PROCESSING METHODOLOGY FOR THE COMPUTATION OF AFREF SOLUTIONS

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Abstract: The goal of this manuscript is to describe the methodologies and steps used to produce the first realization of the AFREF (African Reference Frame) solution, called AFREF08. AFREF is an effort carried out by the international community, in particular the African countries, to establish a continental reference system as a basis for national reference networks.
AFREF08 is being realized by simultaneously compute accurate positions of an extended set of GNSS (Global Navigation Satellite Systems) distributed by the entire African continent. The positions are referred to the latest realization of ITRS (International Terrestrial Reference System), ITRF2005, by aligning the continental solution into this global frame at a defined epoch.
The solution for the AFREF network needs to be fixed to a certain epoch in order to be the backbone system that will allow every country to realize its national system fully and directly consistent with the national realizations produced by the neighbouring countries. To respect the dynamics due to the existence of several tectonic blocks, AFREF08 is fixed to the Nubia plate and the differential motions with respect to this block for stations located in different plates have been accurately modelled.
We discuss here the theoretical issues involved and the results obtained, which are based on the combination of two individual solutions produced using two different software packages.

Key words: AFREF, Reference Frames, Tectonic Plates

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