

AFREF: Background and Progress towards a Unified Reference System for Africa

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SUMMARY

A uniform coordinate reference system is fundamental to any project, application, service or product that requires some form of geo-referencing. Most countries in the world have established such reference systems that are used for national surveying, mapping, photogrammetry, remote sensing, Geographical Information Systems (GIS), development programs, and hazard mitigation (earthquake studies, fault motion, volcano monitoring, severe storms, etc). Many of these national coordinate systems are based on reference figures of the Earth which are somewhat outdated and, when based on a local origin or datum point, are restricted to a particular country, making cross-border or regional mapping, development, and planning projects very difficult indeed. In some instances, more than one datum has been used within a country. When using modern positioning technology such as GPS, technical understanding and careful mathematical manipulation is required to relate GPS derived coordinates to the national coordinate system upon which national surveying and mapping products and services are based. Many countries are therefore updating these national reference systems to be compatible with the global reference system and the GPS reference system in particular. On a continental scale, projects to unify the reference frames of the countries of Europe (EUREF), South America (SIRGAS) and North America have met with considerable success.

The first meeting to gauge the level of interest in a similar project for Africa, now known as AFREF, was held in Tunisia in May 2000. This paper describes the rationale, background and progress made with AFREF since 2000.