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**PS Stratigraphic Evolution of High Relief Slope Clinofolds from Shelf-Edge to Basin Floor, Magallanes Basin, Chile\***

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**Abstract**

Few examples of high-relief clinofolds have been studied in outcrop due to the inability to recognize seismic-scale geometries in limited exposures. The Tres Pasos and Dorotea formations of the Magallanes Basin, southern Chile, representing shelf and slope to basin floor deposits respectively, provide an opportunity to analyze the understudied bed-scale details of these extensive slope systems. The Upper Cretaceous-Paleogene sediments record construction and evolution of high relief (>800 m) slope clinofold depositional systems, from shelf-edge to basin floor. The objective of this study is to demonstrate the high-resolution architectural and sedimentological evaluation of the clinofolds in the Magallanes Basin, providing unprecedented insight into analogous, hydrocarbon-bearing strata from high relief graded slopes on the margins of numerous ancient basins (e.g., Alaskan Brookian succession).

Parts of at least four clinofolds are documented over a ~100 km<sup>2</sup> area along a depositional-dip oriented outcrop belt characterized by ~3500 m of continuously exposed strata. The dataset consists of satellite imagery, photo mosaics and ~2200 m of detailed measured sections from over 50 outcrop locations. Slope strata is dominated by fine-grained units, including extensive mass-transport deposits. Aggradational through to flat shelf-edge trajectories are readily defined in the outcrop belt; this shelf-edge architecture is closely linked with the abundance of coarse-grained facies mapped in the deep basin. A major period of transgression is associated with shelf-edge retreat; a subsequent lowstand delta built on the relic shelf until accommodation was limited, enhancing delivery of coarse-grained detritus to the deep-sea. Generally, mapped flat shelf edge trajectories are associated with shelf-edge progradation and increased sediment delivery to the basin, recorded by bypass conduits with gravel lags, and stacked turbidite channels at a lower to base-of-slope position.