

## Overview of Late Cretaceous Depositional Systems of the Colville Foreland Basin, East-Central North Slope, Alaska

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### ABSTRACT

Recent field and subsurface studies of Upper Cretaceous strata of Alaska's east-central North Slope have resulted in a revised formation nomenclature that emphasizes regional sequence stratigraphic relationships. These strata record the time-transgressive northeastward progradation of genetically related shelf, slope and deep water facies. In these rocks, we have found that the stratigraphic record of major rises in relative sea level (e.g. condensed sections) can be readily recognized and provide a useful criteria for subdividing depositional cycles and correlating across widely disparate parts of the basin. We recognize flooding surfaces and episodes of sediment starvation associated with significant landward shifts in the paleoshoreline in the Cenomanian-Turonian, Santonian, and middle Campanian. In an effort to improve stratigraphic correlations, we have utilized a number of tools including megafossil biostratigraphy, palynology, chemostratigraphy, and sandstone composition, each with varying degrees of success. Most recently, we successfully generated U-Pb zircon ages from several airfall volcanic units using the LA-ICP-MS technique. Upper Cretaceous condensed intervals are typically shale-prone and preserve abundant and thick silicified tuff and bentonite zones, suggesting U-Pb geochronology has the potential to guide high resolution stratigraphic correlations, and improved basin models.