

## Sri Lanka - Correlation with N. Mozambique at the heart of Gondwana: North and South.

\*Geoffrey Hugo Grantham<sup>1</sup>, Sanjeewa Malaviarachchi<sup>2</sup>, Dilshan Bandara<sup>2</sup>, Bruce Eglington<sup>3</sup>, Prasanna Dharmapriya<sup>2</sup>

1. Department of Geology, University of Johannesburg, Auckland Park, South Africa, 2. Department of Geology, University of Peradeniya, Peradeniya 20400, Sri Lanka., 3. Geological Sciences, University of Saskatchewan, Saskatoon, SK, S7N 4K8, Canada.

Grantham et al., (2008) positioned Sri Lanka adjacent to N. Mozambique, prior to Gondwana breakup, in a position requiring *ca* 90° clockwise rotation (Reeves 2004) with the result that the Vijayan Complex is correlatable with the Nampula Terrane (NT) of N. Mozambique. The Lurio Belt, bounding the Nampula Terrane to the N. was correlated with the shear zone separating the Vijayan and Highland Complexes. Exposures in N. Mozambique are poor, hampering studies of structural kinematics within the Lurio Belt.

Lithologies and structures in the Vijayan Complex (VC) exposed in quarries and along the S. coast of Sri Lanka show that the rocks consist dominantly of migmatitic tonalite and granitic (mostly porphyroclastic augen) gneisses with strong, mostly shallow dipping, planar fabrics. At one quarry, banded migmatitic tonalitic gneisses show strong folding and shearing. The folds and shears typically show a top-to-the east geometry. Lineations plunge shallowly N and S. The data suggest a transpressional deformation setting.

Comparison of lithologies and structures from the VC with data from the Nampula Terrane (NT) of N. Mozambique show that the tonalitic and granitic gneisses are similar to the Mocuba and Culicui Suites of the NT. The geometry of structures in the VC, rotated *ca* 90°, consistent with its position in Gondwana, are comparable to structures from northern Mozambique from the NT. Plunges of lineations in the NT in the Meconte-Monapo areas cover a broad arc of westerly to NE with three crude groups of WNW, NW to NNE and NE respectively. The WNW direction, is largely seen in the N of the Meconte-Monapo sheet, approaching the Lurio Belt. Its orientation is similar to the rotated orientation of lineations from S. Sri Lanka. The Meconte-Monapo sheet lineations plunge dominantly NW to NNE over most of the area but rotate sinistrally toward the Lurio Belt in the north. Broad fold patterns show two phases with ENE oriented fold axial traces and cross cutting NNW fold axial traces. Planar fabrics in Mozambique dip dominantly SE. Limited planar fabric data from Sri Lanka, rotated through 90° dip to the S.

Comparison of limited radiogenic isotope data (Sr,Nd) from the NT with published data from the VC show that they are similar. Comparison of published zircon crystallisation and metamorphic ages show peaks of ~1000-1100Ma and ~550Ma respectively. Available structural, isotopic and geochronological data consequently support correlations between the Vijayan Complex of Sri Lanka with the Nampula Complex of northern Mozambique and its extensions via the Barue Complex, N. Mozambique to the Maud Belt of western Dronning Maud Land, Antarctica

### Reference.

Grantham, G.H. et al., 2008. Terrane correlation between Antarctica, Mozambique & Sri Lanka; comparisons of Geochronology, Lithology, Structure and Metamorphism and possible implications for the geology of southern Africa and Antarctica. In: Satish-Kumar, M., Motoyoshi, Y., Osanai, Y., Hiroi, Y., Shiraishi, K. (Eds.), Geodynamic Evolution of East Antarctica: a Key to the East-West Gondwana Connection, 308. Geol. Soc. of London Spec. Publ., pp. 91-119.

Keywords: Sri Lanka, Mozambique, Gondwana