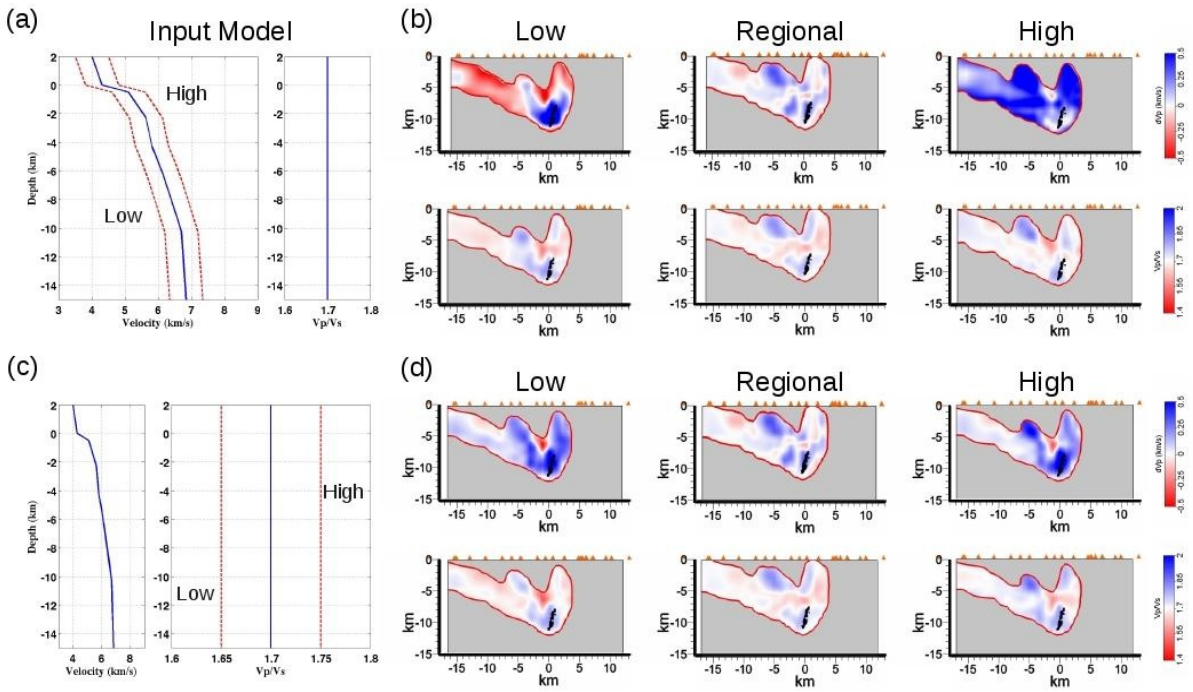


2

3Supplamentary Figure 1. Synthetic test illustrating the insignificant effects of near-surface 4velocity heterogeneitites. In the input model, the velocity at 0.5 km depth is extended up to 5the surface (z = 0 km), mimicking an outcrop of bedrock. All velocities and ratios outside of 6the perturbed area correspond to the regional model of Málek et al. (2001). This results in a 7localized P-velocity increase of 18%. The recovered *P*-velocity and *Vp/Vs* models show 8minor perturbations (less than 2% and 1%, respectively).



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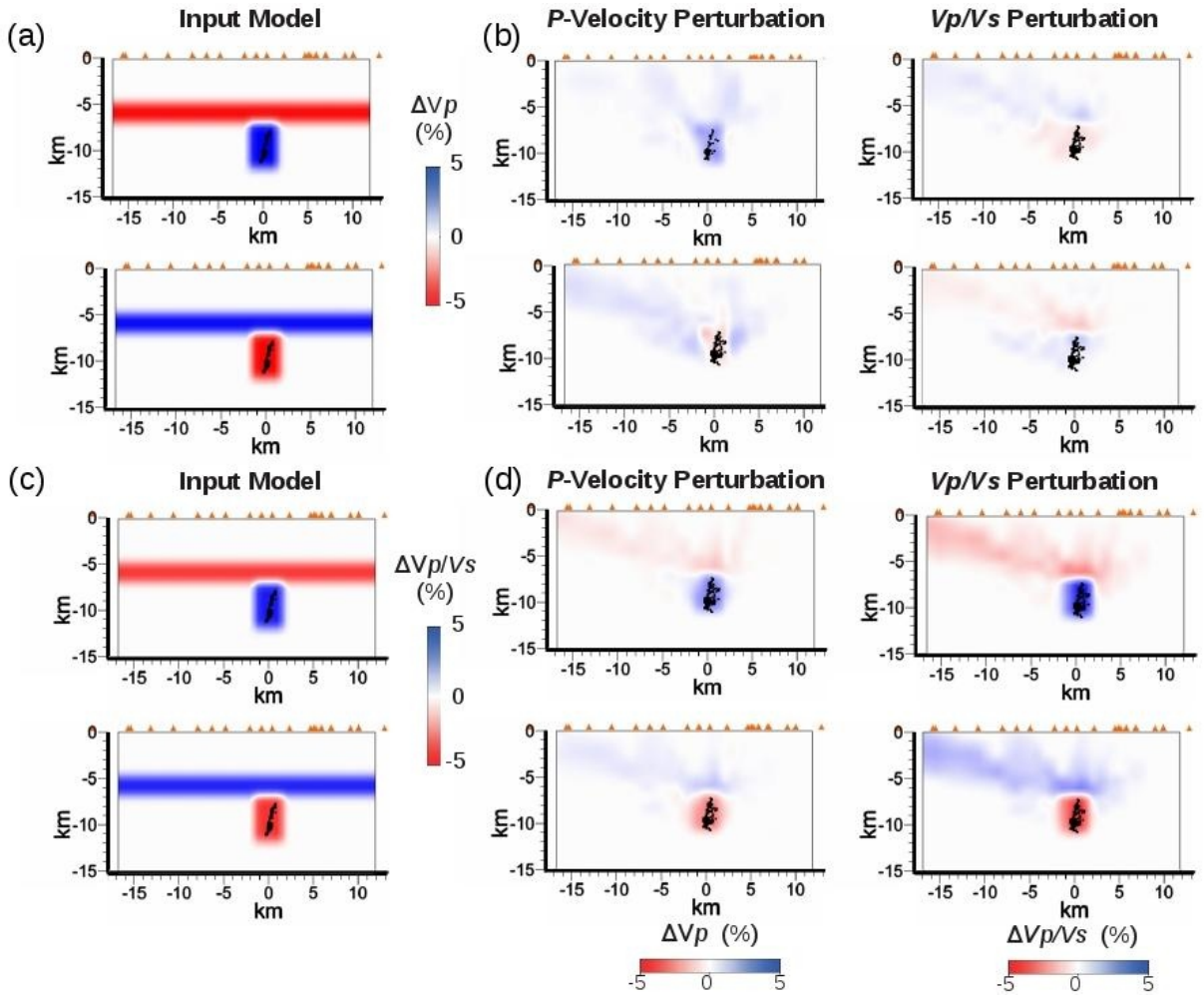
3Supplamentary Figure 2. Test on input model dependence. The tomography is calculated 4using variations of the regional model of Malek et al. (2001). When the input model's *P*-5velocity is perturbed (a), the calculated *P*-velocity models (b top) show a strong dependence. 6However, the calculated *Vp/Vs* ratio models show minor dependence below 5 km. When the 7regional *P*-velocity model is used, but the input *Vp/Vs* ratio is perturbed (c), the calculated 8models (d) show less dependence. Only areas constrained by the data are shown. *P*-velocity 9tomography plots are shown with respect to the regional model.



2

3Supplamentary Figure 3. Anomaly restoration synthetic test. Same models as for Figure 3 4with a 2 km-thick, contrasting layer inserted over the anomaly (a and c). As with the previous 5tests, the calculated *Vp/Vs* models show better anomaly recovery than the calculated *P*-6velocity models.