

Adjoint tomography for the Middle East

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Using [SPECFEM3D_GLOBE], we evaluate 3D models of the Middle East by computing full waveforms for several regional earthquakes. We measure traveltime shifts between observed broadband data and synthetic seismograms for distinct seismic phases within selected time windows using a recently developed automated measurement algorithm [FLEXWIN]. We take advantage of [SPECFEM3D_GLOBE] together with the package [ADJOINT_TOMO] in order to calculate the sensitivity to seismic structure of the traveltime measurements for all available seismic network recordings for a fully numerical 3D seismic tomography approach.

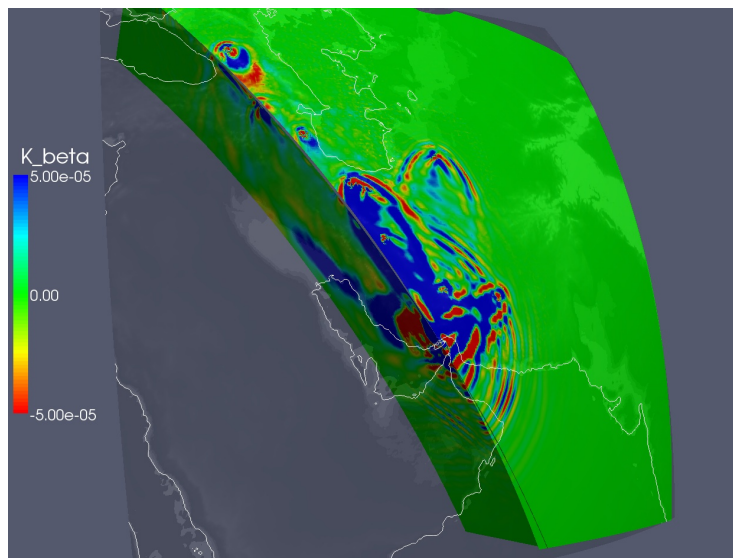


Figure 1: Shear-velocity event kernel for an earthquake in the strait of Hormuz recorded 2005 by several regional stations. Sensitivities are shown on a horizontal cross-section at 5 km depth and a vertical cross-section through the source and a station location down to a depth of 670 km.

References

- [1] Peter, D., A. Rodgers, B. Savage and J. Tromp, 2008. Adjoint tomography for the Middle East, AGU fall meeting 2008, paper presented.