



MOMRA Mapping Reference Framework

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Prior to any surveying and mapping, it is first necessary to establish frameworks of horizontal and vertical controls. A reference system is the set of numeric quantities that serves as a common basis. The Saudi Ministry of Municipal and Rural Affairs (MOMRA) has awarded this project to GeoTech in order to get a very precise Geographical/Land Information System (GIS/LIS) framework established by using advanced Global Positioning System (GPS) techniques. Today, the GIS/LIS framework is considered as the main frame for geographic data in Saudi Arabia. It forms the foundation for all types of Geographic/Land Information System (GIS/LIS) activities, further breakdown, i.e. densification, for large scale mapping and many other purposes. This network will satisfy both government and private sector needs. In addition, such a unique, precise, and accessible national geodetic control system will prevent wasteful duplication of control establishments. The major objectives of the project are as follows: (1) changing Ain Al-Abd geodetic datum to the ITRF-2000 (to be called MOMRA-2000/MTRF-2000 Datum), which is the internationally-used datum. Thus, it will be possible to directly use the globally produced surveys and data compiled within this global datum, (2) establishment of MOMRA Mapping Reference Framework that consists of (*) 13 stations, one station in each of 13 regions will be used as Internet-based Continuously Operating Reference Stations (CORS), and (*) over 600 GIS/LIS stations located all over the Kingdom, (3) to determine transformation parameters between the existing National Geodetic Network (NGN) datum (based on Ain Al-Abd) and MTRF-2000, and (4) to integrate geodetic networks established to date for large scale mapping. All these tasks have been successfully completed by the beginning of the year 2005, and this paper will deal with this project's various aspects in detail.