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New age controls on Oligocene and Miocene sediments in southeastern Australia

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Abstract

The Cenozoic spore-pollen zonation scheme of southeastern Australia is used to constrain the ages of marine and terrestrial strata throughout Australasia. New palynological, strontium isotope and foraminiferal data from the Torquay and Gippsland basins in southeastern Australia are here used to revise and chronologically calibrate the Oligocene and Miocene portions of this scheme. The revised age assigned to the Upper *Nothofagidites asperus*/Lower *Proteacidites tuberculatus* zonal boundary is 30.5-31.2 Ma, the Lower/Middle *P. tuberculatus* zonal boundary is 23.03 Ma, the Middle/Upper *P. tuberculatus* zonal boundary is approximately 21.1 Ma and the Upper *P. tuberculatus/Triporopollenites bellus* zonal boundary is 17.54 Ma. This revision confirms that a near-continuous Early Miocene neritic sequence is present in the Torquay Basin. The new ages also suggest that the timing of coal seam deposition in the Latrobe Valley was episodic, rather than continuous as has previously been interpreted. We propose that abrupt changes in moisture content across seam boundaries are associated with stratigraphic gaps. The new age controls facilitate more accurate