Ex1 FD

(1) Physical conditions:

Homogenous elastic medium

Wave velocity: 340m/s

Dominant frequency: 34Hz

Length of Bar: 1000m

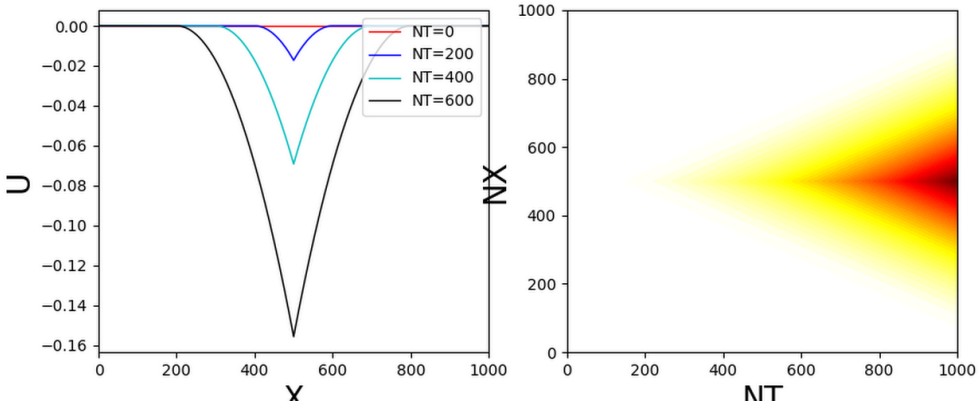
dx: 1m

dt: 1.47e-3s

Number of time points: 1001

Source: Gaussian time function

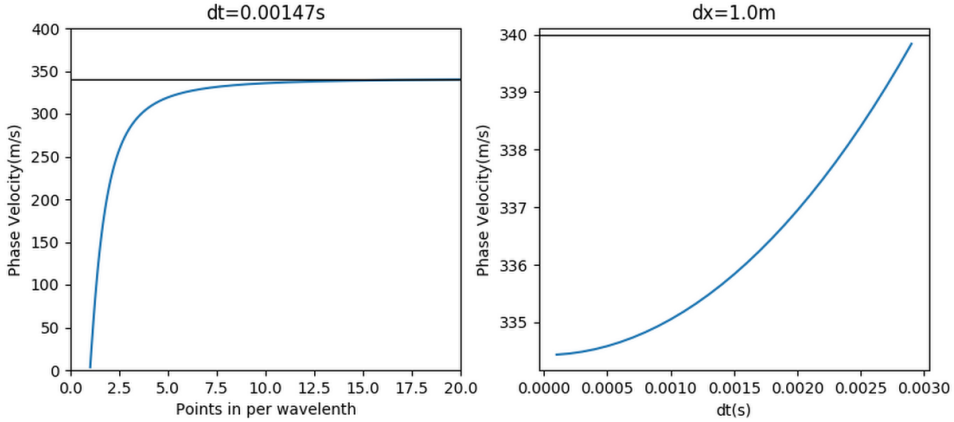
Simulation Result:



U-pressure distribution

Dynamic Effects: see ***result.gif***

(2) Numerical Dispersion



It can be easily concluded that **dx** is the dominant parameter in determining the numerical dispersion, while **dt** has merely finite effects on it.

dx is negatively correlated with phase velocity, this correlation turns to fade off as dx decreases.

dt is positively correlated with phase velocity, but dt has a maximum threshold value.

EX2 SEM

Mesh:
Element: 100*16
Lenx: 100000
Lenz: 32000
Source:
Dominant frequency: 1Hz
Time function: Ricker
Position: +25000,32000 (Surface)
Receiver:
Num: 20
Homogenous between:
0 0
100000 0
Elastic Medium

(1) Uniform Model
Medium:
Bottom Rho Vp Vs
0 2860.d0 6600.d0 3600.d0

(2) 3-layer Model
Medium:
Bottom Rho Vp Vs
0 2860.d0 6600.d0 3600.d0
12000 2780.d0 6300.d0 3650.d0
22000 2740.d0 6100.d0 3550.d0