

The Kingdom of Saudi Arabia GNSS Real-Time Kinematic Network (MRTN) and Beyond (a Case Study for High Accuracy Vrs Correction Test)

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SUMMARY

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The Ministry of Municipal and Rural Affairs, Department of General Directorate for Surveying and Mapping, KSA (MOMRA DGSM) is the competent authority in speeding up the surveying activities of cadastre. This is carried out through the setting up of a surveying infrastructure that includes GNSS horizontal (passive) and Network RTK throughout the country for the eventual purpose of collecting all kinds of geographic data, assuring organized urbanization, constituting the spatial infrastructure for relevant works of e-government. In line with the government's efforts to enhance its 3D-cadastral system, one of the many initiatives undertaken by DGSM is through the use of real-time GNSS survey technology for the dissemination of various geodetic products and services. Since 2014, DGSM has been developing the capability for real-time data streaming from a network of continuously operating reference stations. Currently there are more than 200 stations, with spacing of between 20 to 75 km, providing real-time corrections with a latency of under two second using Virtual Reference Station (VRS) technique. Each station of the network is equipped with a high precision dual frequency GNSS receiver that is operational 24 hours daily. The acquired GNSS data is transferred on a daily basis to the Data Processing Centre at DGSM's Department in Riyadh via the internet. This network is known as the MOMRA Real-Time Network (MRTN). In addition to enhancing and maintaining the GNSS geodetic reference system, applications of MRTN include a critical role in supporting cadastre initiative, land survey activities and the ability to characterize the free electron content (FEC) of the ionosphere. This paper introduces GNSS positioning by way of RTK (VRS) using MRTN services as provided by DGSM. It also outlines the chronicle development and some potential applications of MRTN.

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