Geophysical Research Abstracts,
Vol. 11, EGU2009-5105, 2009
EGU General Assembly 2009

Current geodetic deformation in the South Africa region

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We present a preliminary velocity field of the African continent derived from continuous GPS observations from 2004 to 2008. The aim of our work is to investigate the strain-rate pattern along the East Africa rift, in particular along the boundary of the two African plates (the Nubian and the Somalian) and in the South Africa region. We have processed GPS data in a time window spanning four years, i.e. from 2004 to 2008, involving IGS, TrigNet (a network of permanent GPS stations distributed throughout South Africa) and other sporadic sites.
The GPS data have been processed by means of the Bernese software version 5.0 dividing the entire African network into two clusters. The combination of daily loosely constrained solutions provides the time series of about a hundred of permanent GPS sites mainly located in the African continent. Site velocities together with periodic signals, eventual steps, have been estimated simultaneously using the complete covariance matrices. Finally the velocity field has been expressed in the ITRF2005 reference frame.
This investigation gives a preliminary idea of the velocity field and strain-rate pattern we can expect in the South-East Africa region, the observed deformations being barely measurable, below a few mm/year.