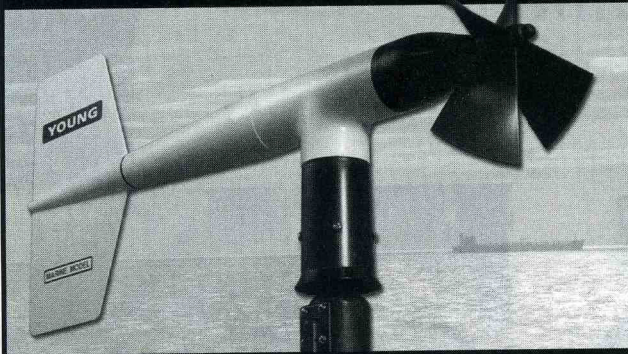


Meteorological Instruments



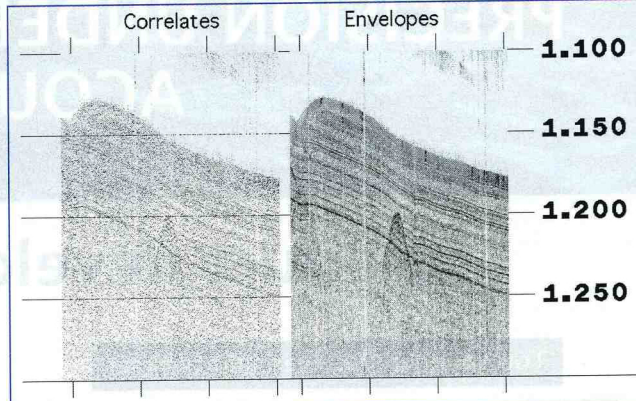
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Plotted sections of correlates and envelopes.

uncorrelated signal, the correlated signal, the analytic signal, the envelope signal or the envelope with TVG.

The raw uncorrelated signal requires significant further processing and should be left for the expert signal processor.

The correlate is required when advanced seismic processing is conducted that requires the phase of the signal to be present (e.g., seismic migration). The correlated signal should be converted to the envelope and TVG applied before display.

The analytic, or complex, signal must be converted back into a real signal (the correlate) before it can be used in most seismic processes, since it has the signal phase. The analytic signal must be converted to the envelope and TVG applied before it can be displayed.

The envelope signal is ready for TVG and display, but it should not be used in advanced seismic processes that require the phase of the signal. Seismic migration and the waveform attribute theory require the full waveform, including the phase. Computer software may work on envelope data, but the results should be questioned.

There is not much that can be done with envelope data with TVG applied, other than just display, because the signal's phase is missing and all seismic amplitude relationships have been altered.

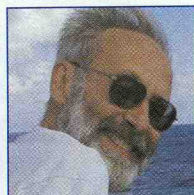
Modern sub-bottom profilers are yielding superb high-resolution images of the shallow sub-bottom, but an operator needs a lot of technical knowledge to make the most of them.

Acknowledgements

Dr. Martin Jakobsson of Stockholm University and Dr. Bernie Coakley of the University of Alaska granted permission to publish these data, collected aboard the U.S. Coast Guard cutter *Healy* while surveying across the Arctic Ocean. The author of this article was supported by the U.S. National Science Foundation. /st/

For more information on this subject matter, visit our Web site at www.sea-technology.com and click on the title of this article in the Table of Contents.

Paul Henkart has been a geophysical analyst at Scripps Institution of Oceanography since 1978. Prior to that, he was a geophysical analyst with Texaco Inc. for 12 years in Houston, Texas, and Calgary, Canada.



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