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Understanding Controls on Deep-Water Turbidite Sandbody Geometry in Channel, Channel Mouth and Basin Floor Settings

Studying variations in bed geometry and internal architecture of individual turbidite beds is not generally possible over distances >10's of km, in both modern and ancient systems. Limited exposure and/or outcrop dimensions hinder long-distance correlation of individual beds in ancient sequences, while accurate tracing of individual beds over large distances is often difficult in modern systems, mostly due to poor core control and lack of distinctive correlatable horizons. This is especially true across the transition from channel to basin floor.

In the modern Agadir Basin, offshore Morocco, individual turbidite beds can be traced for several hundred kilometres with confidence, due to a unique variety of correlative criteria. Preliminary core studies show that turbidite sheet sands on the basin floor show a wide range of geometries and internal characters, and that these are strongly controlled by variations in flow volume and source area. Further up-system, geophysical surveys at the mouth of the main feeder channel provide valuable insights into the interplay between erosion and deposition occurring in this area, with abundant erosional scours occurring in a complex bypass zone separating channel and basinal facies.

The UK-TAPS group have set up a consortium project based around an intensive coring cruise to the Agadir Channel and Basin, scheduled for early 2004. This will build upon preliminary studies by producing detailed 3-D bed geometries for individual turbidite beds of varying volumes across the transition from channel to basin floor, and also across the transition from distal basin to spill-over channel.