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README_Disclaimer

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README_Introduction

Finite-difference forward modeling datasets in VTI media

The seismic data included in this folder are 2D synthetic datasets generated using 2 different finite-difference forward modeling softwares in VTI media. One was developed internally at Amerada Hess, the other is from SEPLIB, at Stanford University.

README_Contents

Contents:

The following images provide a good introduction to the dataset:

timodel_vp.gif
timodel_delta.gif
timodel_epsilon.gif
timodel_data_I_shot.gif
timodel_data_I_zero_offset.gif
timodel_data_II_shot.gif
timodel_data_II_zero_offset.gif

The distribution consists of the above image files, the following README files:

README_FIRST

README_Contents
README_Disclaimer
README_Geometry
README_History
README_Introduction

(the above files may be combined into a single file)

README_Modification

And the following SEGY files:

timodel_shot_data_I.segy
timodel_shot_data_II.segy

timodel_c11.segy
timodel_c13.segy
timodel_c33.segy
timodel_c44.segy
timodel_crho.segy
timodel_epsilon.segy
timodel_delta.segy
timodel_vp.segy

Note: The SEGY files have been losslessly compressed using "gzip --best" to speed download times.

README_Geometry:
Dataset and velocity model characteristics

The dimensions of the model parameters (c11, c13, c33 , c44 and rho) are
Depth: 1501, horizontal grid: 3617
The spacing is: Depth 20ft, Horizontal: 20 ft
Origin: (0, 0).

We also include the vertical velocity (timodel_vp.segy) and (Thomsen's anisotropic parameters, epsilon (timodel_epsilon.segy) and delta (timodel_delta.segy). These three fields are derived from the model parameters given above and have the same dimensions.

The distribution consists of two datasets generated using two different finite-difference forward-modeling programs for VTI media: one was developed internally at Hess, the other is from SEPLIB at Stanford University.

Data I was generated using the finite-difference modeling software developed at Hess internally; it contains surface multiples.

File Name: timodel_shot_data_I.segy
Gather type: shot
Surface multiples: YES
Number of Shots: 360
Shot spacing: 200 ft
Receiver spacing: 40 ft
Minimum offset: 0 ft
Maximum offset: 19960 ft
trace length: 8 s
sampling rate: 4 ms

Data II was generated using the finite-difference modeling software developed at SEP, Stanford University. It does not contain surface multiples.

File Name: timodel_shot_data_II.segy
in this distribution, this file has been broken up into two parts:
timodel_shot_data_II_shot001-320.segy
timodel_shot_data_II_shot321-720.segy
Gather type: Shot
Surface multiples: NO
Number of Shots: 720

Shot spacing: 100 ft
Receiver spacing: 40 ft
Minimum offset: 0 ft
Maximum offset: 26200 ft
trace length: 7.992 s
sampling rate: 6ms

Model:

Dimensions: nx=3617, dx=20 ft, x0=0
 nz=1501, dz=20 ft, z0=0

timodel_c11.segy

timodel_c13.segy

timodel_c33.segy

timodel_c44.segy

timodel_crho.segy

timodel_epsilon.segy Thomson's parameter: epsilon

timodel_delta.segy Thomson's parameter: Delta

timodel_vp.segy Vertical velocity

README_History:

Dataset history

The seismic data included here are 2D synthetic datasets generated using 2 different finite difference forward modeling softwares in VTI media. One of the softwares was developed internally at Hess. Data I was generated using this software and it contains surface multiples. The other software was obtained from SEPLIB, at Stanford University. Data II was generated using this software. This data is free of surface multiples.