

We can set the Dix inversion problem as follows

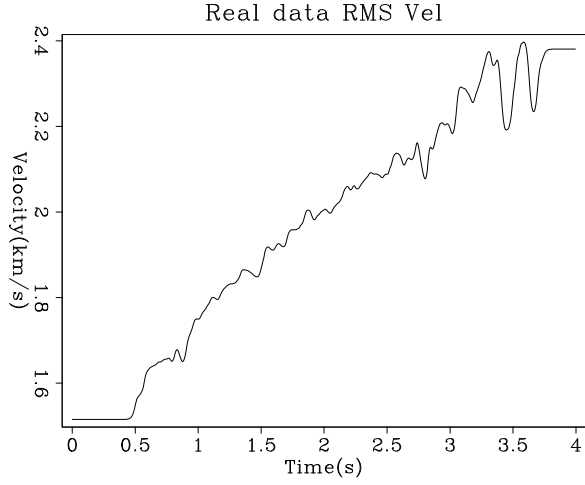
$$\|\mathbf{W}_d(\mathbf{C}\mathbf{u} - \mathbf{d})\|_1 \approx 0 \quad (1)$$

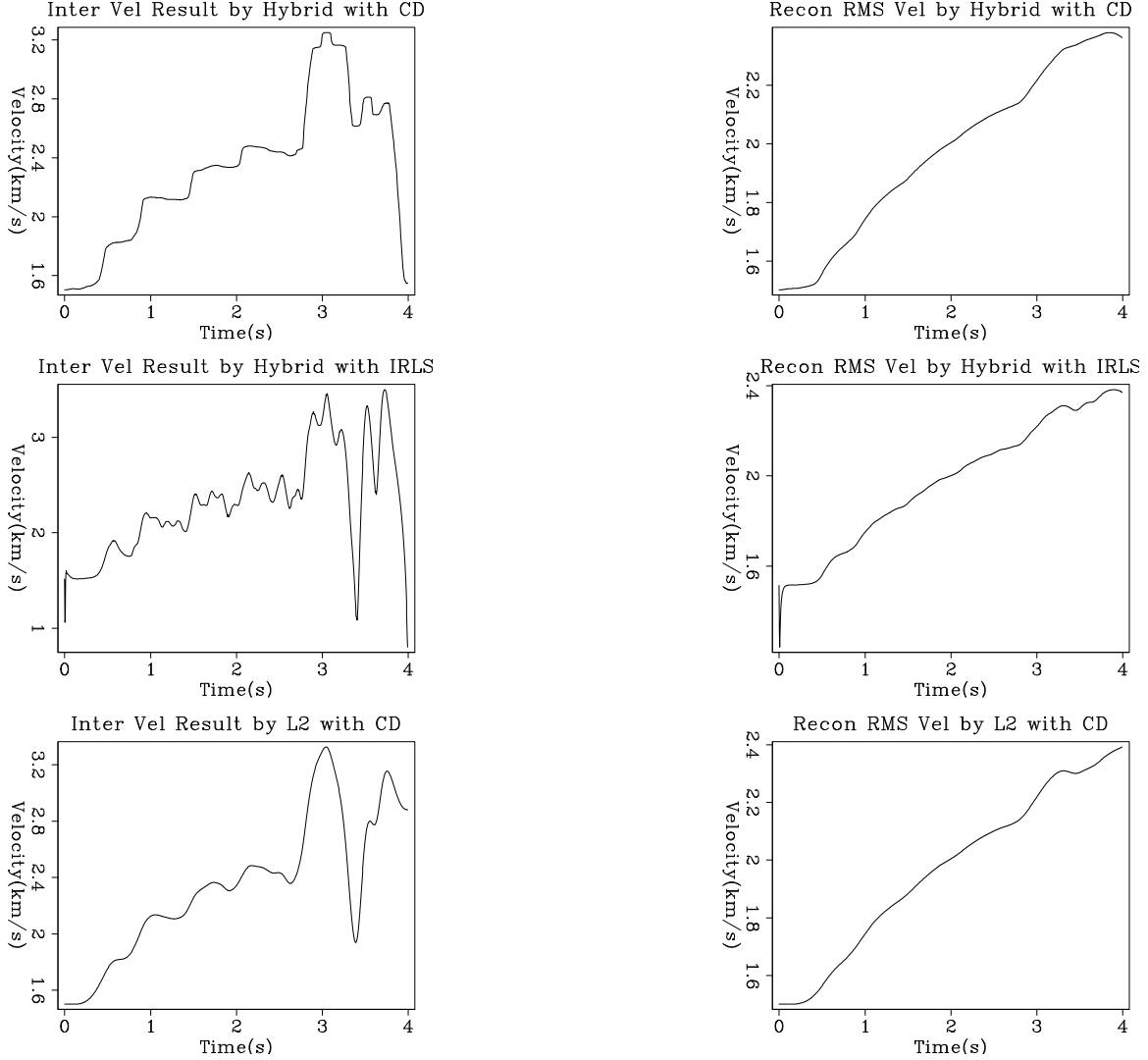
$$\|\epsilon \mathbf{D}_z \mathbf{u}\|_1 \approx 0, \quad (2)$$

In the data fitting goal, \mathbf{u} is the unknown model we are inverting for, \mathbf{d} is the known data computed from RMS velocity, \mathbf{C} is the causal integration operator, \mathbf{W}_d is a data residual weighting function, which is proportional to our confidence in the RMS velocity. In the model styling goal, \mathbf{D}_z is the vertical derivative of the velocity model and ϵ is the weight controlling the strength of the regularization.

Figure 1: Input 1-D stack velocity.

[VIEW](#)




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