



*Abstract – March 2006*

## **Seismic Depth-Stretching with GEOSEIS VelMod**

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Seismic data is acquired and most often interpreted in the two-way-time domain, however true geology is in depth. GEOSEIS Inc. has built a system to use all available velocity information to stretch two-way-time seismic into depth seismic.

VelMod uses stacking and/or migration velocities generated in time-processing, as well as any available well data to generate an optimum velocity model for depth stretching. The system can perform in a basic cell-based mode, or horizon based mode, in which a geoscientist's picks can be used as constraints in order to allow interpretive input to the model. The resulting depth-sections can be created at a fraction of the cost of depth migration, yet provide significantly more structural information than time sections.

Using several case studies, we will illustrate the process and benefits of stretching pre-stack time migration data to depth using GEOSEIS' proprietary VelMod software. The process can be particularly valuable in marine regions with a dipping seafloor. Because water-velocity is known, the process corrects exactly for a dipping seafloor to show the true structure underneath.

VelMod includes a fully featured display module, suitable for generating velocity plots as aids in interpretation, as well as for QC purposes.

GEOSEIS' VelMod workflow is intended to be effective regardless of where the input data originates. It is intended for geoscientists, engineers as well as Exploration Managers to support decision making. Projects are transportable to client or project locations for most effective use.

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