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**Modern Analogue of an Ephemeral Fluvial-Lacustrine Inland Delta—Umbum Creek, Lake Eyre, Central Australia**

Modern depositional analogues that quantify the distribution of facies types, create essential datasets to aid the development of reservoir models for comparable ancient subsurface reservoirs. Studies on the fluvial-lacustrine Umbum Creek delta, in Lake Eyre, Central Australia, provides a quantitative dataset on spatial and vertical facies distribution, with an emphasis on the distribution of flow units and barriers, within ephemeral fluvial systems; potentially useful for reservoirs in the Caspian Sea, North Sea and Algeria.

Umbum Creek is located in an extreme arid zone on the western side of Lake Eyre, as part of the larger Neales fan. Within the sand prone catchment, infrequent flash flooding events provide the major fluvial transport mechanism, with high-flow regime bedding structures predominating. Surface and aerial mapping of the floodplain, meandering channels, anastomosing chute channel/splay bar complexes, delta mouth bars, and the delta front/splay-complex provide the dataset for a two-dimensional facies model of the fluvial and delta systems. The third dimension is explored via push core and auger holes, with selected sub-surface samples dated by OSL and TL dating techniques that will help unravel the stratigraphic relationships between down-stepping packages. The dataset is used to produce aspect ratios (bedforms, channels, bars, etc.) and practical semi-variograms for industry reservoir modelling.

Studies of two older, stratigraphically higher, abandoned deltas (located inland of the active delta), aim to provide an improved understanding of the sequence stratigraphic relationships, between sediment packages, switching of delta lobes, and quantitative elements of the depositional elements, within a falling stage systems tract.