GNSS AND THE INTERSECTION OF GEODESY AND CADASTRE IN KINGDOM OF SAUDI ARABIA

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In The Kingdom of Saudi Arabia, the geodetic network has evolved from the 1966s with the introduction of the National Geodetic Datum (Ain Al Abd) 1966 followed by the GPS compatible Geocentric Datum of The Kingdom (MGD2000) in 2004. However geodesy and cadastral surveying have always been separate. With the advent of space based measuring techniques in particular GPS, The Kingdom of Saudi Arabia established a new geodetic network in 2004 based on the ITRF datum using GRS80 ellipsoid. This new geodetic network have allowed cadastral connections to the geodetic framework. The fundamental obligation of cadastral surveying in The Kingdom is to mark out the boundary of buildings as its current status and redefining the boundary of an empty land with surrounding properties based on all the available evidence. Cadastral surveying therefore works from the part to the whole in contrary of the fundamental role of geodesy: working from the whole to the part. GPS techniques, and more recently, with the addition of modernized GPS, reinvigorated GLONASS, the European GALILEO system and the rollout of CORS infrastructure, Global Navigation Satellite System (GNSS) techniques have challenged the user community to change their thinking. Cadastral surveying has traditionally relied on angles and distances whereas GPS techniques produce coordinates. The implications of this intersection are profound. The cadastre can act as a significant layer of a Spatial Data Infrastructure for The Kingdom improving efficiencies and advancing new and innovative spatial applications. This paper will give an overview of the evolution of this intersection with particular emphasis on the situation of a case study in Huraymila region near Riyadh and the application of CORS networks in The Kingdom of Saudi Arabia.