

Coarse-Grained And Fine-Grained Turbidite Systems As End Member Models: Applicability And Dangers

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Abstract For Vic/Tas Branch Technical Luncheon

Submarine fan/turbidite systems, and their stratigraphic successions, can have any net-to-gross percentage and internal variations thereof. Prior to developing a model that best represents the deposits under investigation, the earth scientist should have an understanding of the major external parameters that influence the transport and deposition of sediment. Tectonics influence the sediment source area and its overall distance to the shoreline, shelf width and basin morphology. The sand/clay ratio and size range dictate how far sediment can be transported. Climate influences erosion, transport and diagenesis. Relative sea-level fluctuations impact the transport from coast to basin. Using those parameters and two end-members - coarse-grained and fine-grained - an applicable model can be developed that best characterises the fan of interest.

Outline For Workshop

To be held at BHP Petroleum, Melbourne 21 October 1998.

The purpose of the short course is to give participants an insight in the complexity of turbidite systems/submarine fans and where we stand in our knowledge about these systems.

Topics to be treated:

- Introduction: variety of products
- Coarse-grained and fine-grained: short for completeness sake. More information during lunch
- Channel elements
- Initial turbidite studies

- Processes
- Bute Inlet: fjord as a mini-basin
- Submarine canyons: modern
- Submarine canyons: ancient: Dohany Channel, California
- Factors influencing fan construction
- Models
- Tanqua Karoo, Permian, South Africa
- Mississippi Fan: DSDP Leg 96
- Influence of sea level fluctuations
- Few additional examples if time permits:
- Arkansas: Pennsylvania Jackfork Group
- Alpes Maritimes, SE France: Eocene Delaware Basin, Permian, West Texas
- Conclusions