Finite difference modeling in Anisotropic media
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Modelling seismic wave with finite difference is a important tool to explore seismic response of anisotropic and fractured media as well as to validate model parameter inversion algorithms. General seismic modelling are limited to 2D/3D acoustic media, 2D/3D isotropic media or 2D anisotropic media. 3D anisotropic modelling in large scale is still rare due to its computational challenge. This study have examined three different staggered grid finite difference approaches (standard staggered grid, rotated staggered grid, and diamond staggered grid) and identified their suitability and computational requirements for modelling seismic in anisotropic media, which is able to help geophysicists to understand which is the best option for modelling in certain anisotropic media. Meanwhile, some modification of their implementation are made to accelerate the computation and a tool package is developed for anisotropic modelling.

Bio sketch:

I finished my PhD in Geophysics on seismic anisotropy in Edinburgh University in 2011.
I worked as a geophysicist on seismic inversion, reservoir characterisation and software development from 2011 to 2014.
I started as a research associate in Imperial from 2014 and my current projects is related to seismic modelling, seismic inversion, reservoir characterisation and data processing.