

What's New in Deltas?

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With the explosion of research in shallow marine systems in the 80's, many deposits originally thought to be deltaic were re-interpreted as shelf sands, shorefaces, or even incised valley-fills. There has also been an explosion of delta classification schemes, reflecting interest in high-latitude deltas as well as integrating sequence stratigraphic concepts. Parameters now considered to be essential include: feeder type, river discharge, sediment caliber, water depth, basin physiography, storms, waves and tides, sea level, physical position in the basin, and degree of soft-sediment deformation. Clearly, combination of these parameters results in a nearly infinite number of possible delta types reflecting a chaotic, non-linear, dynamic sedimentary continuum.

This talk will suggest that many inter-cratonic deposits in North America not thought of as deltaic are, and many deposits interpreted as deltas are not.

New areas of progress in delta research since 1992 include:

1. Determination of the bed-scale facies architecture of deltas.
2. Recognition of specific mouth bar and terminal distributary channel processes in controlling formation and facies architecture of deltas.
3. Elucidation of the complex interplay between river effluent and waves in forming wave-influenced deltas.
4. Recognition of tide-influenced deltas as distinct from estuarine valley-fills.
5. Integration of high-resolution seismic data and biofacies analysis (especially ichnology) in interpreting delta systems.

Future facies models must take a more quantitative, predictive, parametric approach, focusing on the mechanics of delta formation and resulting facies distribution, informed by focused field studies, rather than merely classifying the type of delta observed in an outcrop or core.