

THE NEOPROTEROZOIC OROGENIC SYSTEMS OF WESTERN GONDWANA IN SOUTHERN AFRICA AND SOUTHERN BRAZIL

(1)GRESSE, P.G., (2)DA SILVA, L.C., (3)GERMS, G.J.B. (4)HARTMANN, L.AND
(5)ROZENDAAL, A. (1)CGS, Bellville, S.Africa; (2)CPRM, P. Alegre, Brazil; (3)
Helikonpark, S.Africa, (4) UFRGS, P. Alegre, Brazil; (5) Stellenbosch University,
S. Africa.

The geodynamics of the breakup of Rodinia and the construction of southwestern Gondwana are reflected in the Pan-African and Brasiliano belts and foreland basins of Southern Africa and Southern Brazil. Southern African and South American cratons constituted corresponding opposing margins from breakup to reconstruction. The continents that rifted and drifted away from the southern African margin is unknown and the ones that took their place in Gondwana are speculative. On the southern African plate the western Pan-African belts are represented by overthrust, interleaved remnants of the rifted margin successions, containing representatives of two global Neoproterozoic glaciogenic events, oceanic crust and reactivated basement. The southern belt constitutes accreted terranes overprinted by late- to post-orogenic strike-slip related magmatism, ranging from ~550-510 Ma, and derived from juvenile Pan-African and reworked Mesoproterozoic crust. In southern Brazil the Brasiliano belts reflect juvenile arc-type accretion and thrust and strike-slip related magmatism, from ~780-596 Ma and only reach ~540-520 Ma in the Rio Doce belt and east of Rio de Janeiro. Age differences of ~ 50 Ma between the main Brasiliano and Pan-African magmatic events militate against a direct link between them. Foreland basins associated with these belts contain well preserved records of Ediacaran soft body fossils and Cambrian trace fossil fauna. The geotectonic development of these belts can be linked to simultaneous transpressive subduction processes in the paleo-Atlantic and Southern Oceans driven by the opening of Iapetus.