



March 2012 Monthly Newsletter

Velocity Surveys in GOM³

For many purposes, it is necessary to convert seismic reflection data from the way it is originally recorded, in one way travel time, to absolute depth. Therefore, velocity (check-shot) surveys are run on wells. Each survey consists of typically between 50 and 150 points down the well bore. At every survey point, the absolute depth is recorded along with the one way travel time to that point for a seismic wave originating from then returning to and recorded at the surface.

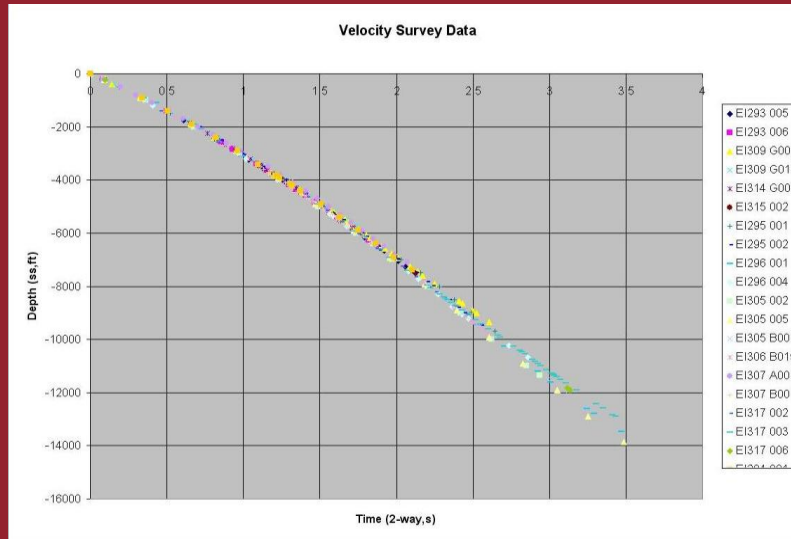
The BOEM has released velocity surveys on

approximately 3,400 wells in the Gulf of Mexico. Their geographic distribution is roughly proportional to that of all wells drilled; however, about 80% of the velocity surveys are on exploratory wells and they are typically straight or minimally deviated holes.

Often, users would like to see all of the velocity surveys from a specific area tabulated and charted. In GOM³, the first step is to load Wells from the pull-down menu. When loading wells, check the box at the bottom of the dialog box that says "Restrict to wells with velocity surveys." When these wells appear in the map, zoom to the area of interest and, with the Select tool, draw a box around a set of wells. Once the selection is made, return to the GOM³ tool bar and from the ESA Tools list, pick Utilities and finally, Chart Velocity Data.

An Excel workbook will be created to hold the survey data and chart. Pick a file location for that workbook and press OK. For the chart, you will also be asked if you want to plot the absolute depth in descending order on the y-axis (from the surface down). The spreadsheet opens to

the chart showing two-way travel time in seconds on the x-axis and TVD on the y-axis. The graphed relationship deviates slightly from linear because seismic waves travel faster in deeper,



more compacted rocks. In Sheet 1 of the workbook, the depth/two-way travel time pairs are recorded, with each chosen well represented in a column.

The velocity data in GOM³ are updated monthly. However, for more frequent updates (and using another method to access the data), users may download velocity surveys directly from the GOM³ Desktop program. After clicking the Desktop icon, click the "Well Data Exports" button. In the following window, choose Velocity Surveys at the top. Select the area, block or well of interest, pick the file format and projection desired and click Submit. These data are updated each week as the BOEM releases new data.

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GOM³ Calendar

Central Lease Sale 216/222
June 20, 2012

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