



## **Towards the implementation of AFREF: results of case-studies for the computation of the reference solution**

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AFREF (African Geodetic Reference Frame) intends to establish a continental reference system as a basis for the national reference networks of Africa. It is an effort primarily conducted by the African countries with the support of the international community.

In this paper, we present recent tests carried out in order to evaluate the necessary methodologies that can be used to produce the future official realisations of AFREF. It intends to serve as support for the scientific and technical decisions to be made in near future concerning the implementation and maintenance of AFREF as a regular service.

Last year, a first test solution, AFREF08, was presented by computing positions of 37 GNSS (Global Navigation Satellite Systems) sites distributed over the entire African continent. These solutions were based on two different solutions provided by two different groups. The positions were referred to the latest realisation of ITRS (International Terrestrial Reference System), ITRF2005, by aligning the continental solution into this global frame at the epoch 01 May 2008 (GPS week 1477).

Here, we add a third solution processed using a third different software package. The three solutions are combined using CATREF, the software used to compute the recent ITRF realizations. Furthermore, we compare the AFREF08 with a new solution computed for 01 January 2009 (GPS week 1512) with the available stations.

The procedures to consider the internal continental dynamics due to the existence of several tectonic blocks are also discussed. We suggest to fix the future realisations of AFREF to the Nubia plate and to accurately model the motions of stations located in other blocks with respect to this tectonic plate.