



Relative Motion of Africa Plate with Respect to South African Kalahari Craton

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The presence of the Rift Valley within the African continent and its eventual propagation southward in the Okavango rift zone (ORZ) strongly affects the regional seismic hazard evaluation. Here we use a comparison of the motion inferred from the South African GPS network TrigNet with the motion of instruments with the rest of the African continent to evaluate the propagation of the Rift Valley to Botswana.

We use data from all the available GPS stations located in the Nubian plate to develop two reference frames north and south of the ORZ. The data was processed using two major codes (Bernese and Gipsy-oasis) to evaluate effects on the references due to processing assumptions. Given the importance of uncertainties in understanding the significance of small signals, a full analysis of the Allan Variance of the velocity has been performed.

Preliminary results suggest that although still within the limits of the uncertainties, the data are compatible with relative motion between the TrigNet network and the rest of Nubia, and does not exclude a possible counter clockwise rotation of the South African Kalahari craton with respect to the Nubian plate, and thus a southward propagation of the Rift Valley.