

WHERE AND WHEN DID GONDWANA FINALLY AMALGAMATE?

ALAN S COLLINS¹; JOHN FODEN¹; GALEN HALVERSON²; M. SANTOSH³; GRANT COX²; DIANA PLAVSA¹

(1) University of Adelaide; University of Adelaide; (2) McGill University; (3) Kochi University
Email: alan.collins@adelaide.edu.au

Gondwana grew throughout the latest Cryogenian, the Ediacaran and into the Cambrian by collision of many of the relics of Rodinia along a series of orogenic belts that lace Africa, India, South America and Australia. Recent work throughout these regions has highlighted the complexity and diversity of these orogens and advances in geochemistry, petrology and geochronology have allowed distinctions between the various orogenic events to be teased out. It is now clear that Gondwana amalgamated over approximately 150 Ma from largely extensional arc-margins on the periphery of the Congo-Sao Francisco in north Africa/Arabia and central South America to contractional accretionary orogens at ~670-630 Ma in these regions and East Africa/Madagascar. In addition, West Africa appears to have collided with the Borborema/LATEA continent and both with the Saharan Metacraton and northern Congo-São Francisco craton between ~640 and 600 Ma. These early collisions evolved into three major latest Ediacaran-Cambrian collisional orogens that finally stitched Gondwana together. These orogens are located in Gondwana 1) between India and Western Australia and extended into Wilkes Land of East Antarctica, 2) in areas now in the eastern Mediterranean and the Middle East, through Arabia, eastern Africa and Madagascar? this orogen then bifurcates with a branch extending through southern India and Sri Lanka to Dronning Maud Land (Antarctica) and a second heading through the Zambezi Belt, the Damara orogen to between South America and southern Africa. 3) A third orogenic system can be traced from the Rokelides of West Africa, through the Araguaia and Paraguay Belts of Brazil to the Pampean region of Argentina. These vast collisional orogenic systems form the final Cambrian collisions that went to cement Gondwana. In this talk I shall focus on the middle one, the East African Orogen, and discuss recent work in Arabia, Madagascar, South India and Sri Lanka that we have done in focussing on the nature and timing of Gondwana amalgamation in this region.