

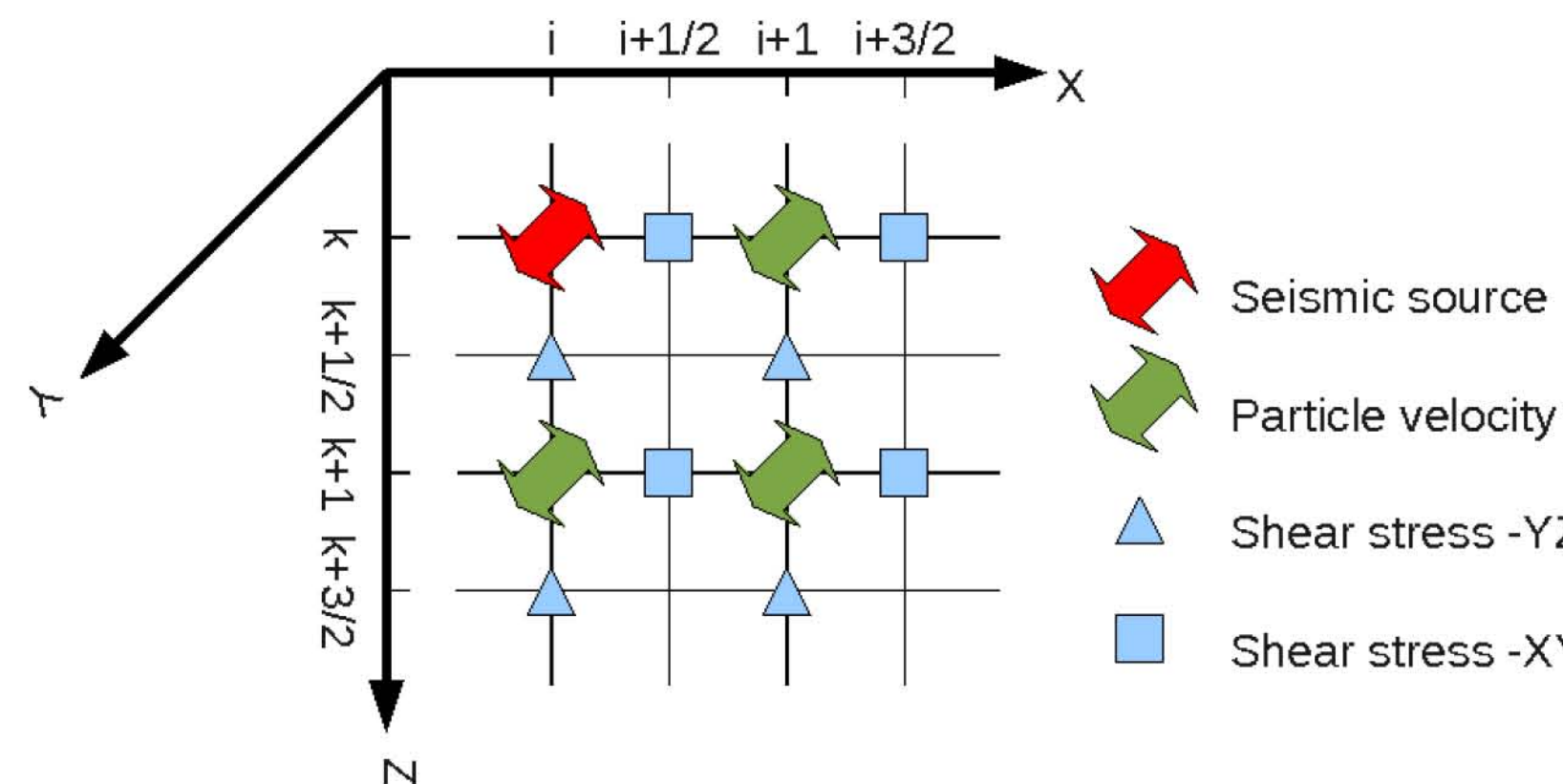
SH wave modelling by a staggered-grid method

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SH modelling method

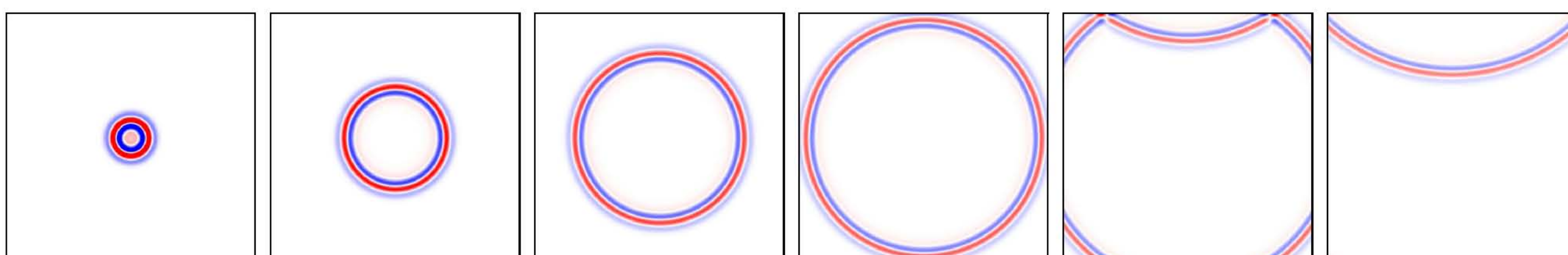
- A staggered grid for SH modelling



- The surface boundary condition is $\sigma_{23} = 0$.
- A method of combining absorbing boundary conditions (Clayton, 1977) and the nonreflecting boundary condition (Cerjan, 1985) is applied to the sides and bottom of subsurface models

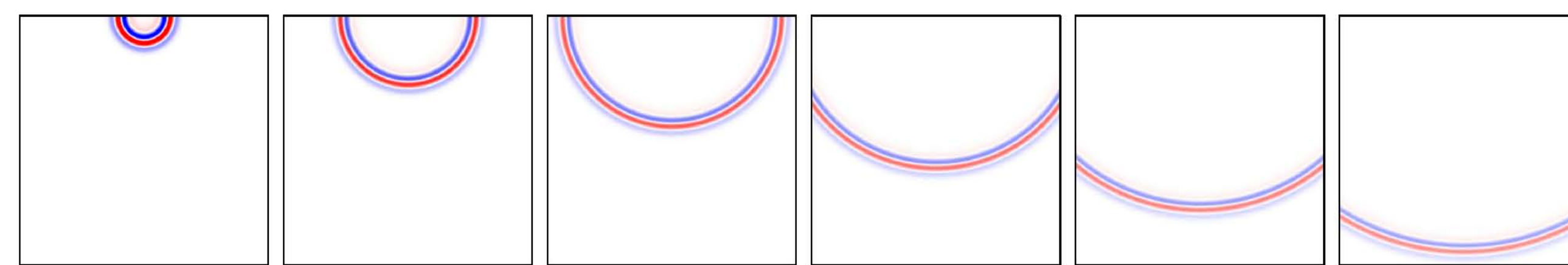
Boundary conditions

- With a buried seismic source in a homogenous media, implementation of the free surface and computational boundaries at the bottom and the sides are proved to be working correctly.



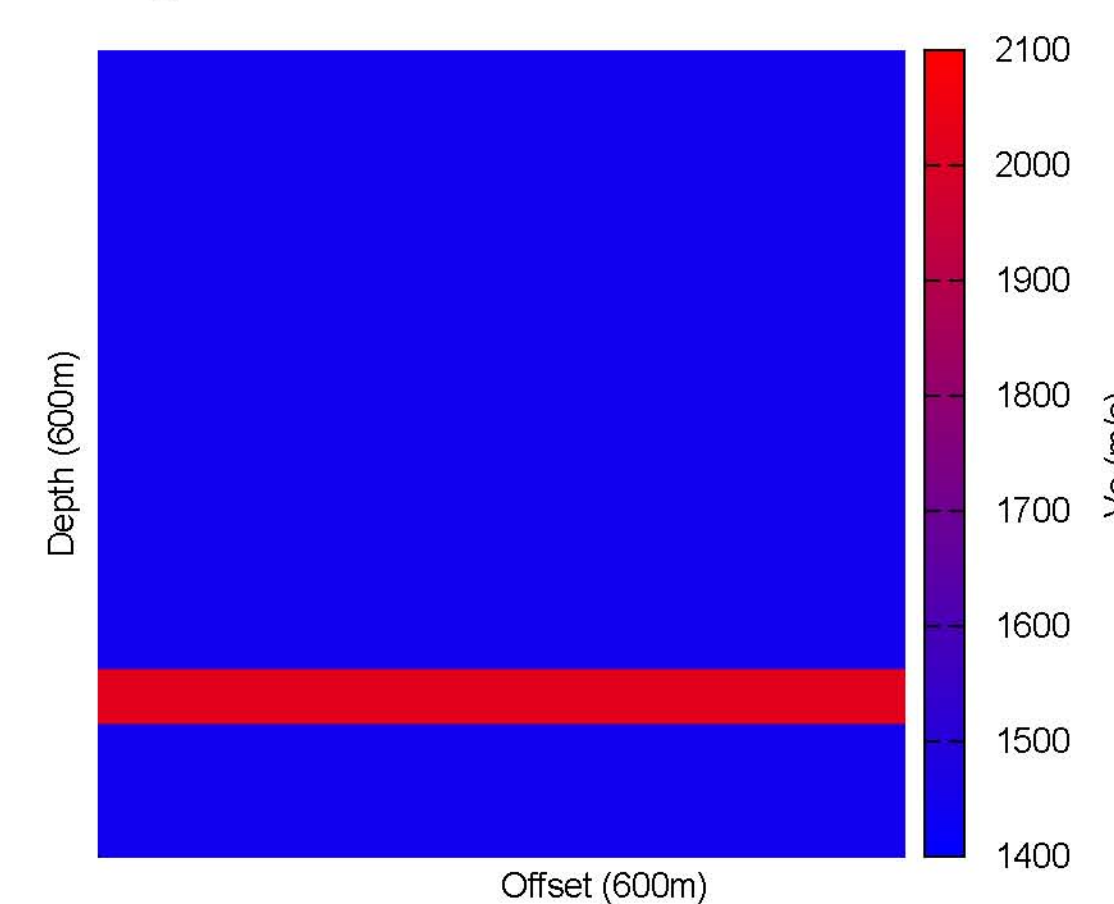
Surface seismic source

- Wave propagation velocity is measured to be correct.
- the amplitude scales as $\frac{1}{\sqrt{\text{distance}}}$. This is different from the spherical wave, which scales as $\frac{1}{\text{distance}}$.
- There is no surface wave generated in the homogeneous medium.

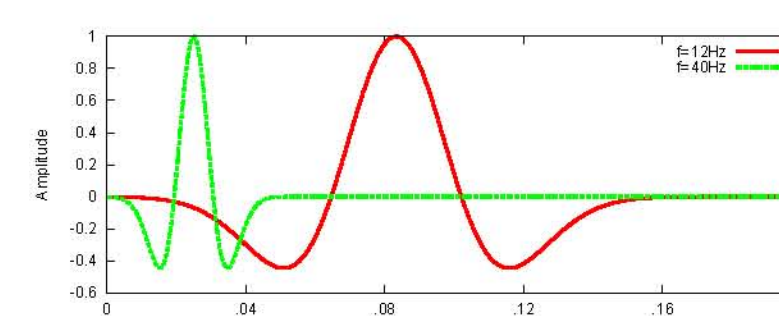


Seismic resolution

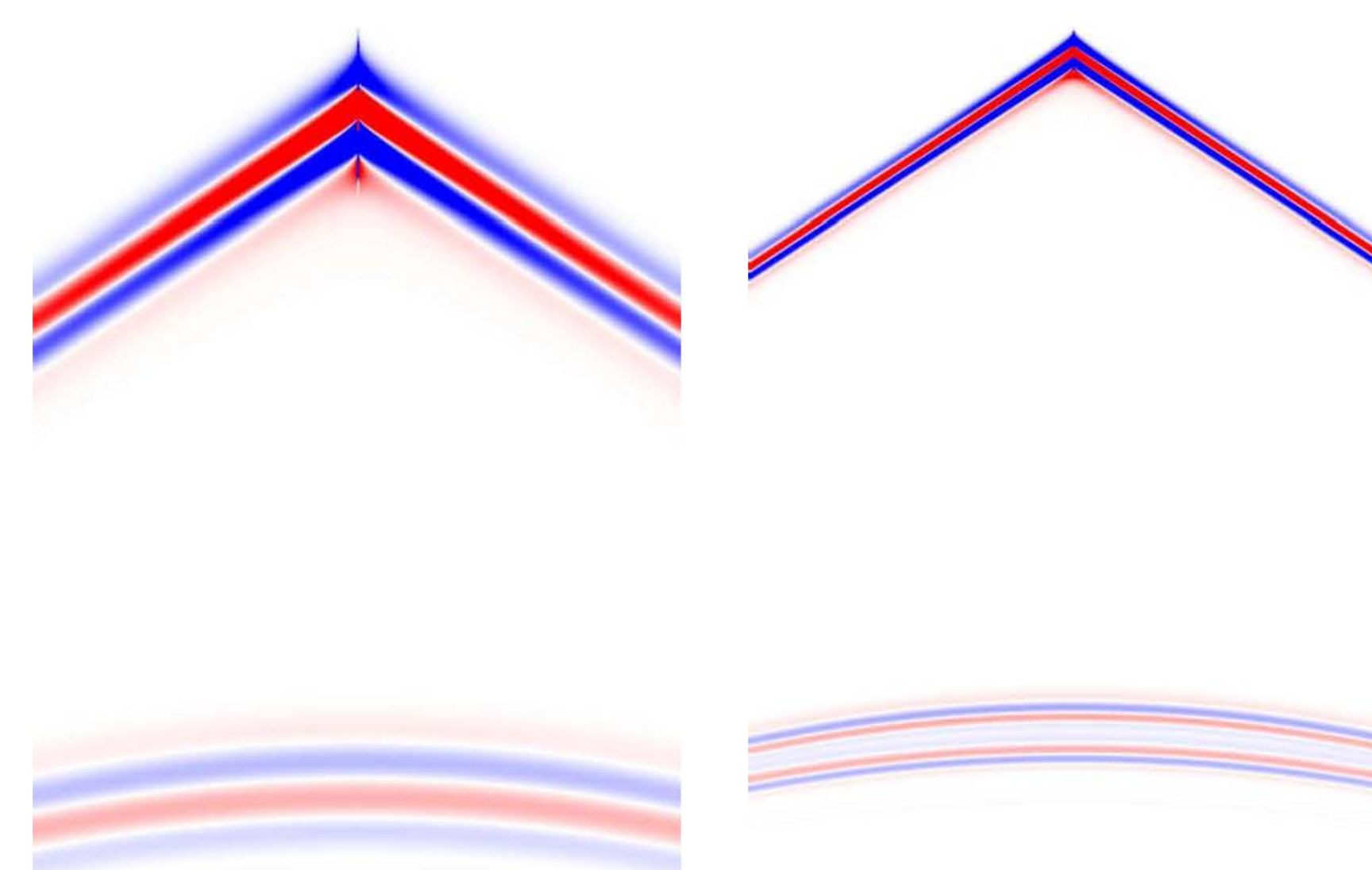
- A thin layer model



- Source frequencies

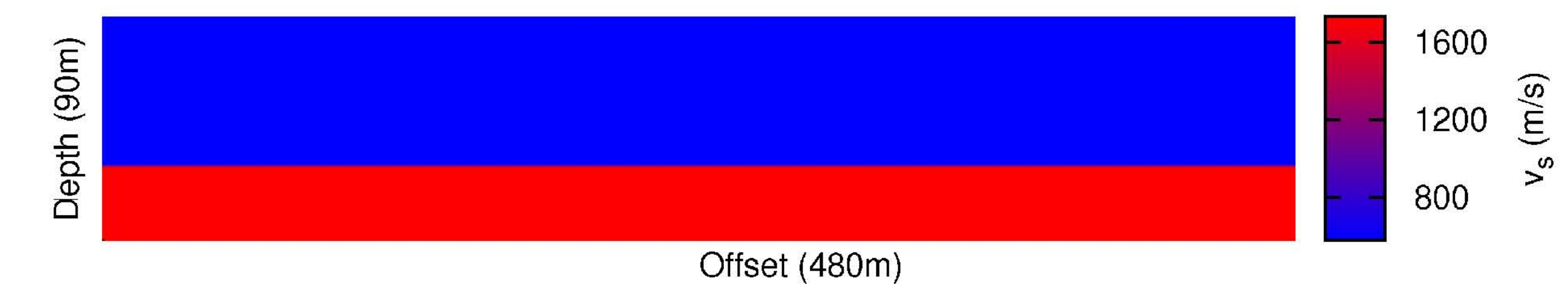


- Surface records



Guided SH waves

- A surface layer subsurface model



- Snapshots in time order show guided SH waves

