FD\_seis\_sim is a free, open-source Matlab software package including a GUI and various functions to simulate the propagation of a seismic wavefield on any arbitrary 3D volume, using the 2nd or 4th order staggered grid scheme (e.g. Graves, 1996; Moczo et al., 2004). It is possible to use point or finite sources (fault surfaces) and to incorporate constant or frequency dependent 3D attenuation (Robertsson, 1994; Bohlen, 2002) in the simulations. The algorithms were developed in MATLAB language and are compatible with MATLAB R2016a and later versions. Compatibility with older versions has not been tested.

Hardware requirements: Any system capable of operating MATLAB (2016a and later). A GPU with CUDA cores in order to enable GPU processing (significantly increases simulation speed).

To use the software:

-Start MATLAB and add the directory of the scripts in the MATLAB path.

Use the function FD\_seis\_sim with the 3D Vp, Vs and density models, followed by the X,Y,Z node locations as input (e.g. FD\_seis\_sim(Vp,Vs,rho,X,Y,Z)). Optionally, a 2D topography grid and the corresponding node locations can be added as input (e.g. FD\_seis\_sim(Vp,Vs,rho,X,Y,Z,elevation,X\_elev,Y\_elev)). 3D attenuation grids can also be used as input to FD\_seis\_sim (see manual for details).

Suggestions and bug reporting: aggelmo@noa.gr

References:

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