Readme of LargeDataSeismic Matlab package

This package is adapted from Stuart Kozola's work "Large Data in MATLAB: A Seismic Data Processing Case Study" in The MathWorks Inc that can be downloaded from http://www.mathworks.com/matlabcentral/fileexchange/30585-large-data-in-matlab--a-seismic-data-processing-case-study but introduced some new features, including but not limited to:

1. Support simulations of Kirchoff migration and reverse time migration (RTM) and their visual demonstration
2. Support non-zero stimulating sources as shots
3. Support finite differences in both time-domain and frequency-domain
4. Support arbitrary high-order approximation of finite differences
5. Support sponge and CPML absorbing boundary conditions
6. Fixed lots of bugs from Stuart Kozola's original code

The purpose of this package is the simulation of seismic survey, data acquisition, and seismic imaging process. On the surface of a subsurface region one can generate waveforms at arbitrary locations as shots. Then the seismic data is collected by an array of sensors at arbitrary locations (on surface or in borehole). The package can do seismic imaging as well by pre-stacking Kirchhoff migration or reverse time migration of the data. Right now the package only works for 2D model. A 3D version is under construction.

The main entrance files are listed as follows

./LargeDataSeismic_CODE/mainRtmTimeSpongeFor2dAw.m simulates Kirchoff migration and reverse time migration (RTM) with 2-d acoustic wave in time domain with absorbing boundary condition (ABC) called Sponge

./LargeDataSeismic_CODE/mainRtmTimeCpmlFor2dAw.m simulates Kirchoff migration and reverse time migration (RTM) with 2-d acoustic wave in time domain with absorbing boundary condition (ABC) called Nonsplit Convolutional-PML (CPML)

This file is still kept updating.

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