

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

Ron J. Steel<sup>1</sup>, Szczepan J. Porebski<sup>2</sup> (1) University of Wyoming, Laramie, WY (2) Institute of Geological Sciences, Polish Academy of Sciences, 31-002 Krakow, Poland

### **Shelf-Edge Deltas: A Key to the Delivery of Sands into Deepwater**

Shelf-edge deltas and their driving distributary systems are probably the most important mechanisms for sand delivery into deep water. Although tidal, wave and other current-driven systems can be important delivery mechanisms on narrow shelves, deltas and rivers are usually needed to disperse large sand volumes onto the slope and basin floor.

Shelf-edge deltas arise at two distinct times in typical falling stage-to-lowstand complexes, usually at 4th-order time scales: (a) during falling relative sea level when the deltas are forced to the shelf edge, and (b) during subsequent rising relative sea level, when deltas re-establish on the shelf margin, prior to transgression.

In evaluating how much sand may have been delivered into deepwater from a specific shelf margin, it is critical to identify and map both early and late phases of delta growth. Recognition that the early deltas have been cannibalized, that the late deltas have an aggradational-to-backstepping character and that there is a significant degree of slope deformation are the best signs that large sand volumes have crossed the shelf margin, and not simply the presence of shelf-edge deltas in themselves. These principles are illustrated from a series of examples.