

ABSTRACT

TITLE: HUNTING GREAT BASIN ELEPHANTS WITH SERIAL TRANSECT MAPPING
PRESENTER: ALAN K. CHAMBERLAIN, PH.D.
VENUE: AAPG 2007 ROCKY MOUNTAIN SECTION MEETING, TECHNICAL SESSION
DATE: OCTOBER 9, 2007 (3:20 PM MDT)
LOCATION: SNOWBIRD, UT

Copyright ©2007, Alan K. Chamberlain. All rights reserved.

Serial transect mapping is an exploration method that involves deliberately populating predetermined transect lines with geologic constraints. This method is proving to be more efficient and cost effective than seismic or any other exploration method in the essentially uncharted Great Basin of western Utah and eastern Nevada.

Transects are planned to take advantage of well control, optimal exposures of Paleozoic rocks, the structural grain, and any other surface features and conditions. An experienced stratigrapher navigates along the transect lines and collects geologic data from rock exposures including structural, stratigraphic, biostratigraphic, and other geological data using a survey-grade GPS.

Upon completion of the fieldwork, structural models are constructed along the transect lines. These models are constrained with the newly collected geologic and well data, knowledge of structural style, and gravity, magnetic and any seismic data and models. Structural interpretation using structural modeling software in conjunction with these geological data and geophysical data and models where previous exploration methods have failed has revealed sizable structures that could contain significant quantities of hydrocarbons in this part of the Sevier Thrust Belt.

In this region, the quality of seismic imaging is generally poor in the pre-Tertiary strata, and consequently seismic interpretation is plagued with serious limitations. As an alternative to reflection seismic data, serial transect mapping is about one tenth of the cost of acquiring conventional seismic data, yet it provides superior constraints on structural models over the sparsely mapped ranges of the Great Basin.

###