

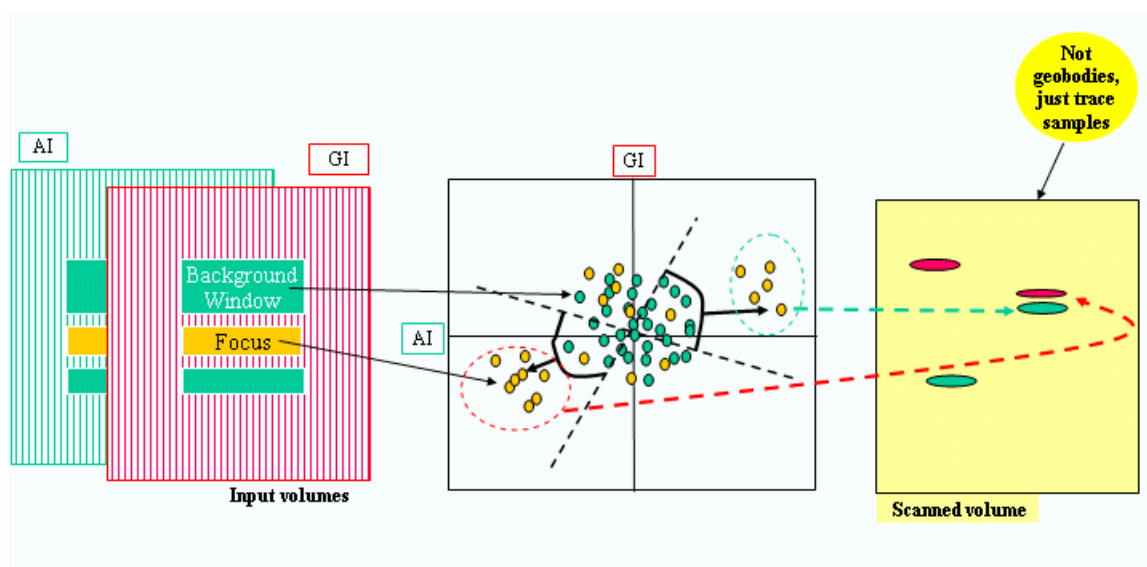
Segy AVO Outlier Scanner a 2 volume simultaneous scanner

The Segy AVO Outlier Scanner was originally written to simultaneously scan AI and GI volumes for outliers relative to locally dynamic background windows. It has been in production since 2005 and will rigorously find locations within a volume that are anomalous with respect to 2 local background windows. As a 2 volume scanner, it will find outliers for any 2 input volumes, not just AVO volumes, although that was the original intent.

This program is covered by US Patent 7,266,041.

Output ... Another Segy File of outliers only

The Segy AVO Outlier Scanner will output a Segy File with the same header byte locations used on input. It will have the same size as the input file and will contain zeros (0.0) at locations which are not outliers. Each outlier value is the distance from the background cluster, with positive numbers in quadrants 1 and 4 (positive X-axis) and negative values in quadrants 2 and 3 (negative X-axis). The distances are scaled to be in units of standard deviation.



Things that you specify for input

Looking at the cross-plot picture above, the things that you specify are 2 sets of angles which define “pie slices” to the upper-right and to the lower-left. These determine the search regions in the plane. Also for the cross-plot plane, you specify some distance cut-offs from the background cluster of points. For the background and focus windows, you specify widths and heights for a background window above and one below each focus region. For the focus regions, a width and height is also specified.

Finally, a Segy Header Scan needs to have been run on both input datasets.

Matched datasets required

As of 4/2009, the program requires that both input datasets be matched in terms of size and trace organization. For instance, if you are preparing the data in Hampson-Russell, you need to output the same Inline, Xline and Z ranges. This will create 2 Segy volumes that are matched.

If this requirement gets to be a show stopper, please call or contact Quantum Earth. This restriction has not been relaxed at this time because there has been no request to do so.

Expected run times should be minutes

As of 4/2009, the program is executing on a line-by-line basis using one processor. For a 1 Gig dataset, run time should be on the order of 15-30 minutes, depending on the processor and disk speeds. This is not a long running process and should run in minutes-to-hours, unless you are scanning hundreds of square miles of densely sampled data. It is normal to re-run it several times, if different angles or distance cuts need to be tried.

Java required

This program is written in Java (Sun Trademark now part of Oracle). It needs version 1.6.0.1 or later to run. Please download the JRE from Sun's website if you need to. As a Java program, it has been run for several years on Windows, Linux and Solaris 10.

Last modified 4/22/2009