

Crustal Softening at Propagating Rift Tips, East Africa

F. Kolawole^{1,2}, R. Ajala¹

¹Lamont-Doherty Earth Observatory of Columbia University, Palisades, New York, 10964, United States

²Department of Earth and Environmental Sciences, Columbia University, New York, 10027, United States

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Introduction

This supplementary document contains supplemental figures (Figures S1 – S18) supporting the results and conclusions in the main manuscript.

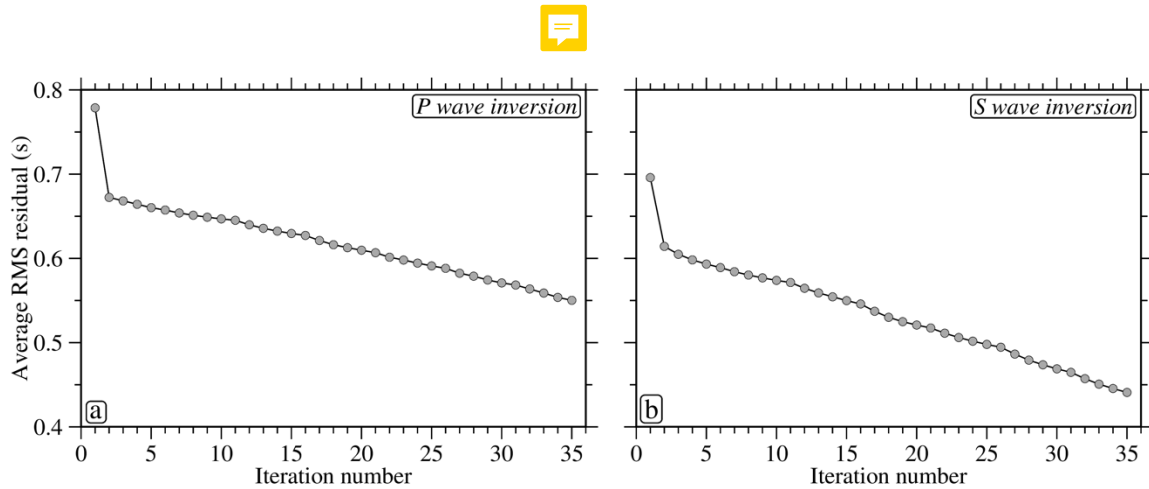


Figure S1. Average RMS travel time residuals for the (a) P and (b) S inversion.

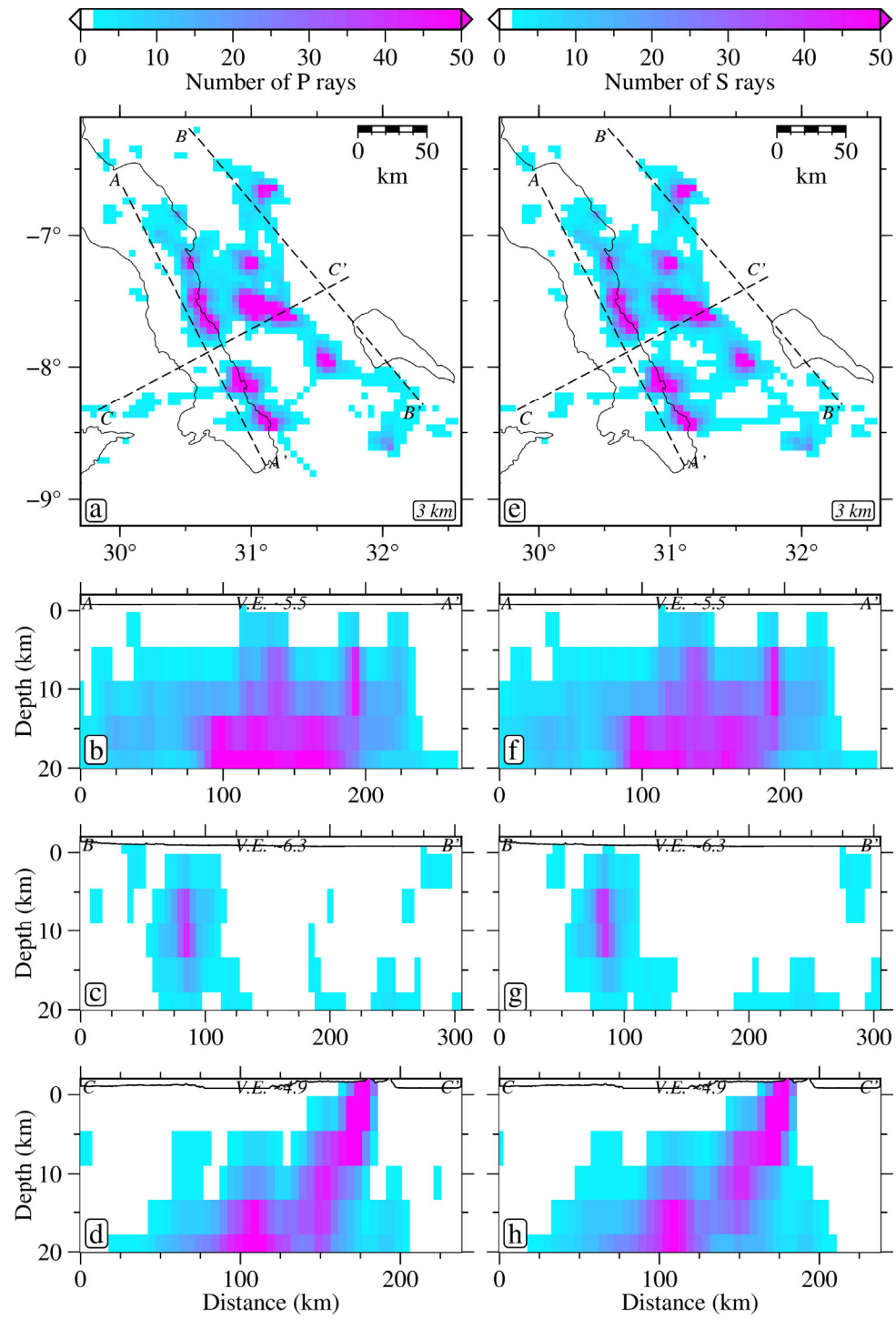


Figure S2. Ray coverage maps for the inversion. (a – d). Maps and profiles for the P wave model. (e – h) Maps and profiles for the S wave model.

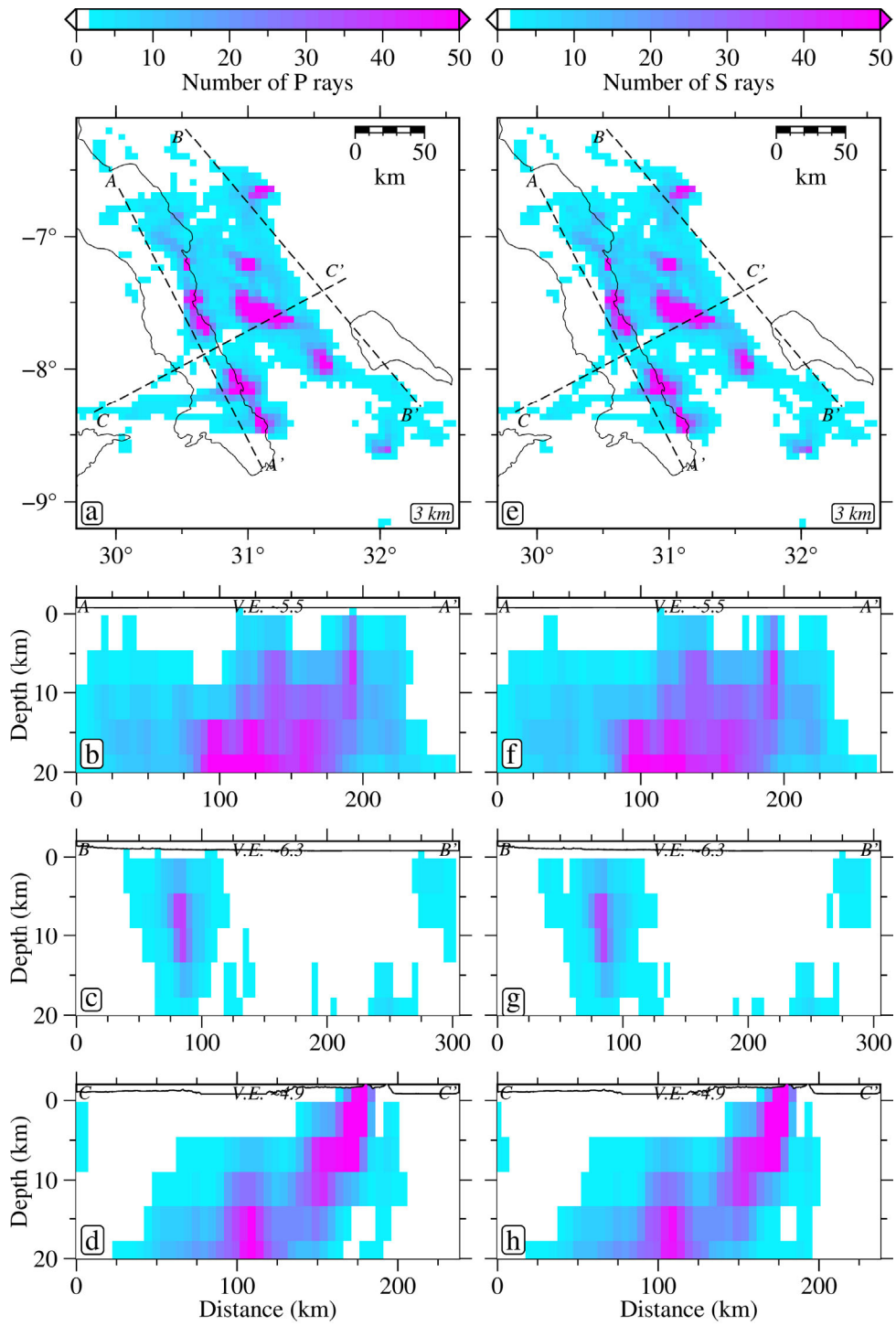


Figure S3. Same as Fig. S2 but for the synthetic model inversion.

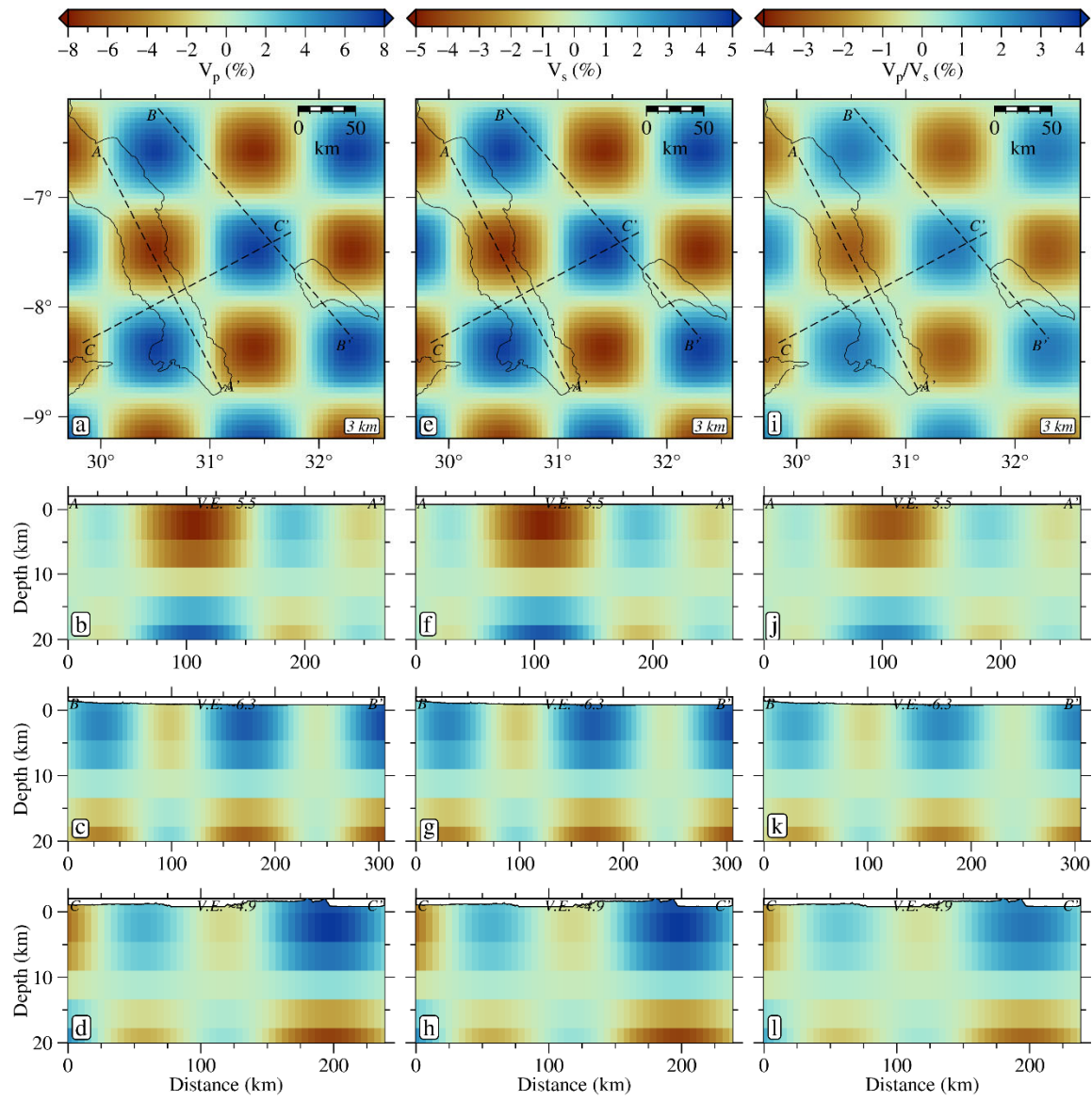


Figure S4. True synthetic model with 100 km x 100 km x 25 km checkers.

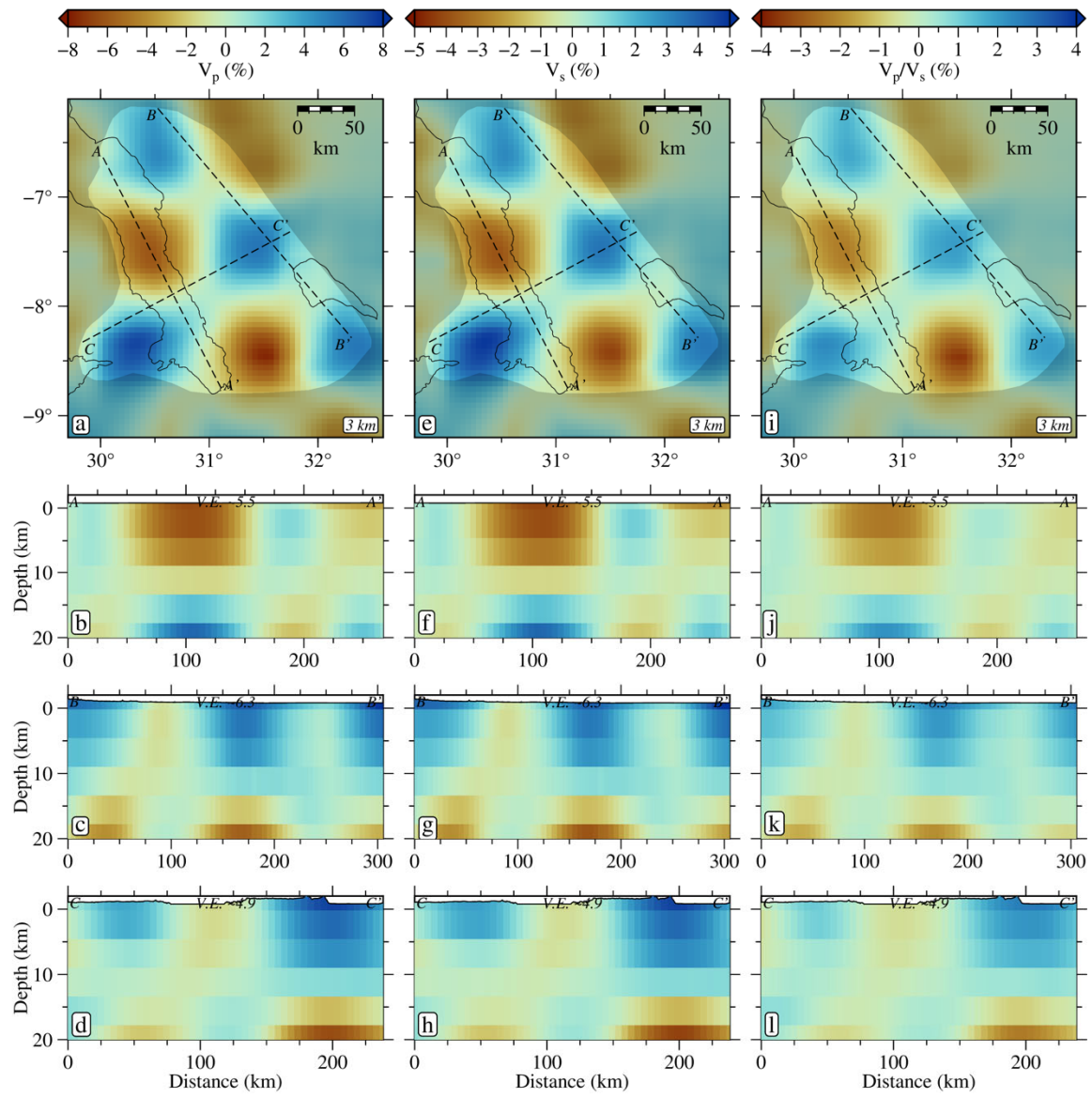


Figure S5. Recovered synthetic model with 100 km x 100 km x 25 km checkers. Unreliable areas of the models are lightly grayed out on the maps.

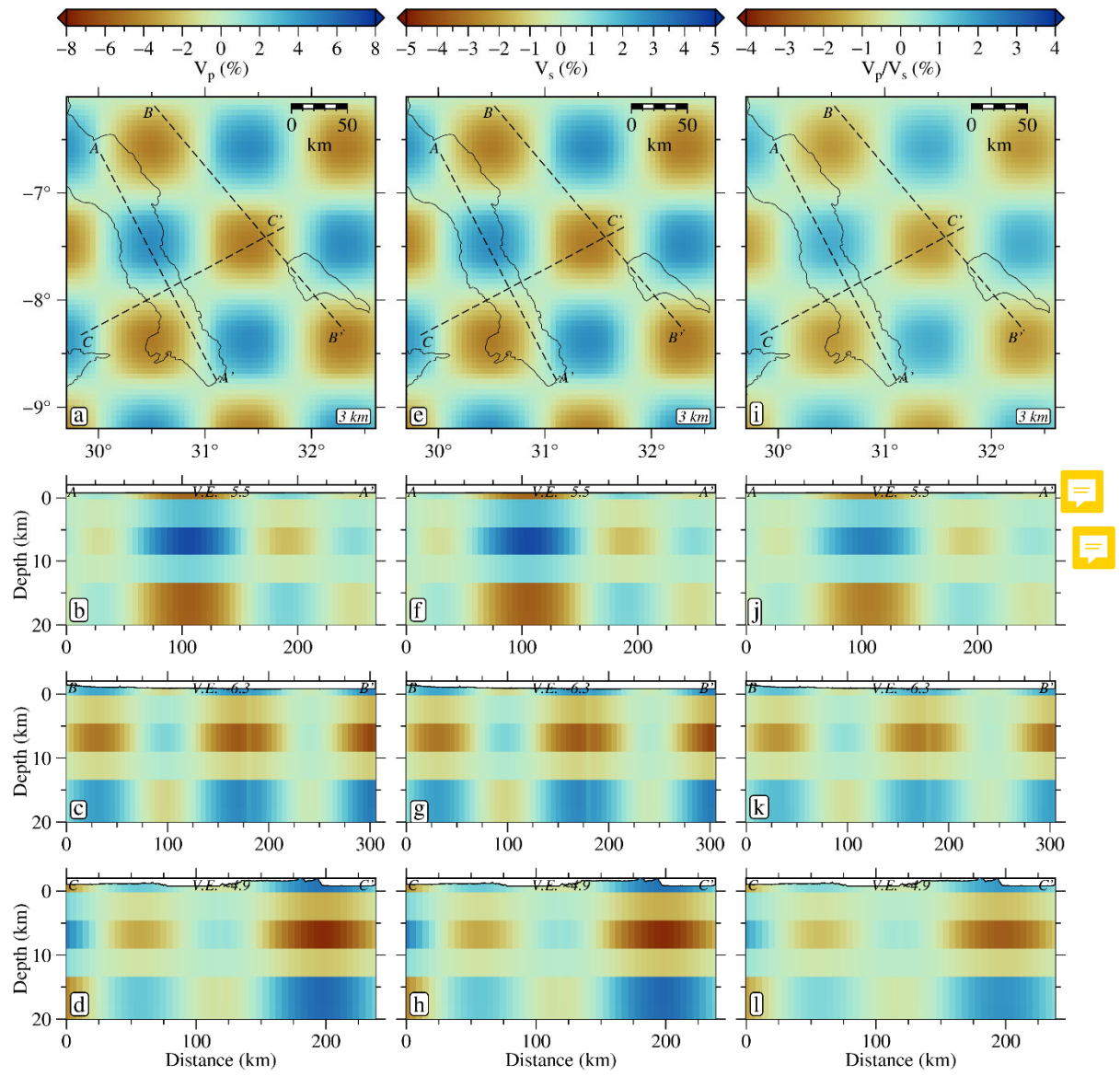


Figure S6. True synthetic model with 100 km x 100 km x 12.5 km checkers.

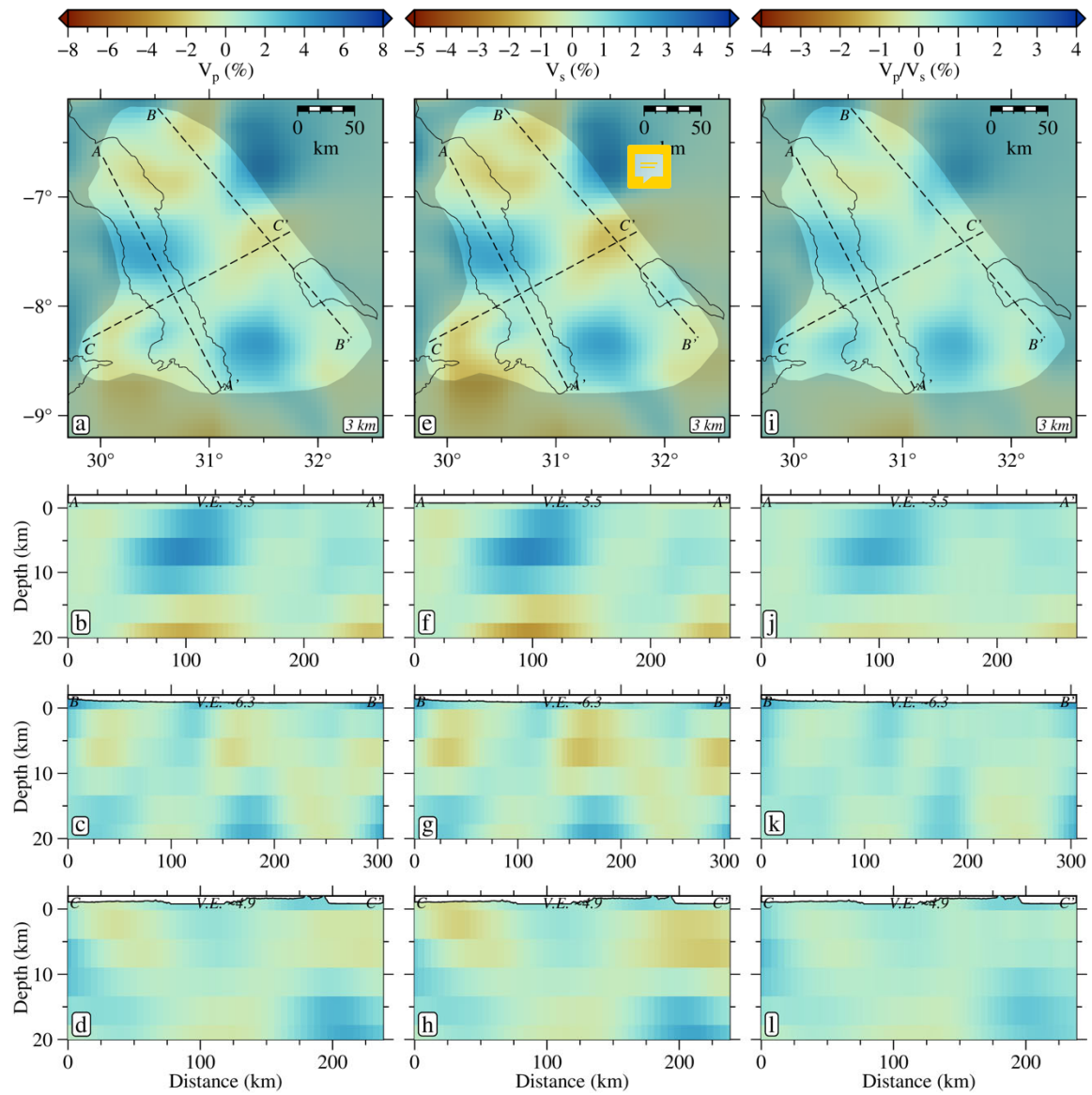


Figure S7. Recovered synthetic model with 100 km x 100 km x 12.5 km checkers. Unreliable areas of the models are lightly grayed out on the maps.

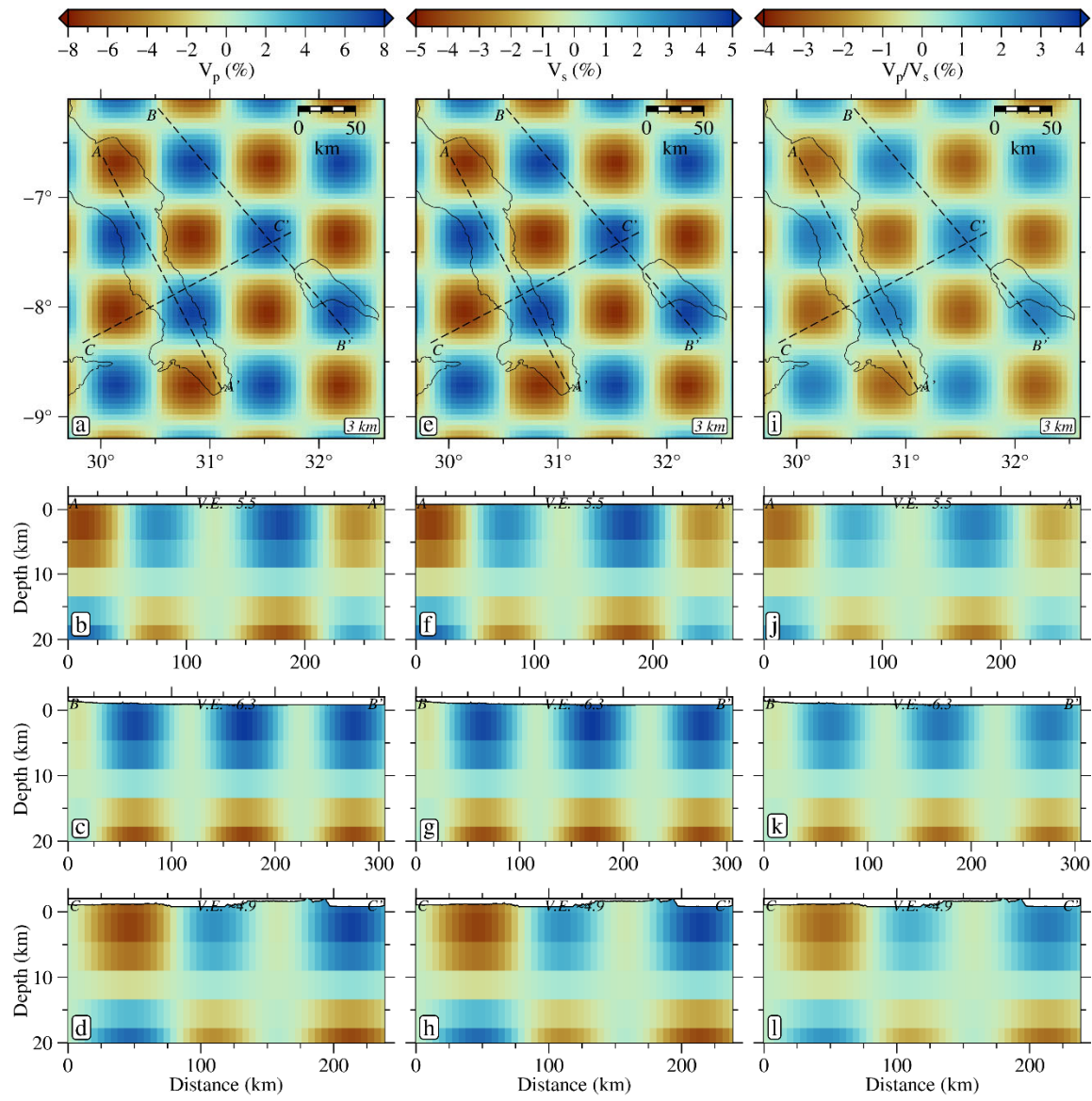


Figure S8. True synthetic model with 75 km x 75 km x 25 km checkers.

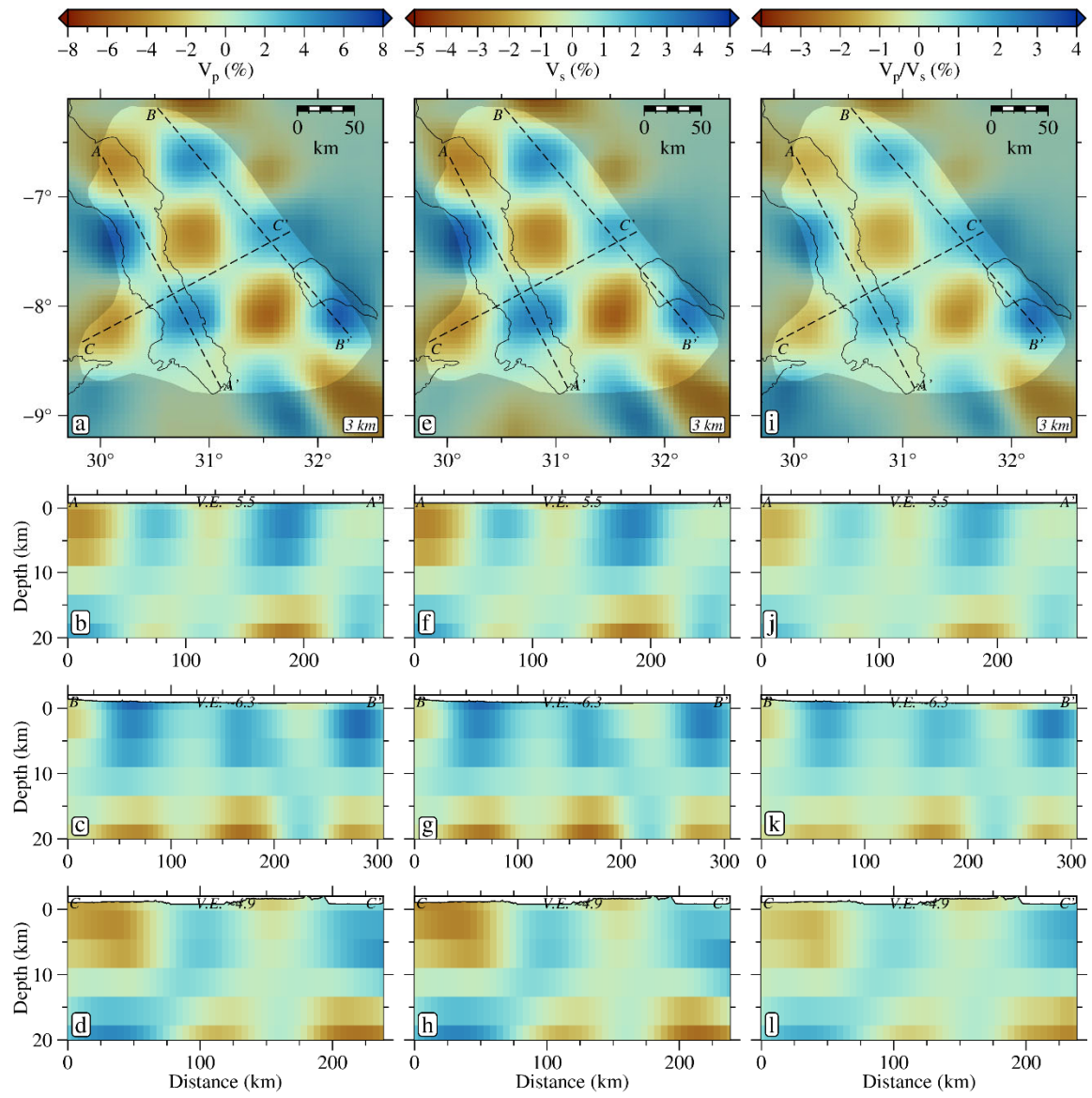


Figure S9. Recovered synthetic model with 75 km x 75 km x 25 km checkers. Unreliable areas of the models are lightly grayed out on the maps.

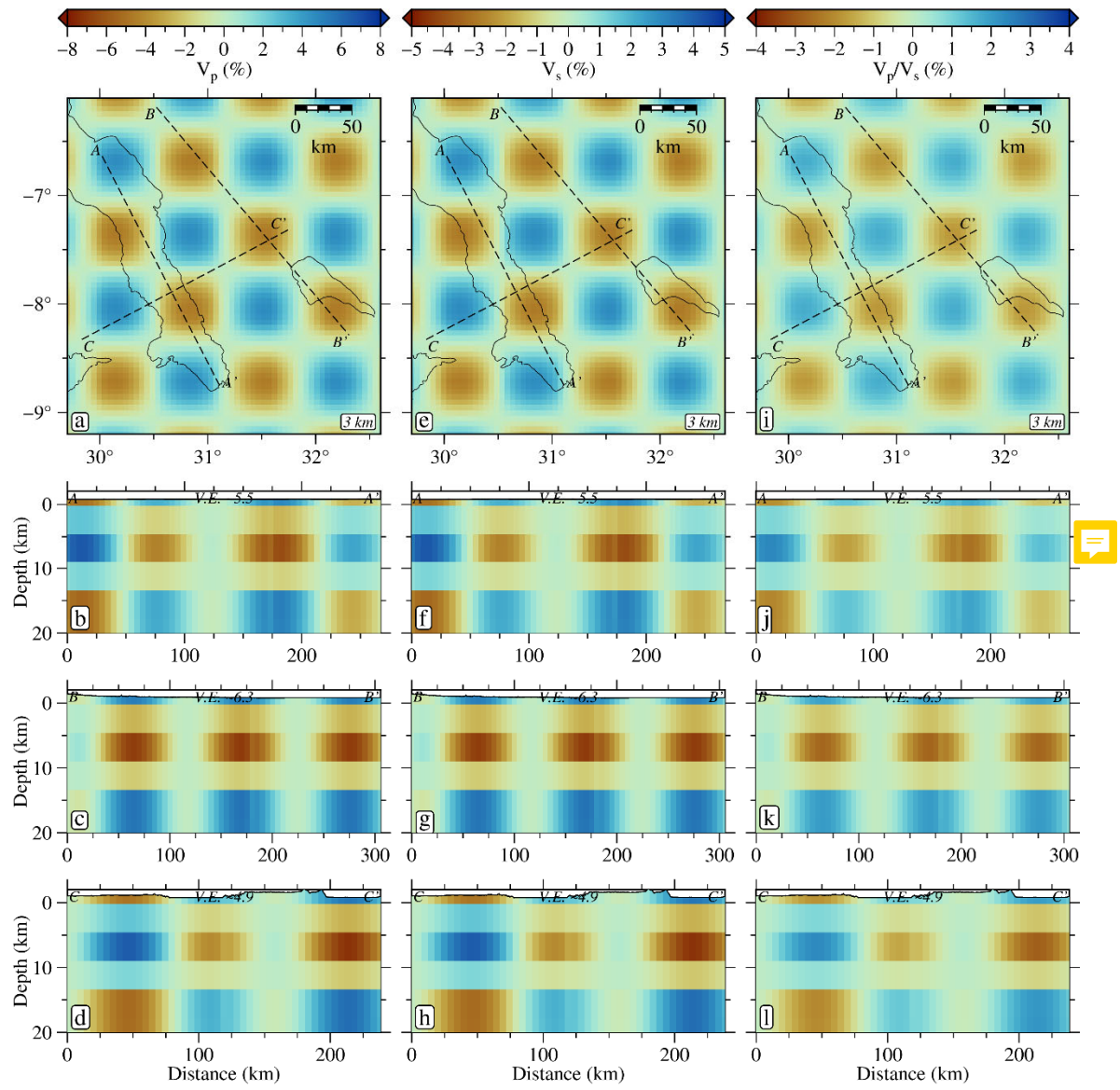


Figure S10. True synthetic model with 75 km x 75 km x 12.5 km checkers.

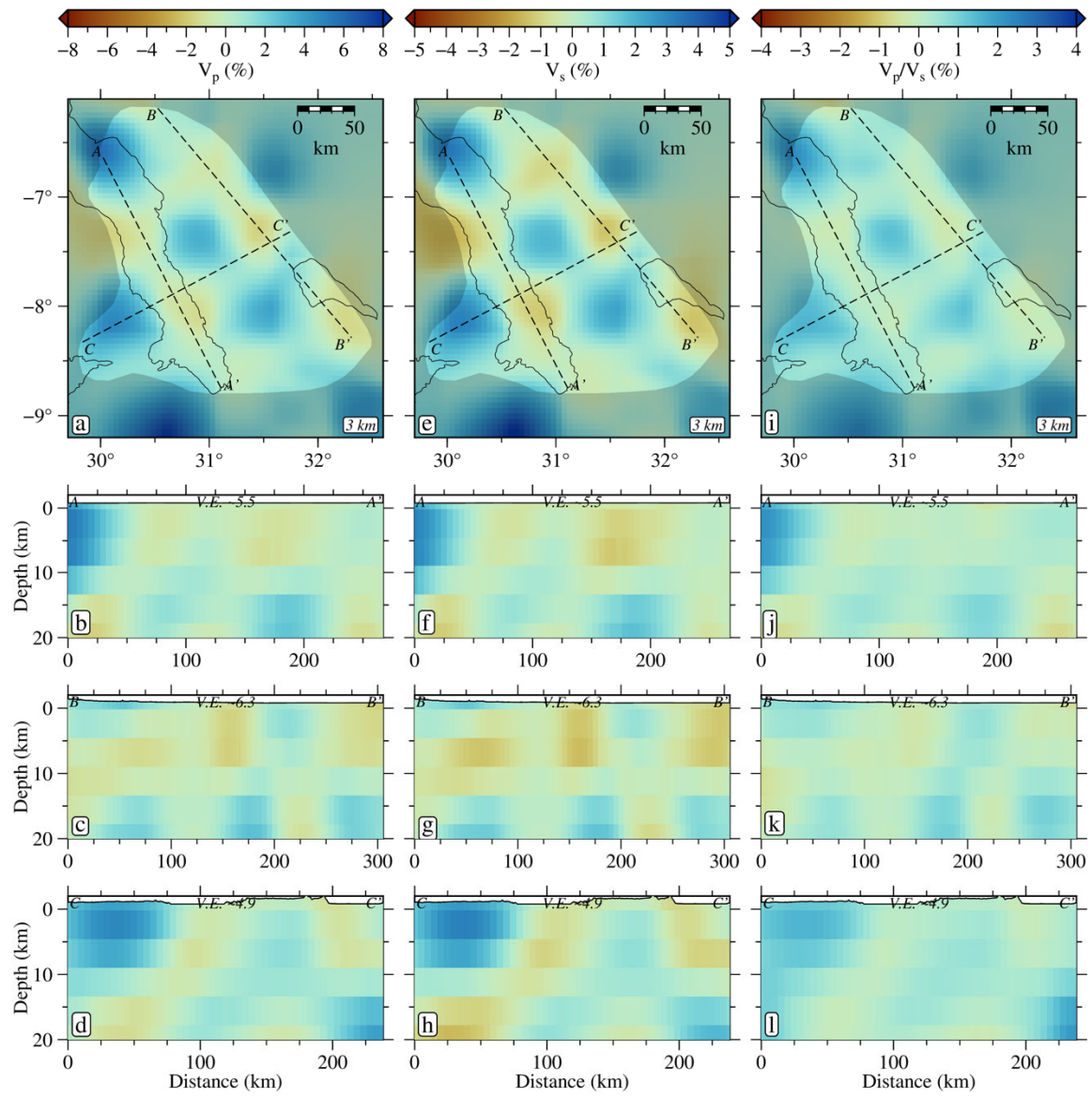


Figure S11. Recovered synthetic model with 75 km x 75 km x 12.5 km checkers. Unreliable areas of the models are lightly grayed out on the maps.

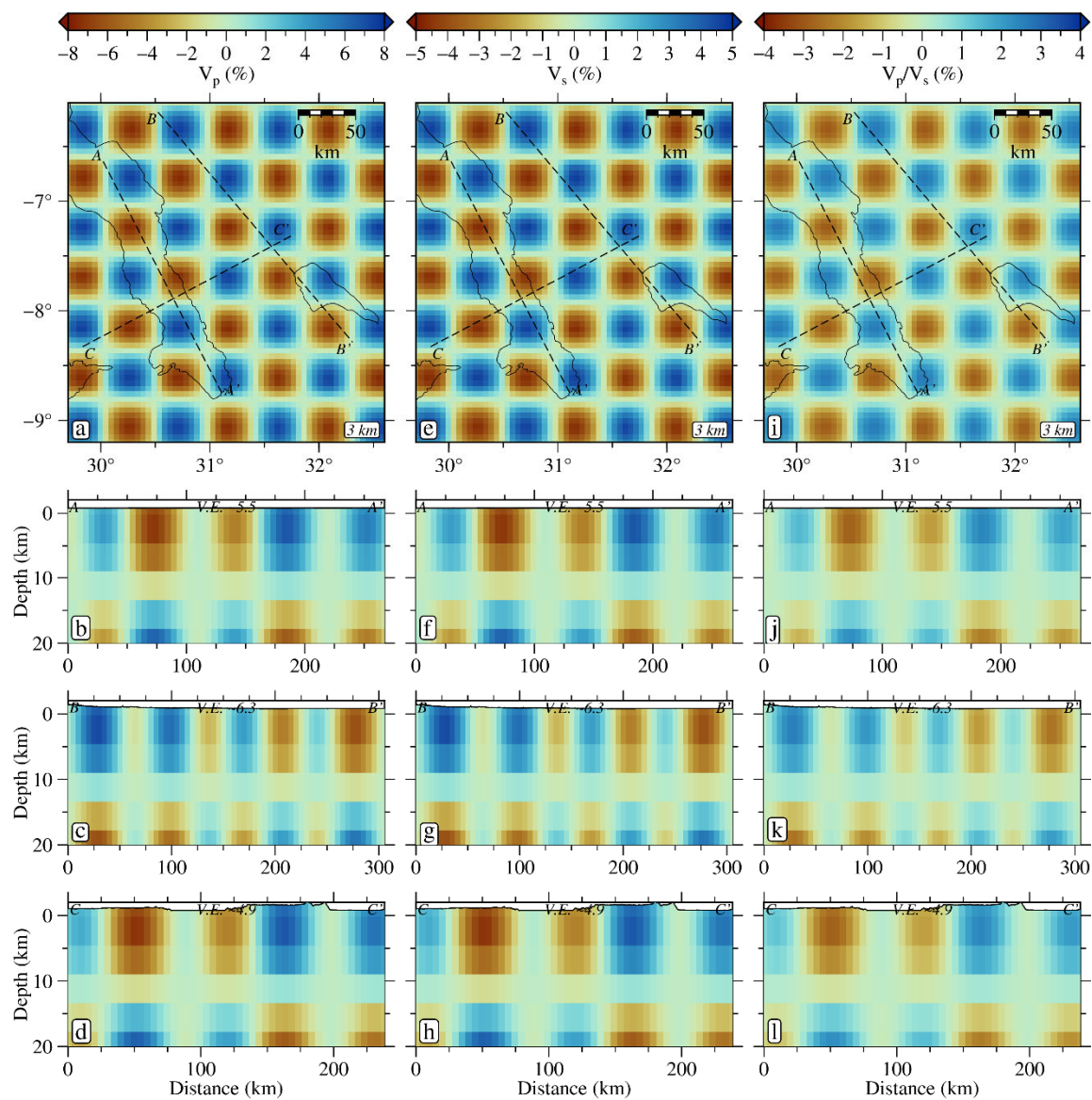


Figure S12. True synthetic model with 50 km x 50 km x 25 km checkers.

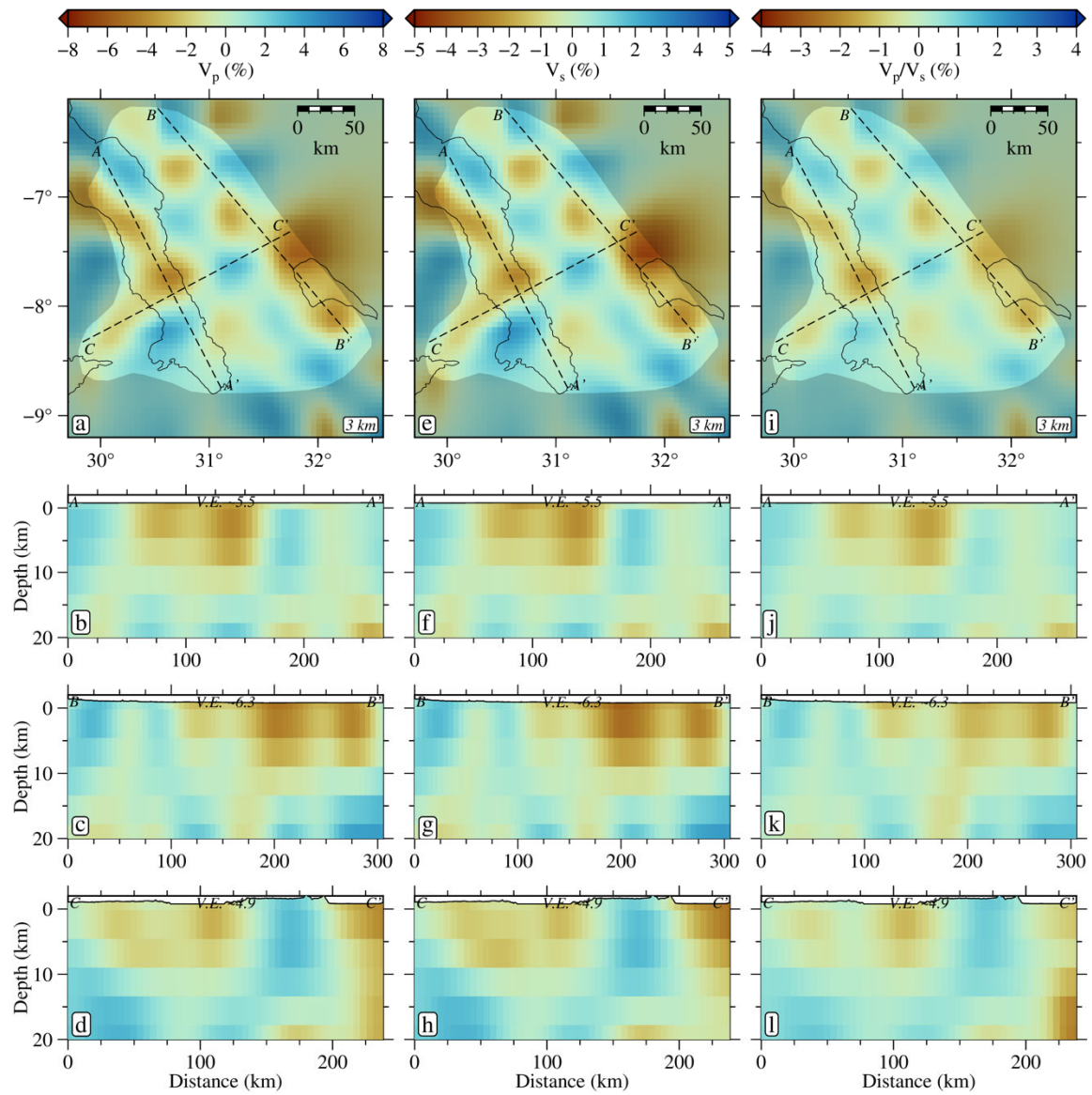


Figure S13. Recovered synthetic model with 50 km x 50 km x 25 km checkers. Unreliable areas of the models are lightly grayed out on the maps.

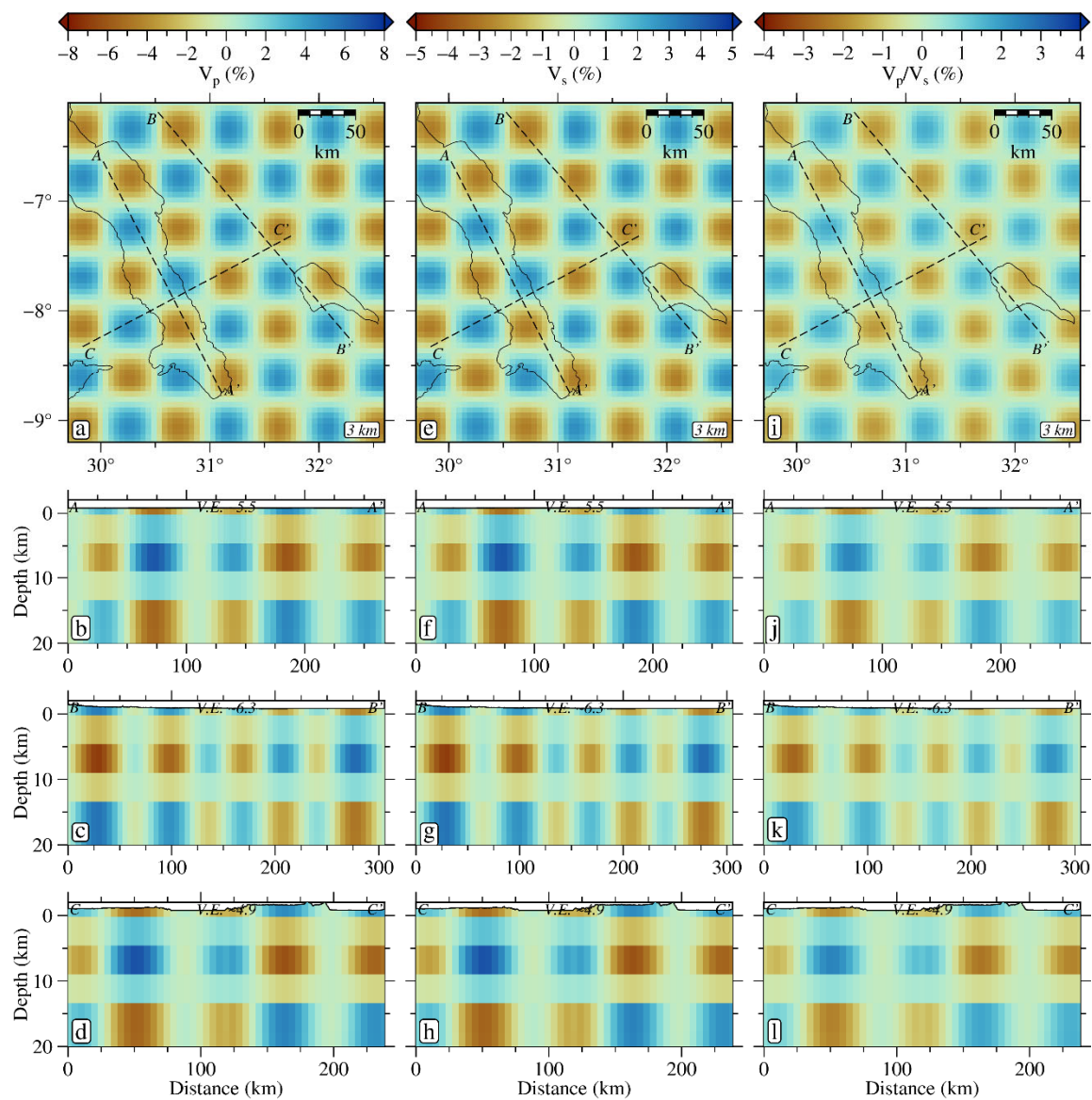


Figure S14. True synthetic model with 50 km x 50 km x 12.5 km checkers.

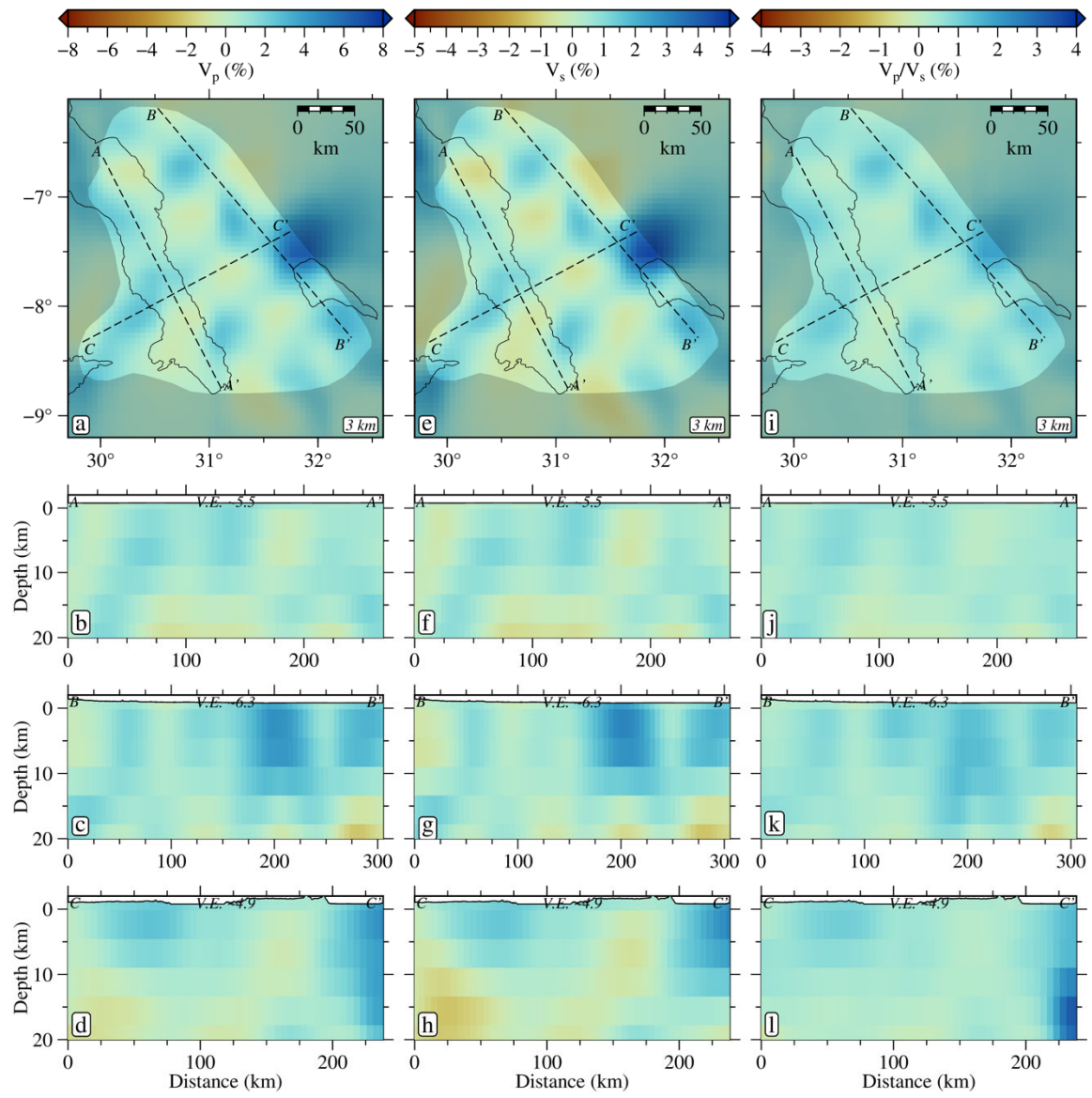


Figure S15. Recovered synthetic model with 50 km x 50 km x 12.5 km checkers. Unreliable areas of the models are lightly grayed out on the maps.

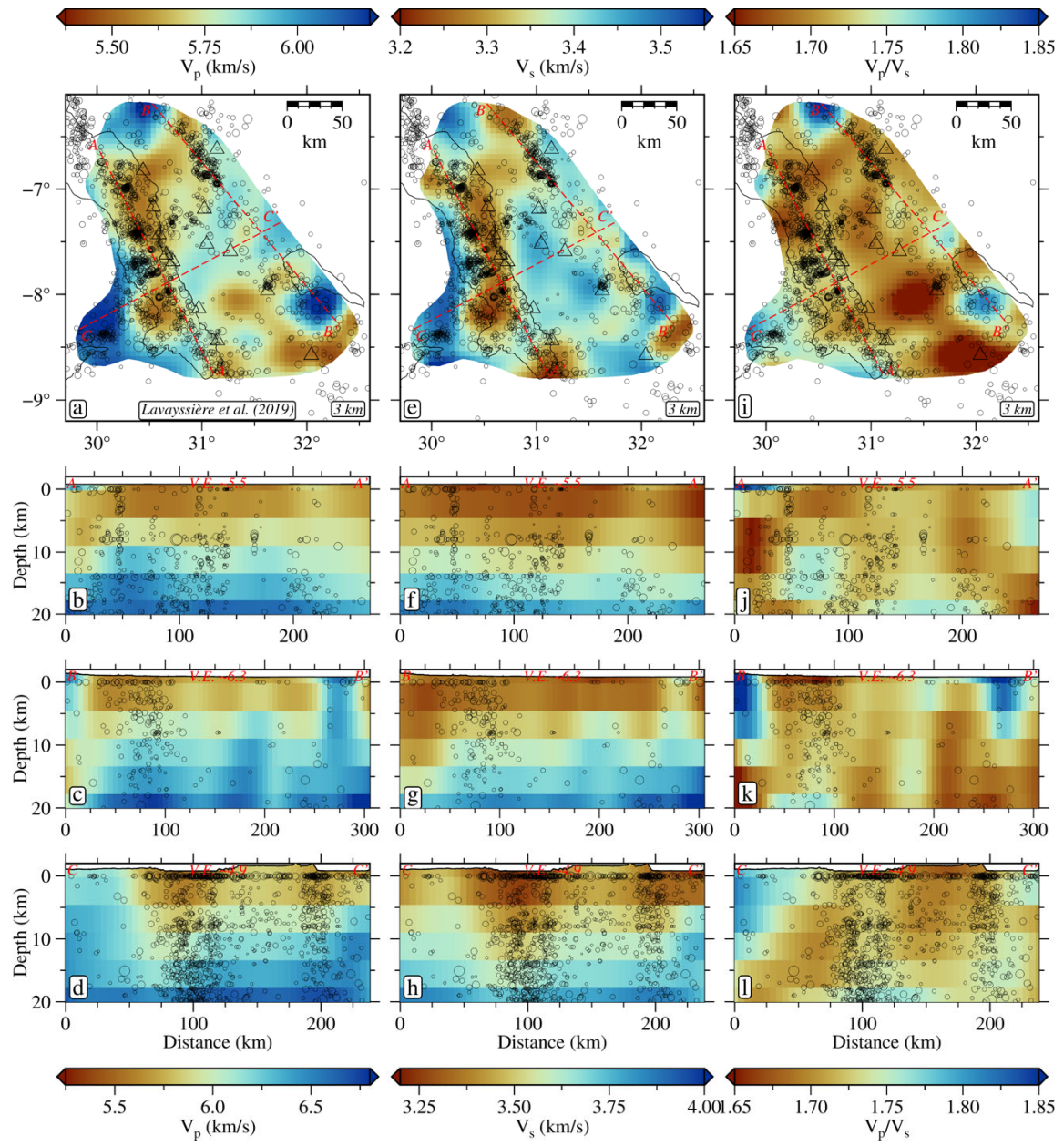


Figure S16. Same as Figure 3 in the manuscript but showing the absolute values of the model parameters rather than perturbations relative to the starting 1D models of Lavayssière et al. (2019).

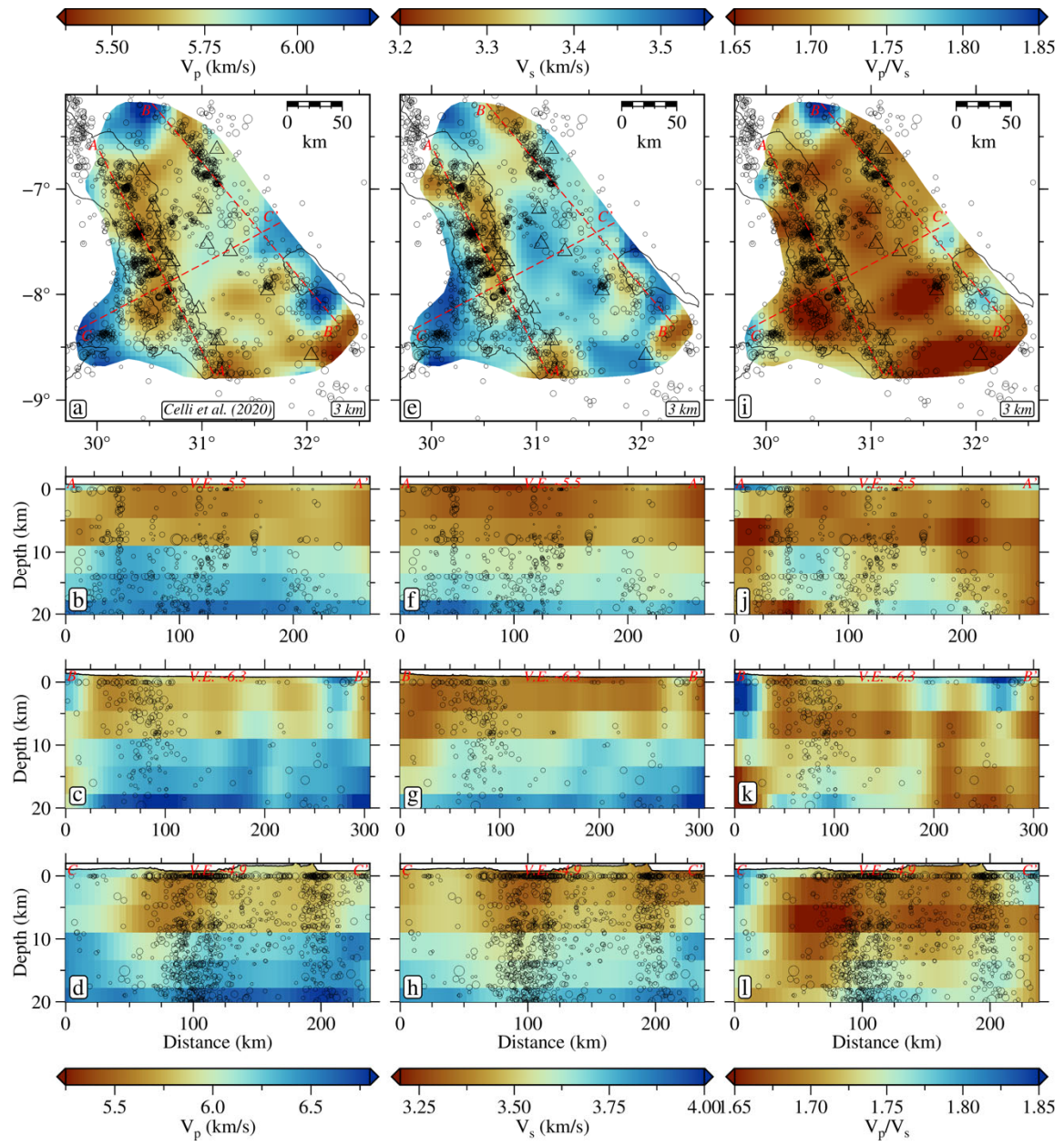


Figure S17. Inverted model results using the 3D regional P and S tomographic models of Celli et al. (2020) as starting models.

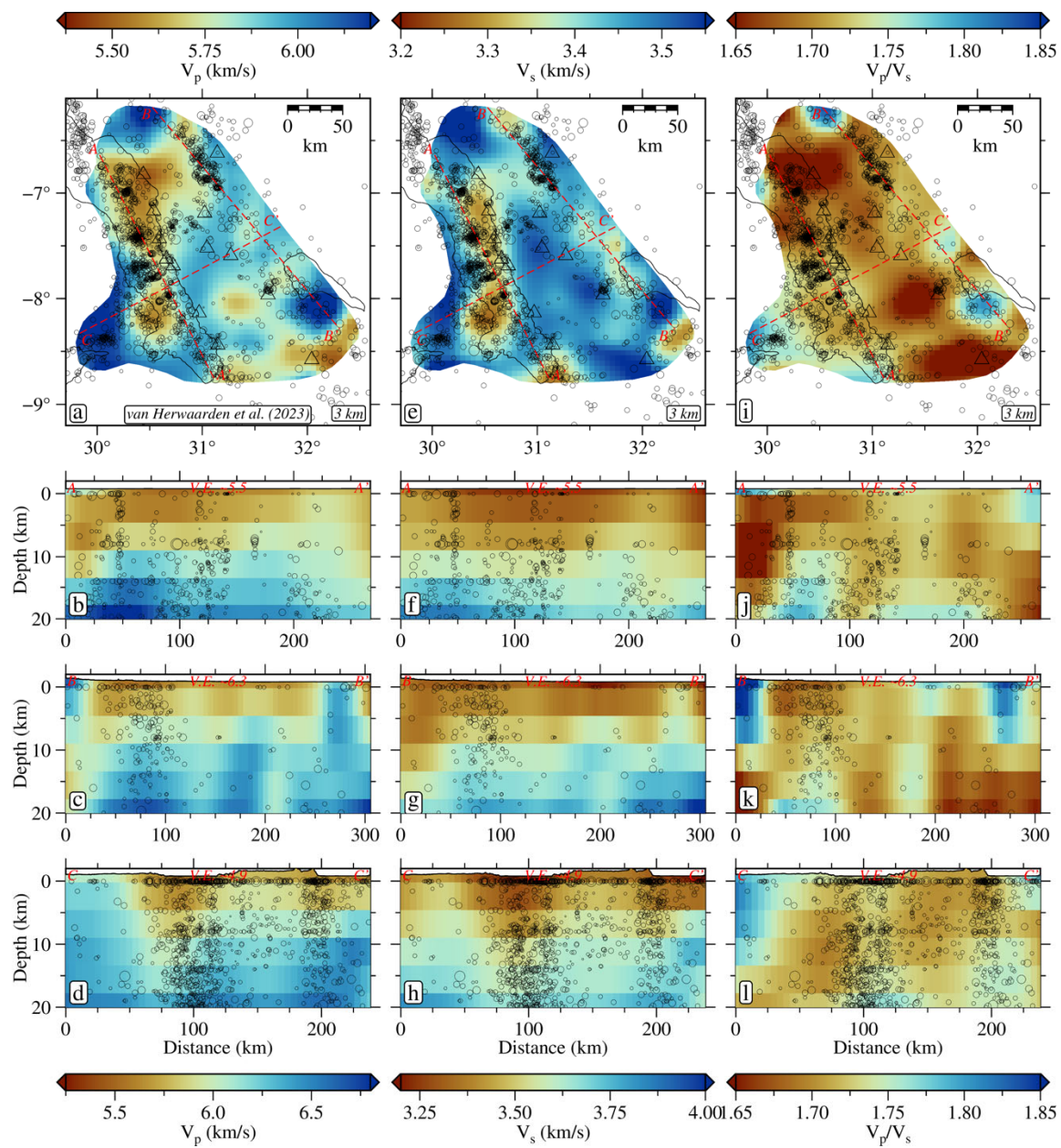


Figure S18. Inverted model results using the 3D regional P and S tomographic models of van Herwaarden et al. (2023) as starting models.

References

- Celli, N. L., Lebedev, S., Schaeffer, A. J., & Gaina, C. (2020). African cratonic lithosphere carved by mantle plumes. *Nature Communications*, 11(92), 1-10.
- Lavayssière, A., Drooff, C., Ebinger, C. J., Gallacher, R., Illsley-Kemp, F., Oliva, S. J., & Keir, D. (2019). Depth Extent and Kinematics of Faulting in the Southern Tanganyika Rift, Africa. *Tectonics*, 38, 842-862.
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