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ADJUSTING 3D GEODETIC NETWORK USING BOTH GLOBAL NAVIGATION SATELLITE SYSTEMS TECHNOLOGY (GNSS) AND TERRESTRIAL MEASUREMENTS

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Abstract

There are many models developed for the adjustment of the 2D or 2D+1D geodetic networks, both on the ellipsoid surface and in the map projection plane. These models are widely used by practitioners. In this paper we presented two new mathematical models for the adjustment of combined geodetic measurements and networks (those collected using Global Navigation Satellite System (GNSS) technology plus earlier terrestrial methods). Such combined networks can be adjusted either in a Cartesian geocentric or in an ellipsoidal local coordinate system, both which are appropriate 3D coordinate systems. A MATLAB code was developed for the implementation of these models.

Key words: adjustment, coordinate, network, observation

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