

Testing Paleogene Sequence Boundaries As Global Events

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Because sequence stratigraphic methodology is predicated upon global sea-level events, the accurate testing of synchronicity between unconformities within a basin and between basins is essential. The Paleogene composite standard data was compiled from thirty-one DSDP-ODP cores and key outcrops. The ranges of over 1200 planktic and benthic foraminifers, nannofossils, dinoflagellates, magnetochrons, geochemical events, marker beds, and sequence boundaries were integrated by graphic correlation in a mega-annum scale.

The Alabama Paleogene section defines eighteen traceable sequence boundaries (SB) calibrated by foraminifers and nannofossils and defined by abrupt lithological changes and facies shifts. The sixteen Paleogene sequences range in duration from 0.14-4.30 m.y. and the mean is 1.51 m.y.

In southern England five sequence boundaries divide the Eocene Bracklesham Formation. Sequence boundary T1 spans from 51.50-51.30 Ma, which in Alabama correlates within the age span of SB TE2.1 between the Hatchetigbee and Tallahatta Formations. SB T2 and T3 in the Bracklesham span 50.83-49.80 Ma and 48.26-48.58 Ma respectively and correlate within the conformable Tallahatta. SB T4 spanning 47.00- 45.90 Ma is within the duration of SB TE2.2 at 45.95-45.29 Ma between the Tallahatta and the Lisbon Formation in the Gulf Coast. SB T5 spanning 43.15-42.98 Ma is slightly older than SB TE2.4 at the base of the upper Lisbon at 42.75 Ma. Twenty-one unconformities within the Paleogene correlate globally confirming that they record global changes in sea level or oceanic water mass conditions.