**Cretaceous Play Model Revisited –**

**Integrated characterisation of mixed systems along the Norwegian Continental Margin**

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Studies of ancient deep marine sediments show that outcrop and core interpretations are often ambiguous and sometimes fail to recognize hybrid depositional systems associated with sediment gravity flows and bottom currents. However, very few studies utilize an integrated approach including tectonics, paleobathymetry, and associated oceanographic processes that provide a more robust basis for recognizing ancient hybrid systems.

This study documents Cretaceous bottom-current related erosional and depositional features (moats, channels, furrows and drifts) in the mid-Norwegian Margin; and demonstrates the importance of applying regional three-dimensional seismic analysis to unravel the origin of these kilometre-scale features.

Seismic-scale features are defined by a series of elongated drifts successively onlapping the paleo-slope, and characterised by lateral amplitude variations from relatively high amplitude in the up-dip erosional moat to decreasing amplitudes towards the distal part of the drift. Nearby seismic well-tie shows the presence of sand-rich intervals, as well as direct relationship to downslope turbidite systems. Regional tectono-stratigraphic and oceanographic reconstructions coupled with the spatio-temporal evolution of the elongated drifts strongly suggest the interaction between gravity flow and bottom currents. This interaction could manifest as anything from surface currents in relatively shallow settings, to deep tidal currents on paleo-terraces, or thermohaline circulation along the paleo-slope. Additional integration with sedimentology, biostratigraphy, ichnology and petrography will be instrumental to understand the origin and variability of bottom currents across the basin.

Ultimately, recognition of ancient bottom-current processes in the rock record would provide significant insights in maturing existing play while developing new play concepts.