

**AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003**

C.R. Fielding¹, J. Alexander², J.D. Trueman³ (1) University of Nebraska-Lincoln, Lincoln, NE (2) University of East Anglia, Norwich, United Kingdom (3) University of Queensland, Brisbane, Australia

The Burdekin River Delta of Northeastern Australia: A Model for Shallow-Water, Flood-Dominated Sandy Deltas

The Burdekin River delta in northeastern Australia has been used previously as a type example of a wave-tidal-fluvial interactive delta. The river drains c. 130,000 km² and dominates fluvial discharge on the northeastern Australian margin, annually adding 9.8×10^9 m³ water and $3-9 \times 10^6$ tonnes of sediment to the Great Barrier Reef shelf. The Holocene delta has built a platform of 2000+ km². At least 9 discrete Holocene distributary channel systems are recognized, indicating an avulsion period of c. 1000 a. While the upper delta plain is covered by channels and floodplains, the lower delta plain is a complex network of channels, coastal flats, beaches and beach ridge complexes, eolian foredunes, tidal creeks, mouth bars, and inter/subtidal shoals. Our data indicate that much of the lower delta plain is underlain by sandy deposits of mouth bars and channels, suggesting that the delta was constructed by rapid mouth bar progradation during flood events. The Holocene succession is no more than 15 m thick across much of the delta. The vertical succession comprises a lower interval of mainly mud, deposited in open marine embayments during transgression, overlain by variably sand-rich sand bodies of coastal origin and of variable age. The vertical succession is only locally coarsening upward. The unusual character of the Holocene deltaic succession is considered a consequence of, and characteristic of, progradation into shallow water under conditions of limited accommodation, in a regime where floods dominate sediment supply, and waves and tides play a modifying role.