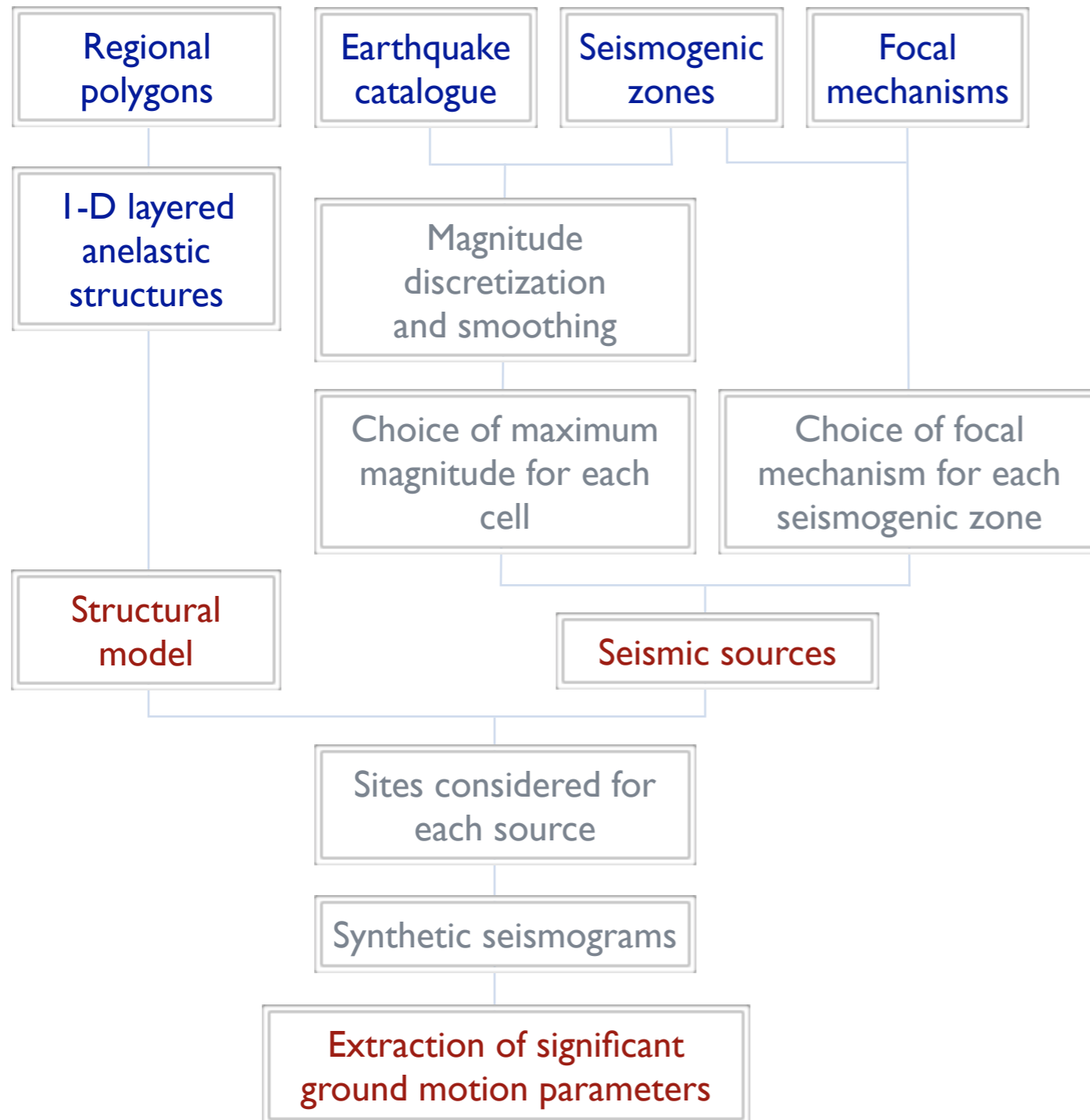


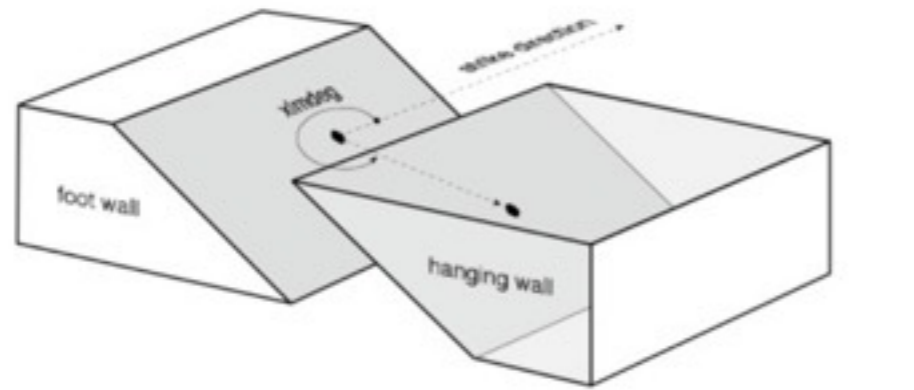
Regional Scale - NDSHA at 10 Hz



- Seismic zonation based on the computation of synthetic seismograms on the nodes of a grid that covers the study area
- Average structural properties
- **Kinematic** source model
- Cut-off frequency **10 Hz**
- Maps of peak displacement, velocity and **acceleration**

Source models

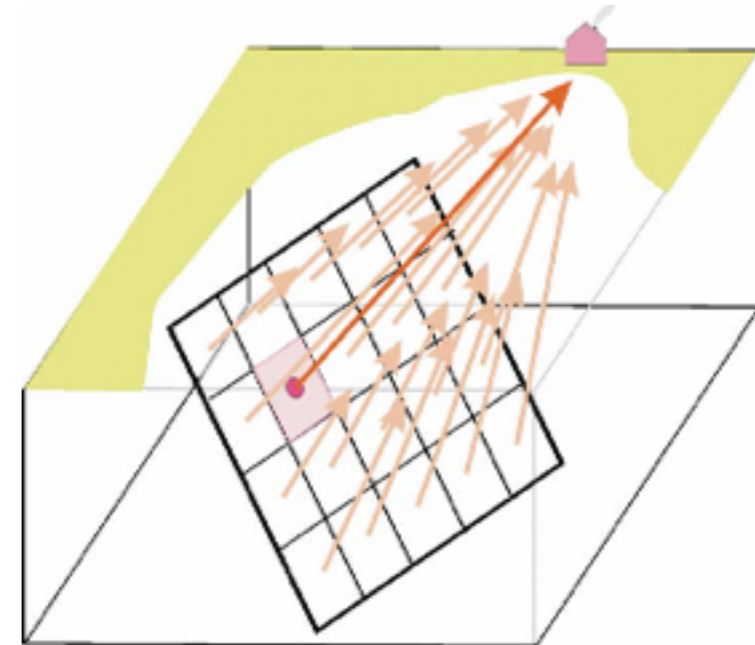
Method DWN (Pavlov, 2002)



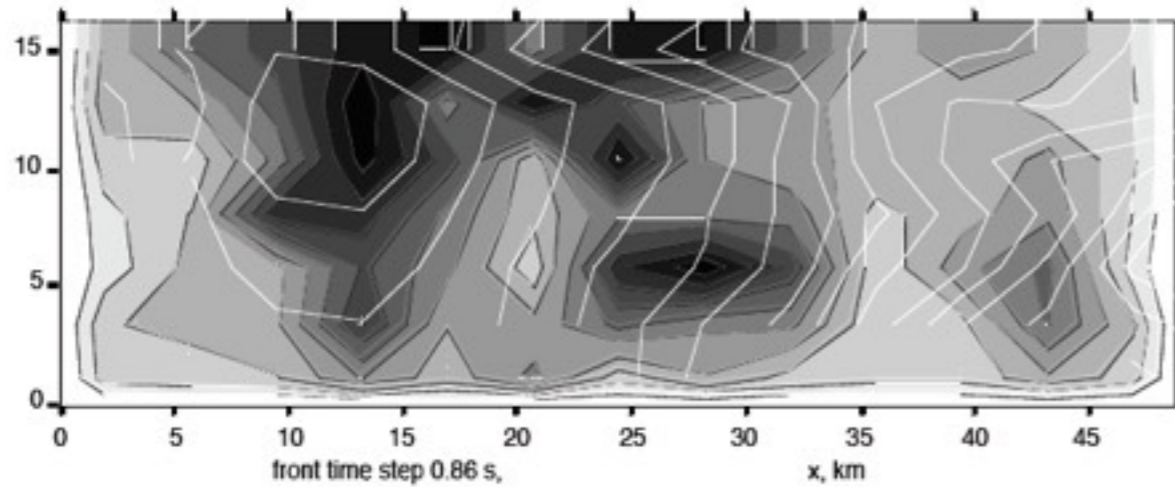
Point source approximation



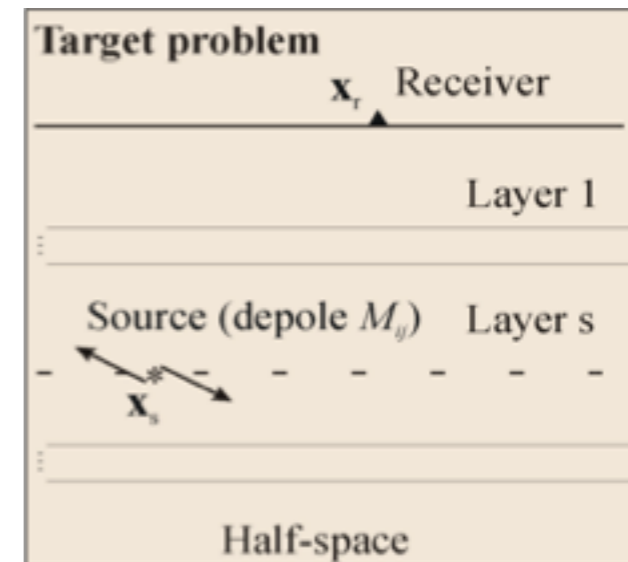
FPS and radiation pattern



Extendend source kinematic model



2-dimensional final slip distribution over a source rectangle

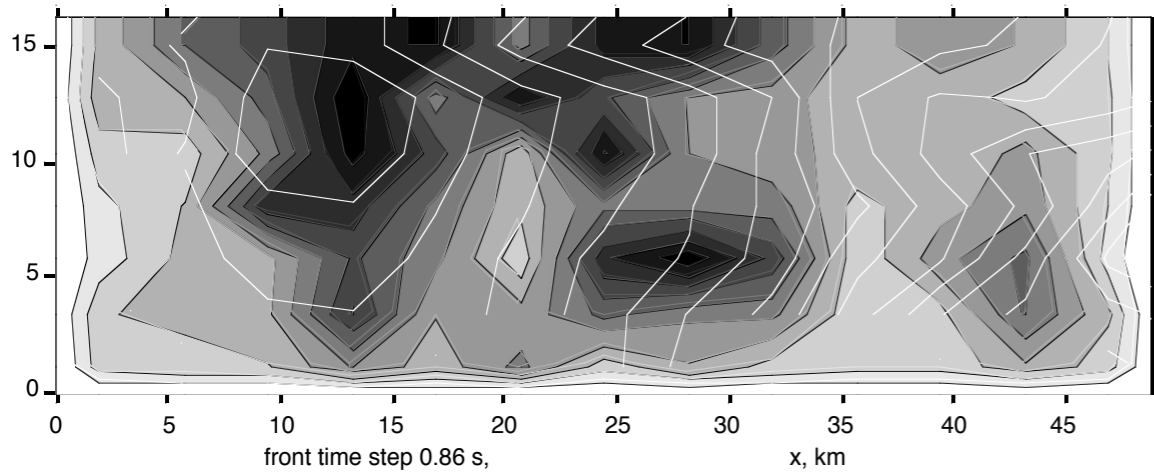


Computing time: about 1 hour for a 10Hz signal 40 s long (using 200 sub-sources)

10 Hz - Source definition



Source kinematic model



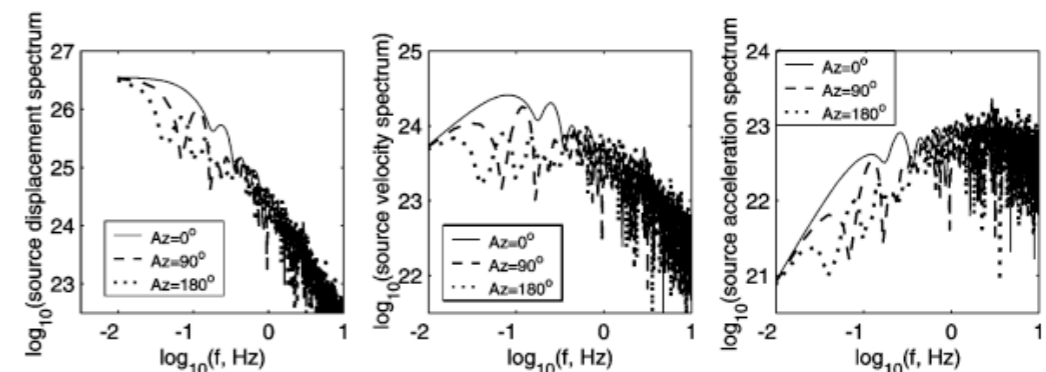
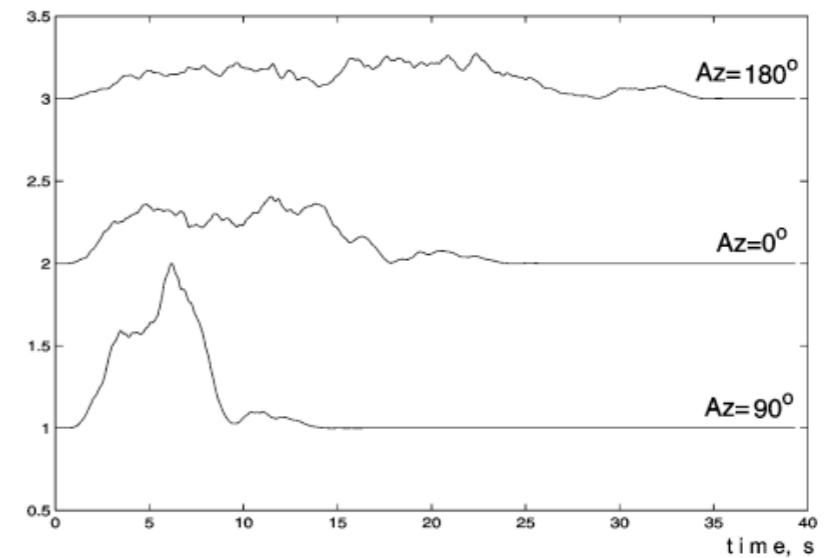
2-dimensional final slip distribution over a source rectangle, shown as a density plot ($M_w=7.0$).

Rupture front evolution was simulated kinematically from random rupture velocity field.

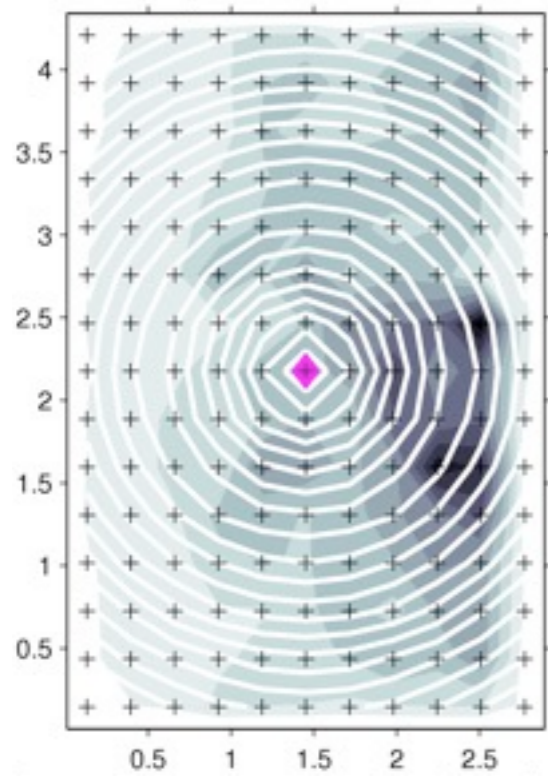
(Gusev, 2010)

Far-field source time histories and their spectra.

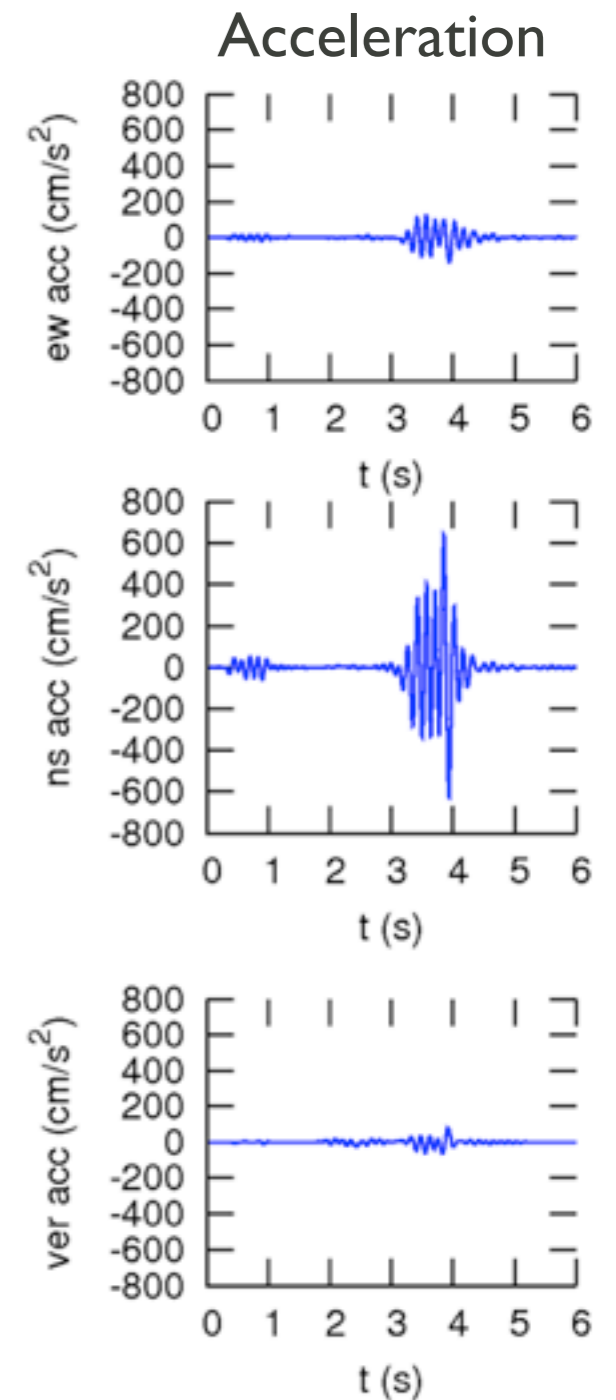
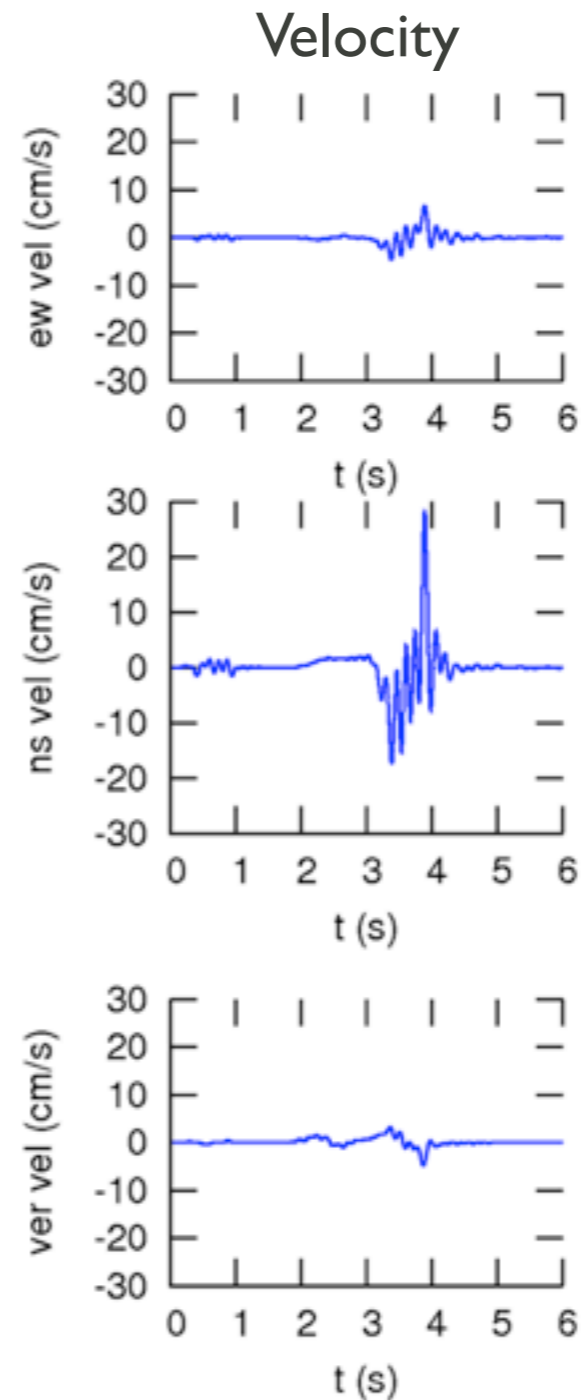
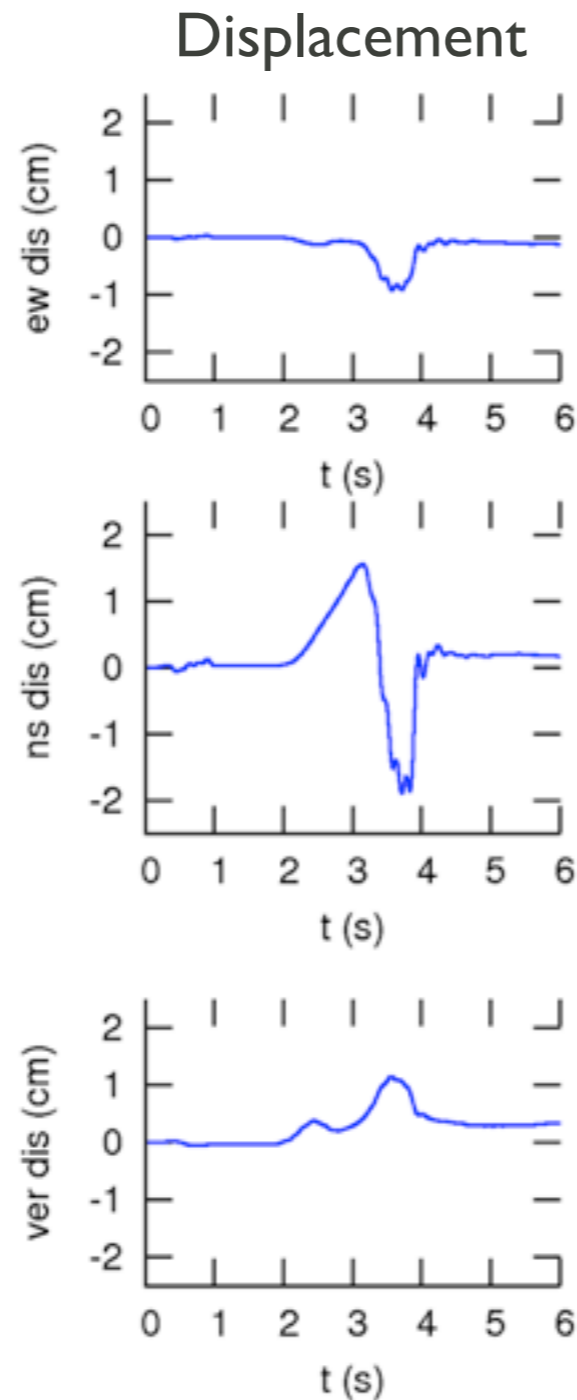
“Displacement” far-field functions (arbitrary scale) for the simulated case of mostly unilateral rupture propagation



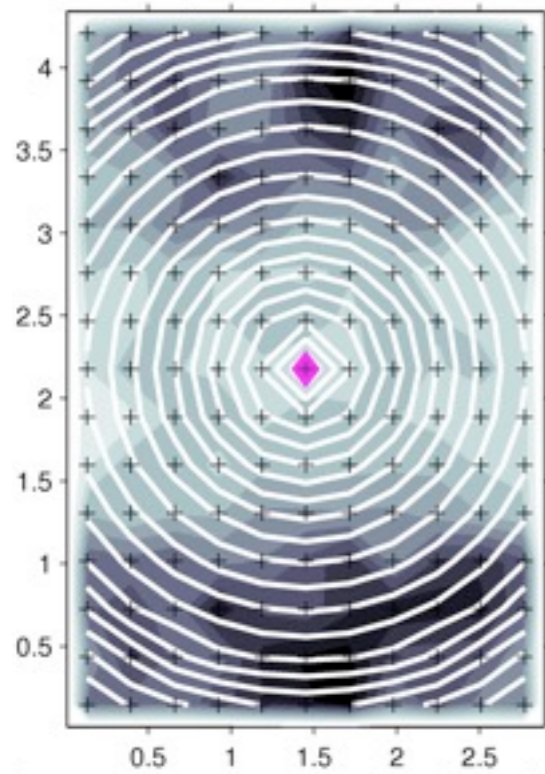
10 Hz - Example I



One examples (realization 123) of the 2D final slip function, shown as density over the fault plane. The purple square is the nucleation point. White contours are successive rupture front positions, simulated kinematically from random rupture velocity field. Crosses are positions of point subsources.



10 Hz - Example 2



One examples (realization 155) of the 2D final slip function, shown as density over the fault plane. The purple square is the nucleation point. White contours are successive rupture front positions, simulated kinematically from random rupture velocity field. Crosses are positions of point subsources.

