

THE PALEOTOPOGRAPHY OF THE
PRE-CRETACEOUS EROSIONAL SURFACE IN THE
WESTERN CANADA BASIN

M.J. RANGER
(Gulf Canada Resources Ltd.)
64 Bermondsey Way N.W.
Calgary, Alberta T3K 1V4

A regional structure map of the Pre-Cretaceous surface of Alberta and Saskatchewan was produced by computer from a data base of over 50,000 wells. Trend analysis was used to approximate and remove the regional dip. The result is a look at the details of the paleotopography, drainage patterns and major structural elements of the Lower Cretaceous basin of Western Canada.

The major present-day positive structural features expressed on the map are the Peace River Arch, the Tathlina High, the Wainwright Ridge and the Sweetgrass Arch. The major depocentres were the West Alberta Basin, the Piedmont Basin, the Gething Basin, the Lloydminster and Cold Lake sub-basins, and the McMurray and Wabis-kaw sub-basins. The structural effects of the solution of Devonian evaporites are also evident.

A regional isopach map of the Mannville Group helps define the drainage pattern and also indicates post-Mannville activity of some of the major structural elements, in particular the uplift of the Peace River Arch.

A series of detailed structure maps focus in on the heavy oil and oil sands sub-basins, as well as the West Alberta Basin, to show the local Early Mannville drainage systems and basin configuration.

All maps are solid colour contour maps produced in 15 colours on an APPLICON plotter.