



Velanal

Velocity Analysis

VELANAL is a velocity analysis by which the user bases their choice of a correct velocity on the stack image generated by that velocity. The main features of this program are:

- SEG Y 2D or 3D data may be input. The data are stacks generated with various percentages of a base velocity field. The percentage value is stored in a trace header. The stacks may be migrated or unmigrated.
- The 100% ASCII velocity field is input. This velocity field, multiplied by the percentage in a trace header allows the program to compute the velocity used to generate the stack trace.
- Stacks may be viewed in overlay mode or may be limited to a range of cdp's around a velocity control point. In overlay mode, the data traces are sorted into line order, followed by a sort into percentage order and finally into cdp order. For each line, the percentage stacks may be flipped quickly onto and off of the screen. This enables the user to decide on the best image. A simple click of the mouse near a control point will result in that velocity percentage being stored by the program.
- The user may optionally choose to see the seismic overlain on top of the velocity field. As the velocities are changed, the underlying velocity image is repainted, allowing a quick visual QC of velocity smoothness. This is of critical importance in picking good velocities for a prestack time migration.
- The new velocity field, picked from the images, is saved as an ASCII file.
- Prestack data may also be input. This data is displayed in a separate window and is tied to the stack display window; velocity changes in one are reflected in the other. As the velocity control points are updated on the stack display, the gather display will automatically switch to display the most recently modified gather. This window also displays an interactive stack and a semblance display. The intent of this window is as a fine resolution Q.C. of the velocities picked on the stack window. Any residual moveout errors may be corrected here.
- Anisotropic moveout may be applied and eta values chosen off a special semblance display which temporarily overlays the main semblance.
- An interactive map is produced, allowing the user to select an arbitrary inline to display.
- If desired, the whole velocity field may be resampled onto a regular grid.

VELANAL interfaces naturally with **SUMMIG**, a Techco product which performs prestack time migration. It is a quick and intuitive QC of a seismic data image and the velocity field which generated it.

VELANAL is written primarily in Java with certain very portable pieces of code written in c and c++. This allows the program to be placed on multiple hardware platforms with no programming effort. It requires that at least java 1.3 be installed on the host machine.

VELANAL uses a flexible SEG Y header format, configured by an ASCII file. The minimum information required is inline, xline, cdp-x and cdp-y. For 2D data, inline must be a constant value and xline must be set to the cdp number of the stacked trace.

For further information, please contact:

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