Using Lateral Variability of Shelf Margins to Understand the Provenance of Data-Limited Basins

Jinyu Zhang
The University of Texas at Austin

Abstract

It is challenging to document the sediment routing system and construct the tectono-stratigraphic model in data-limited basins due to the high cost of data collection. We propose a workflow using stratigraphic forward modelling, inversion analysis, and shelf-margin records to understand the evolution of source-to-sink systems. This method uses the natural observation of shelf-margin records to calibrate the modelling results and uses neighbourhood algorithm optimization with large-number model runs (10,000 runs in this study) to locate the results with accepted misfit. We firstly demonstrate the reliability of our workflow in a synthetic case then show its application to the Arctic Alaska Coville basin.