Geophysical Research Abstracts
Vol. 14, EGU2012-2530, 2012
EGU General Assembly 2012

Workflow strategies and application to large-scale 3-D full-waveform inversion

A. Schiemenz and H. Igel
LMU Munich, Earth & Environmental Sciences, Geophysics, Munich, Germany (schiemenz@geophysik.uni-muenchen.de)

We present results of 3-D full-waveform inversion (FWI) utilizing a Python-driven workflow which incorporates the SPECFEM3D solver, a time-domain spectral element method, and the Obpsy software, a toolbox for computational seismology. We examine source encoding strategies, where multiple seismic sources are simultaneously excited, reducing in the number of required simulations per FWI iteration. Applications to synthetic case studies are presented which demonstrate a sensitivity of source encoding to source-receiver offset and number of encoded supershots. We detail workflow methodologies suitable for large-scale (i.e. many sources and receivers) FWI applications, as encountered in exploration geophysics problems in the marine environment.