



Comprehensive geo-spatial data creation for Qassim region in the KSA

M. Alrajhi and M. Hawarey

Deputy Ministry for Land and Surveying, Riyadh, Saudi Arabia (mapping@momra.gov.sa)

The General Directorate for Surveying and Mapping (GDSM) of the Deputy Ministry for Land and Surveying (DMLS) of the Ministry of Municipal and Rural Affairs (MOMRA) in the Kingdom of Saudi Arabia (KSA) has the exclusive mandate to carry out aerial photography and produce large-scale detailed maps for about 220 cities and villages in the KSA. This presentation is about the comprehensive geo-spatial data creation for the Qassim region, North KSA, that was founded on country-wide horizontal geodetic ground control using Global Navigation Satellite Systems (GNSS) within the MOMRA's Terrestrial Reference Frame 2000 (MTRF2000) that is tied to International Terrestrial Reference Frame 2000 (ITRF2000) Epoch 2004.0, and vertical geodetic ground control using precise digital leveling in reference to Jeddah 1969 mean sea level, and included aerial photography of 1,505 km² at 1:5,500 scale, 4,081 km² at scale 22,500 and 22,224 km² at 1:45,000 scale, full aerial triangulation, production of orthophoto maps at scale of 1:10,000 (463 sheets) for 22,224 km², and production of GIS-oriented highly-detailed digital line maps in various formats at scales of 1:1,000 (1,534 sheets) and 1:2,500 (383 sheets) for 1,150 km², 1:10,000 (161 sheets) for 7,700 km², and 1:20,000 (130 sheets) for 22,000 km². While aerial photography lasted from Feb 2003 thru May 2003, the line mapping continued May 2005 until December 2008.