Chronostratigraphic ("Wheeler") Chart of the Texas Gulf Coast Tertiary System

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ABSTRACT

A chronostratigraphic chart of the Tertiary System of the Texas Gulf Coast Basin (~65 Ma to present) was constructed using public and in-house stratigraphic and paleontological data. Sequence stratigraphic analysis was applied to the data. The authors utilized outcrop and shallow subsurface lithostratigraphic information to identify the nature of systems tracts, that is highstand, transgressive and lowstand facies and their bounding surfaces: unconformities, flooding = condensed events, and transgressive surfaces. These tracts were then adjusted to a vertical succession of ages (Ma) beginning with the basal Paleocene using available, mostly published microfossil biochronozones and ages of surfaces. Where no data existed we extrapolated between data points.

The chart presents a perspective of the time stratigraphy of depositional sequences composing the Paleogene and Neogene sedimentary cyclicity of the extensively drilled Cenozoic wedge in the Gulf Basin. The authors integrated ages of sequence stratigraphic surfaces, paleontologic chronozones, and downdip development of systems tracts from published sources. All data in a uniform sequence stratigraphic protocol based on current understanding of the impact of cyclic relative changes of sea level on principally siliciclastic depositional systems in the region since the end of the Cretaceous was honored. The chronostratigraphic chart will provide a mechanism for others to critique and modify with further data. Furthermore, to keep the chart as simple as possible, the authors have avoided adding structural complexity, such as salt and shale structures, faults, and other tectonic effects that are superimposed on the Tertiary succession.

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