The Eagle Ford Subsurface: from the depths to the shallows in Cenomanian–Turonian palynology

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The Eagle Ford Group is a carbonate and siliciclastic deposit in Texas, United States. With high Total Organic Carbon (TOC) contents locally exceeding 10 wt%, it is an ideal unconventional shale gas reservoir with a vast expanse of more than 600 miles. However, the Eagle Ford Shale in extremely heterogeneous in nature, and a detailed stratigraphic framework is required for inter-well correlation in the subsurface. Over the last decade, extensive study of the Eagle Ford Shale has taken place at both the surface, in outcrops, and in the subsurface through core material (e.g. GARDNER et al., 2013; DONOVAN et al., 2015). Workers have tried to produce a robust facies, lithostratigraphic, chemostratigraphic, chronostratigraphic and biostratigraphic framework that can be applied throughout the deposit. With the distinctive chronostratigraphic units now in place, it is possible to correlate core material in the subsurface across considerable sections of the Eagle Ford Group.

The extent of the Eagle Ford Group and variations in its thickness and stratigraphy are in large part constrained by regional tectonic features, including the Maverick Basin, the San Marcos Arch, the Stuart City and Sligo Shelf margin, and the East Texas Basin. The Eagle Ford is thickest in the Maverick Basin on the Mexican border, and thins northeastwards to a minimum in the San Marcos Arch region, east of San Antonio. Building upon the foundations established at outcrop by DODSWORTH (2015), in this study we have utilised dinoflagellate cyst markers as a tool in the subsurface to produce a complete facies transect, correlating core material across the whole of the Maverick Basin. We have endeavoured to create a sound biostratigraphic framework and palaeoenvironmental reconstruction of the Maverick Basin during the Cenomanian–Turonian.

DODSWORTH, 2016. Palynology, **40**, 357–378.
DONOVAN et al., 2012. GCAGS Journal, 1, 162–185.
GARDNER et al., 2013. GCAGS Journal, 2, 42–52.