

GONDWANA RISING: WHITHER THOU COMEST EAST AND WEST?

JOSEPH MEERT; MANOJ PANDIT; VIMAL PRADHAN; MERCEDES BELICA; GEORGE KAMENOV; CANDLER TURNER

University of Florida; University of Rajasthan; University of Florida; University of Florida; University of Florida; University of Florida
Email: jmeert@ufl.edu

The Gondwana supercontinent is composed of individual cratonic blocks that were welded together over an extended period beginning in the Archean. The elements of East (India, East Antarctica, Sri Lanka, Australia and Madagascar) and West (South America and Africa) Gondwana were ultimately joined in the early Paleozoic. The journey from a small amalgam of Archean cratons to a much larger supercontinent is difficult to trace. Recent attempts to link the geologic history of the various blocks have provided testable models that can be examined using paleomagnetic and geochronologic data. These models include, but are not limited to, the supercontinental configurations of Columbia and Rodinia. While not generally acknowledged, there is an uncanny similarity between Columbia and Rodinia. This similarity may result from an inherent bias in how we view the geologic connections or it may reflect an underlying cyclicity in mantle dynamics. There is a growing database of well-dated paleomagnetic data from many of the cratons that comprise Columbia, Rodinia and Gondwana that allow for first-order tests of the models. This talk will present an up-to-date summary of the various supercontinental assemblies using paleomagnetic and geochronologic data. In particular, we will show that the rationale for the existence of Rodinia and Columbia is strong whereas the exact makeup of these continents is problematic. We will attempt to trace the development of East and West Gondwana throughout the Proterozoic and demonstrate the power (and pitfalls) of paleomagnetic data.