

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

Roy C. Davies<sup>1</sup>, John A. Howell<sup>2</sup>, Stephen S. Flint<sup>1</sup>, Claus Diessel<sup>3</sup>, Ron Boyd<sup>3</sup>

(1) University of Liverpool, Liverpool, United Kingdom (2) University of Bergen, Bergen, Norway (3) University of Newcastle, Callaghan, Australia

### **The Significance of Coal Seam Splits for Correlation Between Shallow-Marine and Coastal Plain Strata**

Coal seams are highly sensitive indicators of change in accommodation and organic productivity. Coal seam splits formed by the inundation of the mire by marine derived material during base-level rise provide evidence for flooding surfaces that are correlatable from shallow-marine into non-marine environments. Expressions of these flooding surfaces should also be recorded further up depositional dip into the unsplit coal by changes in coal composition. Similarly, falls in base-level which generate sequence boundaries may also be traced into the coal and recorded by changes within it. Identifying high-resolution accommodation trends within packages of coal, correlated to changes in marine base-level is central to understanding sequence stratigraphic expressions within non-marine systems.

The Sunnyside coal seam of the Cretaceous Blackhawk Formation in Eastern Utah contains two laterally extensive splits which open out basinward into packages of shallow-marine sediments. Tracing of surfaces in the outcrop and detailed coal petrographic analysis have enabled the identification of signatures of the flooding surfaces related to these splits at least 15km back up depositional dip into the unsplit coal. The coal constrained by these flooding surfaces is therefore the coastal plain equivalent of the marine shoreface parasequence bounded by the same two surfaces further out into the basin. This package of coal should contain a complete record of accommodation changes throughout the formation of this parasequence. Further analysis should reveal if any sequence boundaries are recorded within the coal.