

## PHANEROZOIC RECONSTRUCTIONS: WHAT AND HOW DO WE KNOW IT

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Paleobiogeography will play an important role in furthering our understanding of global change, particularly with respect to providing constraints on past climates. As a result of this there is increasing emphasis within the paleontological community on the past spatial distributions of faunas, extinctions, and originations. Thus there is an increasing interest in reconstructions of the past distributions of continents, so that maps and paleo-latitudes of faunas, extinctions or originations can be determined. This results in an increasing need to understand the state of the art of global plate reconstructions through the Mesozoic and Cenozoic, and global continental reconstructions through the Paleozoic, i.e. what we know and how well do we know it. The talk will summarize our present understanding of Mesozoic and Cenozoic plate motions using computer animations followed by a brief summary of the present understanding of individual continental apparent polar wander paths (APWP's) as well as motions in the global frame. Global and continental mean poles at approximately 20 Ma intervals have been computed for all of the major continents of the Phanerozoic using data from Van der Voo (1992) and plate motions derived from a detailed analysis of Mesozoic and Cenozoic seafloor spreading data. Comparison of mean continental poles reconstructed into the same reference frame shows that although there is general agreement, statistically different pole positions are quite commonly observed. This is particularly true for the Late Cretaceous and pre-Late Jurassic of the northern Hemisphere, and has resulted in some controversy concerning appropriate Atlantic fits. The differences in predicted (or reconstructed) paleo-latitudes are not trivial, particularly for areas of eastern Gondwanaland such as Australia and New Zealand, and are not easily visualized from a simple comparison of mean pole positions. A final focus will be with regards to reconstructions of Asia. Comparison of recently published Permian global reconstructions in the McKerrow and Scotese (1989) volume demonstrates that vast differences of interpretation persist and that paleontologists among others cannot accept existing reconstructions uncritically.