

**AAPG Annual Meeting
March 10-13, 2002
Houston, Texas**

P. Jan Cannon¹ (1) Planetary Data, Tecumseh, OK

The Hydrocarbon Potential of Buried Impact Craters

The most common and oldest planetary landform in the universe is an impact crater. The craters are created by the energy expended when a piece of space debris enters the gravitational attraction of a planet and subsequently collides with the planetary surface. The mass of the projectile coupled with its hypervelocity creates a crater and completely disintegrates the meteoroid.

On any planet, as impact craters increase in size, there are morphological changes that occur as certain thresholds of energy are crossed. Therefore, the effects of a range of crater shapes must be considered.

Buried impact craters can generate reservoir rocks in the brecciated central uplift, the brecciated floor materials, the fractured rim materials and the unconsolidated ejecta piles. The buried impact crater creates the conditions that lead to production from arcuate shaped deposits over the crater floor. Such restricted deposits can act like buried channel deposits or as hydrocarbon source beds. Post impact event strata that are deposited and draped over the crater rim can create a circular anticline that may be segmented by radial faulting. It can also have post impact strata that have been uplifted into a broad gentle dome over the central peak complex by isostatic adjustments and strata that pinchout beyond the uplifted rim.

The optimum locations for preserving an impact crater are the near-shore areas of basins that continued to receive sediments after impact or were quickly transgressed by a rising sea.