

## COMPARISON TWSM WITH FD

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**Approach.** Shadow is originally an optic term and caused by an obstacle. The light rays are diffracted by the obstacle and penetrate into the shadow zone. If obstacle has a complex shape, diffraction forms cascade diffraction. In acoustic, elastic, porous, fractured, fluid-saturated, microstructured and other media, the presence of shadow (sub-salt, sub-basalt zones etc.) can make a subsurface image and subsurface wavefield modeling very complicated. This study has been for many years devoted to improvement of wavefield description in complex 3D media with shadow zones. The wavefield description in shadow has been done based on Transmission-Propagation Operator Theory [1] which mathematically describes wavefield at any receiver point in complex 3D media. This theory proposes to use so-called ‘feasible solution’ [2] which is a mathematical description of wave field in one 3D medium. The proposed theory and the solution are realized on GPU clusters by the Tip Wave Superposition Method [3].

**Comparison.** The theoretical approach and the modeling method were tested by comparison with laboratory data [4], theoretical approaches [5] and FD method which we will focus on in this paper. Figure 1 describes the model. Figure 2 represents the seismograms’ match. Figure 3 draws DAC curves’ relative error [5].

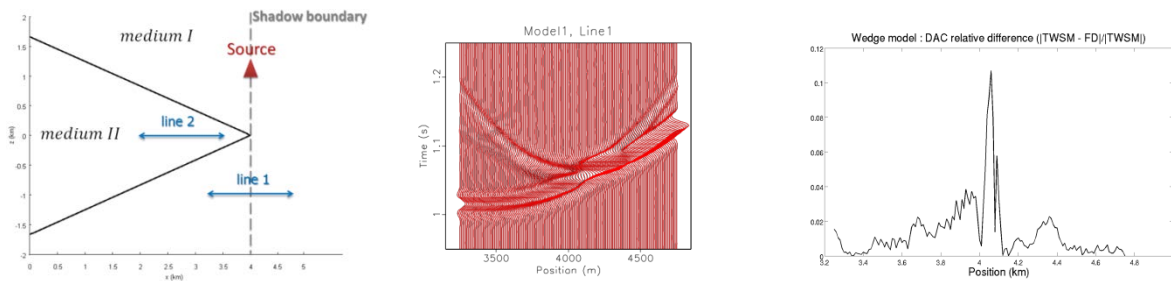


Figure 1. Model sketch Figure 2. Seismograms’ match Figure 3 DAC curves’ relative error

### References:

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