Your assignment is to modify an acoustic finite-differences modeling program by including the density term in the acoustic wave equation. The program `AFDM.c` implements time-domain finite-differences modeling for the constant-density acoustic wave-equation. Your task is to add the density term to this program. Refer to the course slides for details about what needs to be added and where. Add comments in the code to indicate your modifications.

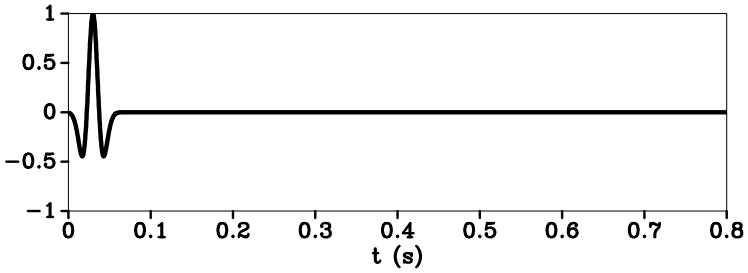

Figure 1: Wavelet.

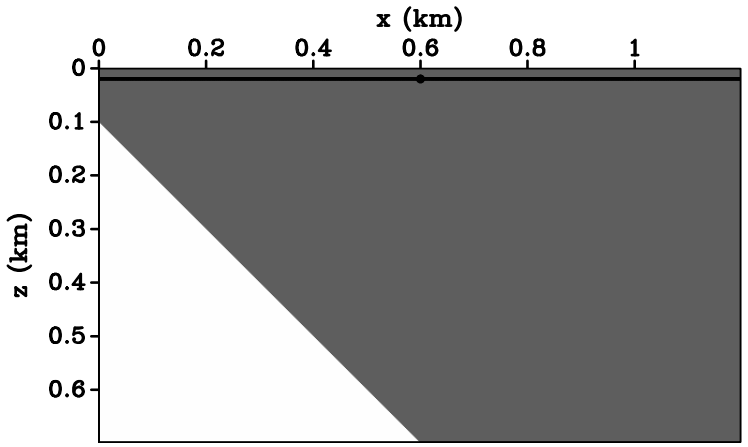

Figure 2: Velocity.

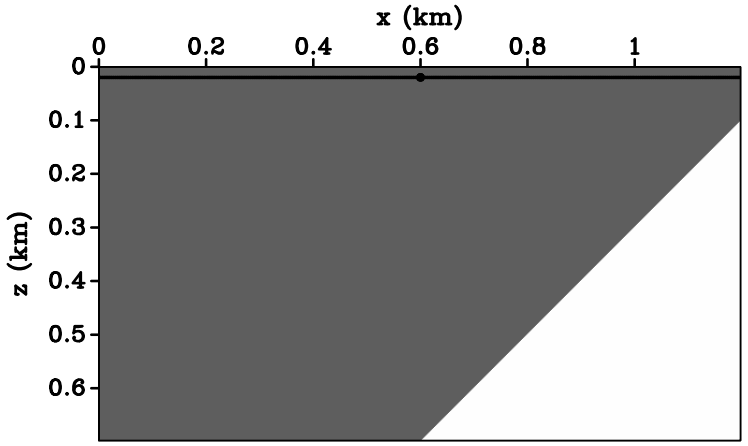

Figure 3: Density.

LOGISTICS

1. Run `scons` in the `CODE` directory to rebuild the modeling code.
2. Run `scons view` to view figures constructed with your modified code.
3. Run `scons lock` to copy the new results to the storage directory.
4. Run `scons handout.read` to build your answer. A PDF file is constructed using your newly created figures and modifications to the text. The modified code is automatically added to the document.

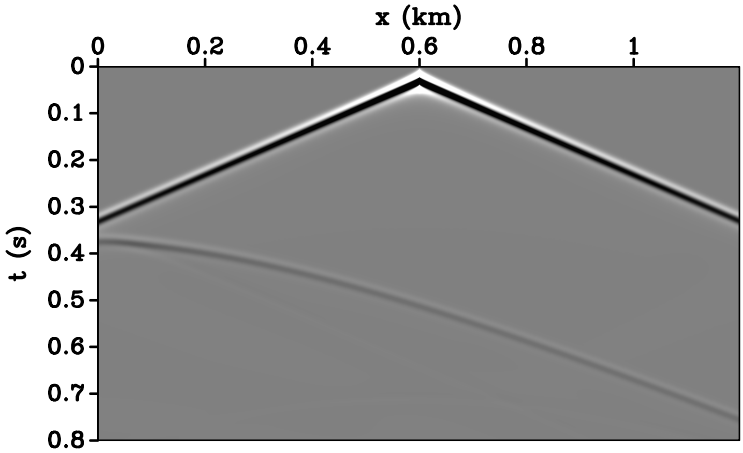

Figure 4: Data.

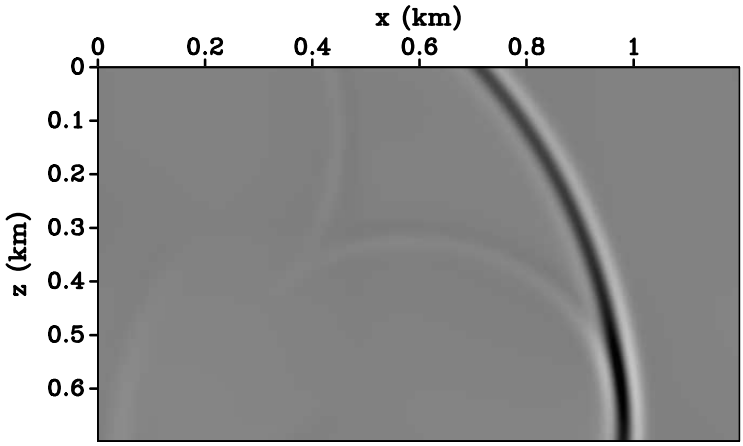

Figure 5: Wavefield.

WRAP-UP

Once you are satisfied that your document looks ok, upload it to Canvas.

N.B. This is an individual assignment – your work is subject to the Mines Academic Integrity policy.