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Reservoir Elements in Deep Water Sinuous Channel Complexes: Similarities to Fluvial Incised Valleys

Sedimentary bodies seem to have similar geometries independent of depositional environment (Van Wagoner et al., this volume). In this paper, similarity of deep water and fluvial channel-fills is investigated. The Miocene, deep water Green Channel Complex (Dalia Field, Angola) is compared with Cretaceous fluvial valley-fills from Canada and other fluvial examples. It has been suggested that common features in fluvial channel-fills like downstream migration, point bars and cut-off meanders are rare or absent in deep water. However, the sinuous and erosionally confined Green Channel Complex displays strong lateral and downdip migration of the channels, lateral accretion packages (LAP's) at the inner portion of every channel bend (deep water point bars?) and common cut-off meanders. Basic channel-fill elements in both deep water and fluvial channels exhibit the same fundamental shape. In plan view they originate from an upstream apex and expand laterally downstream in a lobate pattern, sometimes associated with scours at the base of the channel. Around meander bends, these bar forms are elongated and curvilinear, also expanding down flow. The successive deposition of these bar forms at channel bends during the lateral and downstream migration of the channels is interpreted to be the main mechanism of deposition for lateral accretion packages in fluvial valleys and in deep water channel complexes. Both the bars within channels and at the channel bends are interpreted to be deposited by downstream decelerating flows over the bars, which may be related to flow expansion processes associated with jet/plume pairs (Hoyal et al., this volume).