Introduction

First, read README_Disclaimer. If you can't accept what you read there, then you can not use this data.

If you use this data in a publication or presentation, you must reference that it was provided courtesy of BP, and acknowledge BP and Frederic Billette. You should also reference Billette and Brandsberg-Dahl's 2005 EAGE abstract (listed in README_History) if there is an opportunity to do so.

You are allowed to pass this data on to others, but if you do, this documentation must be included along with the data.
If the data you pass on has been modified by you, you must add to the documentation (in the file README_Modification) that you have modified the data, and a description of your modification.

Contents

The following images provide a good introduction to the dataset:

vel_6.25m.gif
central_shot_674.gif
zero_offset_section.gif

The distribution consists of the above image files, the following README files:
README
README_Disclaimer
README_Geometry
README_History
README_Modification,

the following SEGY files:

vel_z6.25m_x12.5m_exact.segy (exact model)
vel_z6.25m_x12.5m_nosalt.segy (exact - no salt)
vel_z6.25m_x12.5m_lw.segy (exact – no salt no short wavelength anomalies)
vel_z6.25m_x12.5m_saltindex.segy (salt index mask – 0 in salt 1 elsewhere)
vel_z6.25m_x12.5m_wbindex.segy (water layer mask – 1 in water 0 elsewhere), and

the complete dataset, divided into 7 pieces over the shot axis.
The first file contains shots 1 to 200, the second shots 201 to 400, and so on:
shots0001_0200.segy
shots0201_0400.segy
shots0401_0600.segy
shots0601_0800.segy
shots0801_1000.segy

shots1001_1200.segy
shots1201_1348.segy.

Distribution and disclaimer

Distribution assembled by:

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Mon Jul 18 16:08:15 CST 2005

README_Disclaimer:
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README_Modification:
If you modify these data in any way, document your modification here, and if you pass these data on, include this notice with these data.

Original BP distribution
Frederic Billette, BP DWX Houston
Mon Jul 18 16:08:15 CST 2005

Dataset history and reference

README_History:
This model was originally created by Frederic Billette and Sverre Brandsberg-Dahl in 2004. The model is 2D. The left side of the model is based on a geological cross section through the Western Gulf of Mexico. The central part the model is a simplified representation of geologic features in the Eastern/Central Gulf of Mexico and off-shore Angola. The right side of the model is a composite representation of velocity issues encountered in the Caspian Sea, North Sea or Trinidad.
The original dataset was calculated using a mixed-domain 2D finite-difference acoustic modeling code.

The model was originally created as a blind test for the Velocity workshop during the 66th EAGE international meeting in Paris, France, in June 2004. Some results we presented in June 2005 in Madrid, Spain in the following presentation (abstract attached):

```
@incollection{EAGE-2005-B035,
      author = {Frederic Billette and Sverre Brandsberg-Dahl},
      booktitle = {67th Annual Internat. Mtg., EAGE, Expanded Abstracts},
      pages = {B035},
      publisher = {EAGE},
      title = {The 2004 {BP} velocity benchmark.},
      year = {2005}
     }
```

Dataset and velocity model characteristics

README_Geometry:
Dimensions of the dataset (shots):

axis :	t	x	shot
size :	2001	1201	1348
origin:	0.0	0.0	1.0
delta :	0.006	12.5	1.0
units :	sec	m	number

Dominant frequency in the data: 27Hz.
Maximum usable frequency in the data: about 54Hz.

Starting counting at 1, Fortran-style:
The first shot is at (x=50m), the last at (x=67,400m). Shot increment is 50m.
The central shot is number 674. That shot has X coordinate 33,700m.
For the first shot, the first X receiver has X coordinate -14,950m, the last 50m.
For the last shot, the first X receiver has X coordinate 52,400m, the last 67,400m.
For the central shot, the first X receiver has X coordinate 18,700m, the last 33,700m.
The zero-offset receiver is at the 1201st X sample of each shot gather.
All shots and receivers are at a depth of 12.5m, one grid point down from the top of the model.

For each shot, the X offsets range from -15,000m to 0m.

In any case, all source and receiver X and Z coordinates are specified in the data's trace headers. Note that 0.1 multipliers need to be applied to the X and Z coordinates; they are specified in the SEGY headers as XYScaler=-10 and ElevScaler=-10.

Dimensions of the velocity model:

axis :	z	x	y
size :	1911	5395	1
origin:	0	0	0
delta :	6.25	12.5	1
units :	m	m	m

The top left corner of the velocity model is at coordinate (x=0, z=0).
The top right corner of the model is at coordinate (x=67,425m ,z=0).
The bottom edge of the model is at z=11937.50m.
The modeling program replicated the first and last traces of the model unchanged off the ends as needed for padding.